

**2009-2010  
MURATA PRODUCTS**

**muRata**

*Innovator in Electronics*



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**for EU RoHS Compliant**

- All the products in this catalog comply with EU RoHS.
- EU RoHS is "the European Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment".
- For more details, please refer to our website 'Murata's Approach for EU RoHS' (<http://www.murata.com/info/rohs.html>).

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

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## 1 Capacitors

 Packaging Code: **D, E, F, J** Paper Tape    **L, K** Embossed Tape    **T** Tray

| Product Names   | Part Number  | Dimensions (mm) |      |                  | Minimum Quantity (pcs.) (Packaging Code)            |             |            |                         |           |
|---|--------------|-----------------|------|------------------|---|-------------|------------|-------------------------|-----------|
|   |              | L               | W    | T                | Ø180mm Reel   | Ø330mm Reel | Bulk (Bag) | Bulk Case               | Ammo Pack |
| ● Chip Monolithic Ceramic Capacitors<br>for General Purpose | <b>GRM02</b> | 0.4             | 0.2  | 0.2              | 20000 <sup>1)</sup> (D)<br>/40000 <sup>1)</sup> (L) |             | 1000 (B)   |                         |           |
|   | <b>GRM03</b> | 0.6             | 0.3  | 0.3              | 15000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
|   | <b>GRM15</b> | 1.0             | 0.5  | 0.25/0.3         | 10000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 0.5              | 10000 (D)   | 50000 (J)   | 1000 (B)   | 50000 (C)               |           |
|   | <b>GRM18</b> | 1.6             | 0.8  | 0.5              | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 0.8              | 4000 (D)  | 10000 (J)   | 1000 (B)   | 15000 <sup>2)</sup> (C) |           |
|   | <b>GRM21</b> | 2.0             | 1.25 | 0.6              | 4000 (D)  | 10000 (J)   | 1000 (B)   | 10000 (C)               |           |
|   |              |                 |      | 0.85             | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.25/1.0         | 3000 (L)  | 10000 (K)   | 1000 (B)   | 5000 <sup>2)</sup> (C)  |           |
|   | <b>GRM31</b> | 3.2             | 1.6  | 0.6/0.85         | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.15             | 3000 (L)  | 10000 (K)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.6              | 2000 (L)  | 6000 (K)    | 1000 (B)   |                         |           |
|   | <b>GRM32</b> | 3.2             | 2.5  | 0.85             | 4000 (L)  | 10000 (K)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.15             | 3000 (L)  | 10000 (K)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.35             | 2000 (L)  | 8000 (K)    | 1000 (B)   |                         |           |
|   |              |                 |      | 1.6              | 2000 (L)  | 6000 (K)    | 1000 (B)   |                         |           |
| 1.8/2.0<br>/2.5   |              |                 |      | 1000 (L)         | 4000 (K)  | 1000 (B)    |            |                         |           |
| for Automotive  | <b>GCM03</b> | 0.6             | 0.3  | 0.3              | 15000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
|   | <b>GCM15</b> | 1.0             | 0.5  | 0.5              | 10000 (D)   | 50000 (J)   | 1000 (B)   | 50000 (C)               |           |
|   | <b>GCM18</b> | 1.6             | 0.8  | 0.8              | 4000 (D)  | 10000 (J)   | 1000 (B)   | 15000 <sup>2)</sup> (C) |           |
|   | <b>GCM21</b> | 2.0             | 1.25 | 0.6              | 4000 (D)  | 10000 (J)   | 1000 (B)   | 10000 (C)               |           |
|   |              |                 |      | 0.85             | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.25             | 3000 (L)  | 10000 (K)   | 1000 (B)   | 5000 <sup>2)</sup> (C)  |           |
|   | <b>GCM31</b> | 3.2             | 1.6  | 0.85             | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.15             | 3000 (L)  | 10000 (K)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.6              | 2000 (L)  | 6000 (K)    | 1000 (B)   |                         |           |
|   | <b>GCM32</b> | 3.2             | 2.5  | 1.15             | 3000 (L)  | 10000 (K)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.35             | 2000 (L)  | 8000 (K)    | 1000 (B)   |                         |           |
|   |              |                 |      | 1.8/1.6          | 1000 (L)  | 4000 (K)    | 1000 (B)   |                         |           |
| High-Q Type   | <b>GJM03</b> | 0.6             | 0.3  | 0.3              | 15000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
|   | <b>GJM15</b> | 1.0             | 0.5  | 0.5              | 10000 (D)   | 50000 (J)   | 1000 (B)   | 50000 (C)               |           |
| Monolithic Microchip  | <b>GMA0D</b> | 0.38            | 0.38 | 0.3              |   |             | 400 (T)    |                         |           |
|   | <b>GMA05</b> | 0.5             | 0.5  | 0.35             |   |             | 400 (T)    |                         |           |
|   | <b>GMA08</b> | 0.8             | 0.8  | 0.5              |   |             | 400 (T)    |                         |           |
| for Bonding   | <b>GMD03</b> | 0.6             | 0.3  | 0.3              | 15000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
|   | <b>GMD15</b> | 1.0             | 0.5  | 0.5              | 10000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
| Capacitor Array   | <b>GNM0M</b> | 0.9             | 0.6  | 0.45             | 10000 (D)   | 50000 (J)   | 1000 (B)   |                         |           |
|   | <b>GNM1M</b> | 1.37            | 1.0  | 0.5<br>/0.6/0.8  | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   | <b>GNM21</b> | 2.0             | 1.25 | 0.5/0.6<br>/0.85 | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   | <b>GNM31</b> | 3.2             | 1.6  | 0.8/0.85         | 4000 (D)  | 10000 (J)   | 1000 (B)   |                         |           |
|   |              |                 |      | 1.0/1.15         | 3000 (L)  | 10000 (K)   | 1000 (B)   |                         |           |

1) 8mm width 2mm pitch paper Taping. 4mm width 1mm pitch Embossed Taping.

2) There are parts number without bulk case.

Continued on the following page.

● All dimensions given are nominal without mention.

"Minimum Quantity" means the number of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity". (As for products series with ★mark, bulk (bag) quantities shown here differ from actual delivery quantities in a package.) Please contact nearest sales office for details and for any other products not listed above.

Continued from the preceding page.

| Product Names   | Part Number        | Dimensions (mm) |      |           | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |           |
|---|--------------------|-----------------|------|-----------|--|-------------|------------|-----------|-----------|
|   |                    | L               | W    | T         | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Bulk Case | Ammo Pack |
| Low ESL Wide Width Type   | <b>LLL15</b>       | 0.5             | 1.0  | 0.3       | 10000 (E)                                | 50000 (F)   | 1000 (B)   |           |           |
|   | <b>LLL18</b>       | 0.8             | 1.6  | 0.6       | 4000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   | <b>LLL21</b>       | 1.25            | 2.0  | 0.6       | 4000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   |                    |                 |      | 0.85      | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   | <b>LLL31</b>       | 1.6             | 3.2  | 0.7       | 4000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   |                    |                 |      | 1.15      | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   | <b>LLA18</b>       | 1.6             | 0.8  | 0.5       | 4000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   | <b>LLA21</b>       | 2.0             | 1.25 | 0.5       | 4000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   |                    |                 |      | 0.85      | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   | <b>LLA31</b>       | 3.2             | 1.6  | 0.5       | 4000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
|   |                    |                 |      | 0.85/1.15 | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |           |           |
| <b>LLM21</b>  | 2.0                | 1.25            | 0.5  | 4000 (L)  | 10000 (K)                                | 1000 (B)    |            |           |           |
| <b>LLM31</b>  | 3.2                | 1.6             | 0.5  | 4000 (L)  | 10000 (K)                                | 1000 (B)    |            |           |           |
| for Medium Voltage  | <b>GRM18</b>       | 1.6             | 0.8  | 0.8       | 4000 (D)                                 |             |            |           |           |
|   | <b>GRM21</b>       | 2.0             | 1.25 | 1.0       | 4000 (D)                                 |             |            |           |           |
|   |                    |                 |      | 1.25      | 3000 (L)                                 |             |            |           |           |
|   | <b>GRM31/GR731</b> | 3.2             | 1.6  | 1.0       | 4000 (D)                                 |             |            |           |           |
|   |                    |                 |      | 1.25      | 3000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 1.6       | 2000 (L)                                 |             |            |           |           |
|   | <b>GRM32</b>       | 3.2             | 2.5  | 1.0       | 4000 (D)                                 |             |            |           |           |
|   |                    |                 |      | 1.25      | 3000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 1.5       | 2000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 2.0       | 1000 (L)                                 |             |            |           |           |
|   | <b>GRM42/GR442</b> | 4.5             | 2.0  | 1.0       | 3000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 1.5       | 2000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 2.0       | 2000 (L)                                 |             |            |           |           |
| <b>GRM43/GR443</b>  | 4.5                | 3.2             | 1.5  | 1000 (L)  |  |             |            |           |           |
|   |                    |                 | 2.0  | 1000 (L)  |  |             |            |           |           |
| <b>GRM55/GR455</b>  | 5.7                | 5.0             | 2.0  | 1000 (L)  |  |             |            |           |           |
| for Medium Voltage Automotive   | <b>GCM21</b>       | 2.0             | 1.25 | 1.0       | 4000 (D)                                 |             |            |           |           |
|   | <b>GCM31</b>       | 3.2             | 1.6  | 1.0       | 4000 (D)                                 |             |            |           |           |
|   |                    |                 |      | 1.25      | 3000 (L)                                 |             |            |           |           |
| <b>GCM32</b>  | 3.2                | 2.5             | 1.0  | 4000 (D)  |  |             |            |           |           |
| Products which are Based on the Electrical Appliance and Material Safety Law of Japan | <b>GA242</b>       | 4.5             | 2.0  | 1.5       | 2000 (L)                                 |             |            |           |           |
|   | <b>GA243</b>       | 4.5             | 3.2  | 1.5       | 1000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 2.0       | 1000 (L)                                 |             |            |           |           |
| <b>GA255</b>  | 5.7                | 5.0             | 2.0  | 1000 (L)  |  |             |            |           |           |
| Safety Standard Certified   | <b>GA342</b>       | 4.5             | 2.0  | 1.0       | 3000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 1.5       | 2000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 2.0       | 2000 (L)                                 |             |            |           |           |
|   | <b>GA343</b>       | 4.5             | 3.2  | 1.5       | 1000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 2.0       | 1000 (L)                                 |             |            |           |           |
|   | <b>GA352</b>       | 5.7             | 2.8  | 1.5       | 1000 (L)                                 |             |            |           |           |
|   | <b>GA355</b>       | 5.7             | 5.0  | 1.5       | 1000 (L)                                 |             |            |           |           |
|   |                    |                 |      | 2.0       | 1000 (L)                                 |             |            |           |           |
| 2.5   |                    |                 |      | 500 (L)   |  |             |            |           |           |
| 2.7   |                    |                 |      | 500 (L)   |  |             |            |           |           |
|   |                    |                 | 2.9  | 500 (L)   |  |             |            |           |           |

Continued on the following page.

● All dimensions given are nominal without mention.

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Continued from the preceding page.

| Product Names   | Part Number                              | Dimensions (mm)    |                   |      | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |                        |
|---|--|--------------------|-------------------|------|--|-------------|------------|-----------|------------------------|
|   |  | L                  | W                 | T    | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Bulk Case | Ammo Pack              |
| ● Monolithic Ceramic Capacitors Lead Type<br>Radial Lead Type                                     | RPE_2 <sup>1)</sup> /RDE_2 <sup>1)</sup> | 5.0                | 3.5               | 2.5  |  |             | 500 (B)    |           | 2000 (A)               |
|   |  |                    |                   | 3.15 |  |             | 500 (B)    |           | 2000 (A)               |
|   | RPE_3 <sup>1)</sup> /RDE_3 <sup>1)</sup> | 5.0                | 4.0               | 3.15 |  |             | 500 (B)    |           | 2000 (A)               |
|   |  |                    |                   | 2.5  |  |             | 500 (B)    |           | 2000 (A)               |
|   |  | 5.5                | 5.0               | 4.0  |  |             | 500 (B)    |           | 1500 (A)               |
|   | RPE_4 <sup>1)</sup>                      | 7.5                | 5.0               | 2.5  |  |             | 500 (B)    |           | 2000 (A)               |
|   |  |                    |                   | 3.15 |  |             | 500 (B)    |           | 2000 (A)               |
|   | RPE_5 <sup>1)</sup> /RDE_5 <sup>1)</sup> | 7.5                | 7.5 <sup>4)</sup> | 4.0  |  |             | 500 (B)    |           | 2000 <sup>2)</sup> (A) |
|   | RPE_6 <sup>1)</sup>                      | 10.0               | 10.0              | 4.0  |  |             | 500 (B)    |           | 1500 (A)               |
|   | RPE_7 <sup>1)</sup>                      | 12.5               | 12.5              | 5.0  |  |             | 100 (B)    |           |                        |
|   | RPE_8 <sup>1)</sup> /RDE_8 <sup>1)</sup> | 7.5                | 5.5               | 4.0  |  |             | 500 (B)    |           | 1500 (A)               |
|   | RHE_1 <sup>1)</sup>                      | 4.0                | 3.5               | 2.5  |  |             | 500 (B)    |           | 2000 (A)               |
|   |  |                    |                   | 3.15 |  |             | 500 (B)    |           | 2000 (A)               |
| RHD_2 <sup>1)</sup>   | 5.7                                      | 4.5                | 4.5               |      |  | 500 (B)     |            | 1500 (A)  |                        |
| RDE_U <sup>1)</sup>   | 7.7                                      | 12.5 <sup>4)</sup> | 4.0               |      |  | 200 (B)     |            | 1000 (A)  |                        |
| ● High Voltage Ceramic Capacitors<br>125 deg. / Low - Loss / DC250V - 3.15kV                      | DES (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DES_N2A                                  |                    |                   |      |  |             |            |           | 1500 (A)               |
|   | DES_N3A                                  |                    |                   |      |  |             |            |           | 1000 (A)               |
|   | DES_N7A                                  |                    |                   |      |  |             |            |           | 500 (A)                |
|   | DEH (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DEH_N2A                                  |                    |                   |      |  |             |            |           | 1500 (A)               |
|   | DEH_N3A/DEH_P3A                          |                    |                   |      |  |             |            |           | 900 <sup>3)</sup> (A)  |
|   | DEH_N7A                                  |                    |                   |      |  |             |            |           | 500 (A)                |
| 125 deg. / Class 1 / DC1kV - 3.15kV   | DEA (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DEA_N2A/DEA_P2A                          |                    |                   |      |  |             |            |           | 1500 (A)               |
|   | DEA_N3A/DEA_P3A                          |                    |                   |      |  |             |            |           | 900 <sup>3)</sup> (A)  |
|   | DEA_N7A                                  |                    |                   |      |  |             |            |           | 500 (A)                |
| Class 2 / DC1kV - 3.15kV  | DEB (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DEB_N2A/DEB_P2A                          |                    |                   |      |  |             |            |           | 1500 (A)               |
|   | DEB_N3A/DEB_P3A                          |                    |                   |      |  |             |            |           | 900 <sup>3)</sup> (A)  |
|   | DEB_N7A                                  |                    |                   |      |  |             |            |           | 500 (A)                |
| Class 1, 2 / DC6.3kV<br>Only for LCD Backlight Inverter Circuit/6.3kVp-p                          | DEC*                                     |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DEF (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DEF_N3A                                  |                    |                   |      |  |             |            |           | 900 (A)                |
| ● Safety Standard Certified Ceramic Capacitors<br>Type KY<br>(UL, CSA, IEC60384-14 Class X1 / Y2) | DE2 (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DE2_N2A                                  |                    |                   |      |  |             |            |           | 1000 (A)               |
|   | DE2_N3A                                  |                    |                   |      |  |             |            |           | 900 (A)                |
| Type KH<br>(UL, CSA, IEC60384-14 Class X1 / Y2)   | DE2 (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DE2_N3A                                  |                    |                   |      |  |             |            |           | 900 (A)                |
|   | DE2_N7A                                  |                    |                   |      |  |             |            |           | 400 (A)                |
| Type KX<br>(UL, CSA, IEC60384-14 Class X1 / Y1)   | DE1 (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DE1_N4A                                  |                    |                   |      |  |             |            |           | 500 (A)                |
|   | DE1_N5A                                  |                    |                   |      |  |             |            |           | 500 (A)                |
| Products which are Based on the Electrical<br>Appliance and Material Safety Law of Japan          | DEJ (other than below) *                 |                    |                   |      |  |             | 1000 (B)   |           |                        |
|   | DEJ_N2A                                  |                    |                   |      |  |             |            |           | 1500 (A)               |
|   | DEJ_N3A/DEJ_P3A                          |                    |                   |      |  |             |            |           | 1000 (A)               |

- 1) The last figure is at twelfth digit of whole part number which prescribes the size of capacitors.
- 2) Depending on capacitance, some products are supplied on 1500pcs.
- 3) 1000pcs. for 1kV.
- 4) DC630V: W+0.5mm.

Continued on the following page.

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Continued from the preceding page.

| Product Names                            | Part Number                       | Dimensions (mm) |     |      | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |           |
|--|-----------------------------------|-----------------|-----|------|--|-------------|------------|-----------|-----------|
|  |                                   | L               | W   | T    | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Bulk Case | Ammo Pack |
| ● Ceramic Trimmer Capacitors<br>SMD Type | <b>TZB4</b>                       | 4.5             | 4.0 | 3.0  | 500 (R00)                                | 2500 (R01)  | 500 (B00)  |           |           |
|  | <b>TZC3</b>                       | 4.5             | 3.2 | 1.6  | 1000 (R00)                               |             | 500 (B00)  |           |           |
|  | <b>TZR1</b>                       | 1.7             | 1.5 | 0.85 | 3000 (R00)                               |             | 500 (B00)  |           |           |
|  | <b>TZS2</b>                       | 2.7             | 2.2 | 0.95 | 3000 (R00)                               |             | 500 (B00)  |           |           |
|  | <b>TZV2</b>                       | 3.2             | 2.3 | 1.45 | 2000 (R00)                               |             | 500 (B00)  |           |           |
|  | <b>TZY2</b>                       | 3.2             | 2.5 | 1.25 | 2000 (R00)                               |             | 500 (B00)  |           |           |
|  | SMD Type High-Q & High Power Type | <b>TZW4</b>     | 5.2 | 4.2  | 2.6                                      | 500 (R00)   |            | 100 (B00) |           |
| Lead Type                                | <b>TZ03</b>                       |                 |     |      |  |             | 1000 (B00) |           |           |

## 2 Noise Suppression Products/EMI Suppression Filters

Packaging Code: D, J Paper Tape L, K Embossed Tape

| Product Names  | Part Number                              | Dimensions (mm)             |      |         | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |       |  |
|--|--|-----------------------------|------|---------|--|-------------|------------|-----------|-------|--|
|  |  | L                           | W    | T       | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Ammo Pack | Sheet |  |
| ● EMIFIL® (Inductor Type)<br>Chip Ferrite Bead                     | <b>BLM02</b>                             | 0.4                         | 0.2  | 0.2     | 20000 (D)                                |             | 1000 (B)   |           |       |  |
|  | <b>BLM03</b>                             | 0.6                         | 0.3  | 0.3     | 15000 (D)                                | 50000 (J)   | 1000 (B)   |           |       |  |
|  | <b>BLM15</b>                             | 1.0                         | 0.5  | 0.5     | 10000 (D)                                | 50000 (J)   | 1000 (B)   |           |       |  |
|  | <b>BLM18</b><br>(BLM18KG_TN)             | 1.6                         | 0.8  | 0.8     | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |           |       |  |
|  | (BLM18S)                                 |                             |      | (0.6)   | (4000 (D))                               | (10000 (J)) | (1000 (B)) |           |       |  |
|  | (BLM18T)                                 |                             |      | (0.5)   | (10000 (D))                              | (30000 (J)) | (1000 (B)) |           |       |  |
|  | <b>BLM21</b><br>(BLM21BD222SN1/BD272SN1) | 2.0                         | 1.25 | 0.85    | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |           |       |  |
|  |  |                             |      | (1.25)  | (3000 (L))                               | (10000 (K)) | (1000 (B)) |           |       |  |
|  | <b>BLM31</b>                             | 3.2                         | 1.6  | 1.1     | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |           |       |  |
|  | <b>BLM41</b>                             | 4.5                         | 1.6  | 1.6     | 2500 (L)                                 | 8000 (K)    | 1000 (B)   |           |       |  |
| Chip Ferrite Bead for GHz Noise                                    | <b>BLM15H/BLM15E</b>                     | 1.0                         | 0.5  | 0.5     | 10000 (D)                                | 50000 (J)   | 1000 (B)   |           |       |  |
|  | <b>BLM18H/BLM18E</b>                     | 1.6                         | 0.8  | 0.8/0.5 | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |           |       |  |
| Chip Ferrite Bead for High-GHz Noise                               | <b>BLM15G</b>                            | 1.0                         | 0.5  | 0.5     | 10000 (D)                                | 50000 (J)   | 1000 (B)   |           |       |  |
|  | <b>BLM18G</b>                            | 1.6                         | 0.8  | 0.8     | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |           |       |  |
| Chip Ferrite Bead (Array)  | <b>BLA2A</b>                             | 2.0                         | 1.0  | 0.5     | 10000 (D)                                | 50000 (J)   | 1000 (B)   |           |       |  |
|  | <b>BLA31</b>                             | 3.2                         | 1.6  | 0.8     | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |           |       |  |
| ● EMIFIL® (Capacitor Type)<br>Single Circuit Type for Signal Lines | <b>NFM18C</b>                            | 1.6                         | 0.8  | 0.6     | 4000 (D)                                 |             | 500 (B)    |           |       |  |
|  | <b>NFM21C</b>                            | 2.0                         | 1.25 | 0.85    | 4000 (D)                                 |             | 500 (B)    |           |       |  |
|  | <b>NFM3DC</b>                            | 3.2                         | 1.25 | 0.7     | 4000 (L)                                 |             | 500 (B)    |           |       |  |
|  | <b>NFM41C</b>                            | 4.5                         | 1.6  | 1.0     | 4000 (L)                                 |             | 500 (B)    |           |       |  |
|  | Single Circuit Type for Large Current    | <b>NFM18PC</b><br>(NFM18PS) | 1.6  | 0.8     | 0.6/0.8<br>(0.6)                         | 4000 (D)    |            | 500 (B)   |       |  |
|  |  | <b>NFM21P</b>               | 2.0  | 1.25    | 0.85                                     | 4000 (D)    |            | 500 (B)   |       |  |
|  |  | <b>NFM3DP</b>               | 3.2  | 1.25    | 0.7                                      | 4000 (L)    |            | 500 (B)   |       |  |
|  |  | <b>NFM31P</b>               | 3.2  | 1.6     | 1.3                                      | 3000 (L)    |            | 500 (B)   |       |  |
|  |  | <b>NFM41P</b>               | 4.5  | 1.6     | 1.0                                      | 4000 (L)    |            | 500 (B)   |       |  |
|  | <b>NFM55P</b>                            | 5.7                         | 5.0  | 2.2     | 500 (L)                                  |             | 100 (B)    |           |       |  |
| Array  | <b>NFA31C</b>                            | 3.2                         | 1.6  | 0.8     | 4000 (D)                                 |             | 100 (B)    |           |       |  |
| ● EMIFIL® (LC Combined)<br>Feed Through Type                       | <b>NFE31P</b>                            | 3.2                         | 1.6  | 1.6     | 2000 (L)                                 | 8000 (K)    | 500 (B)    |           |       |  |
|  | <b>NFE61P</b>                            | 6.8                         | 1.6  | 1.6     | 2500 (L)                                 | 8000 (K)    | 500 (B)    |           |       |  |
| Wire Wound Type  | <b>NFW31S</b>                            | 3.2                         | 1.6  | 1.8     | 2000 (L)                                 | 7500 (K)    |            |           |       |  |
| Multilayer Type  | <b>NFL18ST</b>                           | 1.6                         | 0.8  | 0.8     | 4000 (D)                                 |             | 1000 (B)   |           |       |  |
|  | <b>NFL18SP</b>                           | 1.6                         | 0.8  | 0.6     | 4000 (D)                                 |             | 1000 (B)   |           |       |  |
|  | <b>NFL21S</b>                            | 2.0                         | 1.25 | 0.85    | 4000 (D)                                 |             | 1000 (B)   |           |       |  |

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| Product Names   | Part Number                       | Dimensions (mm)                          |      |          | Minimum Quantity (pcs.) (Packaging Code) |                        |                       |             |       |
|---|-----------------------------------|--|------|----------|--|------------------------|-----------------------|-------------|-------|
|   |                                   | L  | W    | T        | Ø180mm Reel                              | Ø330mm Reel            | Bulk (Bag)            | Ammo Pack   | Sheet |
| ● EMIFIL® (LC Combined)<br>Array                                    | <b>NFA18S</b>                     | 1.6                                      | 0.8  | 0.5/0.6  | 4000 (L)                                 |                        | 1000 (B)              |             |       |
|   | <b>NFA21S</b>                     | 2.0                                      | 1.25 | 0.5/0.85 | 4000 (L)                                 |                        | 1000 (B)              |             |       |
| ● EMIFIL® (RC Combined)<br>Single Circuit Type                      | <b>NFR21G</b>                     | 2.0                                      | 1.25 | 0.5      | 4000 (L)                                 |                        | 500 (B)               |             |       |
|   | Array <b>NFA31G</b>               | 3.2                                      | 1.6  | 0.8      | 4000 (D)                                 |                        | 100 (B)               |             |       |
| ● Common Mode Choke Coil  | Film Type                         | <b>DLP0NS</b>                            | 0.85 | 0.65     | 0.45                                     | 5000 (L)               |                       | 500 (B)     |       |
|   |                                   | <b>DLP11S</b>                            | 1.25 | 1.0      | 0.82                                     | 3000 (L)               |                       | 500 (B)     |       |
|   |                                   | <b>DLP31S</b>                            | 3.2  | 1.6      | 1.15                                     | 3000 (L)               |                       | 500 (B)     |       |
|   | Film Type (Array)                 | <b>DLP2AD</b>                            | 2.0  | 1.0      | 0.82                                     | 3000 (L)               |                       | 500 (B)     |       |
|   |                                   | <b>DLP31D</b>                            | 3.2  | 1.6      | 1.15                                     | 3000 (L)               |                       | 500 (B)     |       |
|   | Multilayer Type                   | <b>DLM11G</b>                            | 1.25 | 1.0      | 0.5                                      | 10000 (D)              |                       | 1000 (B)    |       |
|   |                                   | <b>DLM2HG</b>                            | 2.5  | 2.0      | 1.2                                      | 3000 (L)               |                       | 1000 (B)    |       |
|   | Wire Wound Type                   | <b>DLW21S</b>                            | 2.0  | 1.2      | 1.2                                      | 2000 (L)               |                       | 500 (B)     |       |
|   |                                   | <b>DLW21H</b>                            | 2.0  | 1.2      | 0.9                                      | 3000 (L)               |                       | 500 (B)     |       |
|   |                                   | <b>DLW31S</b>                            | 3.2  | 1.6      | 1.9                                      | 2000 (L)               |                       | 500 (B)     |       |
|   | Wire Wound Type for Large Current | <b>DLW5AH</b>                            | 5.0  | 3.6      | 4.3                                      | 400 (L)                | 1500 (K)              | 100 (B)     |       |
|   |                                   | <b>DLW5BS</b>                            | 5.0  | 5.0      | 4.5                                      | 400 (L)                | 1500 (K)              | 100 (B)     |       |
| <b>DLW5BT</b>   |                                   | 5.0                                      | 5.0  | 2.5      | 700 (L)                                  | 2500 (K)               | 100 (B)               |             |       |
| ● Leaded EMIFIL® (Capacitor Type)                                   | Small Type                        | <b>DSN6/DSS6</b> <sup>1)</sup>           |      |          |  |                        | 250/500               | 2000        |       |
|   |                                   | Standard Type <b>DSN9N</b> <sup>1)</sup> |      |          |  |                        | 250/500               | 2000        |       |
|   | Heavy Duty Type                   | <b>DSS9N</b> <sup>1)</sup>               |      |          |  |                        | 800 <sup>2)</sup>     | 200/500     |       |
|   |                                   | <b>DST9</b> <sup>1)</sup>                |      |          |  |                        |                       | 200/250     | 1000  |
|   |                                   | <b>DSN9H</b> <sup>1)</sup>               |      |          |  |                        |                       | 250/500     | 2000  |
|   |                                   | <b>DSS9H</b> <sup>1)</sup>               |      |          |  |                        | 800 <sup>2)</sup>     | 200/500     |       |
| ● Leaded EMIFIL® (Inductor Type)                                    | <b>BL03</b>                       |  |      |          |  |                        | 1000 (B)              | 2000 (A)    |       |
|   | <b>BL02</b>                       |  |      |          |  |                        | 500 (B)               | 1500 (A)    |       |
|   | <b>BL01</b>                       |  |      |          |  | 2000 <sup>3)</sup> (J) | 500 (B)               | 1000 (A)    |       |
| ● Block Type EMIFIL® (LC Combined)                                  | <b>BNX02</b> □                    | 9.1                                      | 12.1 | 3.1      | 400 (L)                                  | 1500 (K)               | 100 (B)               |             |       |
|   | <b>BNX00</b> □                    |  |      |          |  |                        | 100 <sup>4)</sup>     |             |       |
|   | <b>BNX01</b> □                    |  |      |          |  |                        | 150 <sup>4)</sup>     |             |       |
| ● Leaded Common Mode Choke Coil                                     | <b>PLT09H</b>                     |  |      |          |  |                        | 100 <sup>4)</sup> (B) |             |       |
| ● EMIGUARD® (EMIFIL® with Varistor Function)<br>Lead Type EMIGUARD® | <b>VFR3V/VFS6V</b>                |  |      |          |  |                        | 250 (T51B)            | 2000 (U31A) |       |
|   | <b>VFS9V</b> <sup>1)</sup>        |  |      |          |  | 800 <sup>2)</sup>      | 200                   |             |       |
| ● AC Line Filters   | Common Mode Choke Coil            | <b>PLA10/PLH10</b>                       |      |          |  |                        | 1260 <sup>5)</sup>    |             |       |
|   |                                   | Hybrid Choke Coil <b>PLY10</b>           |      |          |  |                        | 1200 <sup>5)</sup>    |             |       |
|   | <b>PLY17</b>                      |  |      |          |  |                        | 1080 <sup>6)</sup>    |             |       |
| ● Ferrite Core  | <b>FSSA101005RNN_S</b>            |  |      |          |  |                        |                       | 500         |       |
|   | <b>FSSA151005RNN_S</b>            |  |      |          |  |                        |                       | 500         |       |
|   | <b>FSSA205007RNN_S</b>            |  |      |          |  |                        |                       | 200         |       |
|   | <b>FSSA220007RNN_S</b>            |  |      |          |  |                        |                       | 200         |       |
|   | <b>FSSA290005RNN_S</b>            |  |      |          |  |                        |                       | 200         |       |

- 1) Packaging Codes vary depending on lead length and lead type.
- 2) ø320mm reel.
- 3) BL01RN1A1F1J is also available for ø320mm reel (2,000pcs.).
- 4) Box
- 5) Box. 1800pcs. of magazine is also available.
- 6) Box. 1920pcs. of magazine is also available.

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### 3 Inductors (Coils)

Packaging Code: **D, J** Paper Tape **L, K** Embossed Tape

| Product Names                   | Part Number   | Dimensions (mm)      |      |          | Minimum Quantity (pcs.) (Packaging Code) |             |            |          |
|---------------------------------|---|----------------------|------|----------|--|-------------|------------|----------|
|                                 |   | L                    | W    | T        | ø180mm Reel                              | ø330mm Reel | Bulk (Bag) |          |
| ● Chip Inductor (Chip Coil)     | for High Frequency Horizontal Wire Wound              | <b>LQW04A</b>        | 0.8  | 0.4      | 0.4                                      | 10000 (D)   |            | 500 (B)  |
|                                 |   | <b>LQW15A</b>        | 1.0  | 0.5/0.6  | 0.5                                      | 10000 (D)   |            | 500 (B)  |
|                                 |   | <b>LQW18A</b>        | 1.6  | 0.8      | 0.8                                      | 4000 (D)    | 10000 (J)  | 500 (B)  |
|                                 | for High Frequency Vertical Wire Wound                | <b>LQW2BH</b>        | 2.0  | 1.5      | 1.7                                      | 2000 (L)    | 7500 (K)   |          |
|                                 |   | <b>LQW31H</b>        | 3.2  | 1.6      | 1.8                                      | 2000 (L)    | 7500 (K)   |          |
|                                 | for High Frequency Horizontal Wire Wound Ferrite Type | <b>LQW21H</b>        | 2.0  | 1.2      | 0.9                                      | 3000 (L)    |            | 500 (B)  |
|                                 | for High Frequency Vertical Wire Wound Ferrite Type   | <b>LQH31H</b>        | 3.2  | 1.6      | 1.8                                      | 2000 (L)    | 7500 (K)   |          |
|                                 | for High Frequency Multilayer Type                    | <b>LQG15H</b>        | 1.0  | 0.5      | 0.5                                      | 10000 (D)   | 50000 (J)  | 1000 (B) |
|                                 |   | <b>LQG18H</b>        | 1.6  | 0.8      | 0.8                                      | 4000 (D)    | 10000 (J)  | 1000 (B) |
|                                 | for High Frequency Film Type                          | <b>LQP02T</b>        | 0.4  | 0.2      | 0.2                                      | 20000 (D)   |            | 500 (B)  |
|                                 |   | <b>LQP03T_00/_04</b> | 0.6  | 0.3      | 0.3                                      | 10000 (D)   | 50000 (J)  | 500 (B)  |
|                                 |   | <b>LQP03T_02</b>     | 0.6  | 0.3      | 0.3                                      | 15000 (D)   | 50000 (J)  | 500 (B)  |
|                                 |   | <b>LQP15T</b>        | 1.0  | 0.5      | 0.4                                      | 10000 (D)   |            | 500 (B)  |
|                                 |   | <b>LQP15M</b>        | 1.0  | 0.5      | 0.35                                     | 10000 (D)   | 50000 (J)  | 500 (B)  |
|                                 |   | <b>LQP18M</b>        | 1.6  | 0.8      | 0.5                                      | 4000 (D)    | 10000 (J)  | 500 (B)  |
|                                 | for General Use Wire Wound Type                       | <b>LQH31M</b>        | 3.2  | 1.6      | 1.8                                      | 2000 (L)    | 7500 (K)   |          |
|                                 |   | <b>LQH32M</b>        | 3.2  | 2.5      | 2.0                                      | 2000 (L)    | 7500 (K)   |          |
|                                 |   | <b>LQH43M/N</b>      | 4.5  | 3.2      | 2.6                                      | 500 (L)     | 2500 (K)   |          |
|                                 | DC-DC Converter Multilayer Type                       | <b>LQM21P</b>        | 2.0  | 1.25     | 0.5                                      | 4000 (D)    |            |          |
| <b>LQM2MP</b>                   |   | 2.0                  | 1.6  | 0.9      | 3000 (L)                                 |             | 1000 (B)   |          |
| <b>LQM2HP_J0</b>                |   | 2.5                  | 2.0  | 1.1      | 3000 (D)                                 |             | 1000 (B)   |          |
| <b>LQM2HP_G0</b>                |   | 2.5                  | 2.0  | 0.9      | 3000 (L)                                 |             | 1000 (B)   |          |
| <b>LQM2HP_E0</b>                |   | 2.5                  | 2.0  | 0.7      | 3000 (D)                                 |             | 1000 (B)   |          |
| <b>LQM31P_00</b>                |   | 3.2                  | 1.6  | 0.85     | 3000 (L)                                 |             | 1000 (B)   |          |
| <b>LQM31P_C0</b>                |   | 3.2                  | 1.6  | 0.5      | 4000 (D)                                 |             | 1000 (B)   |          |
| DC-DC Converter Wire Wound Type | <b>LQH2MC</b>   | 2.0                  | 1.6  | 0.9      | 3000 (L)                                 |             | 100 (B)    |          |
|                                 | <b>LQH3NP_M0</b>                                      | 3.0                  | 3.0  | 1.4      | 1000 (L)                                 | 4000 (K)    |            |          |
|                                 | <b>LQH3NP_J0</b>                                      | 3.0                  | 3.0  | 0.9      | 1000 (L)                                 | 5000 (K)    |            |          |
|                                 | <b>LQH3NP_G0</b>                                      | 3.0                  | 3.0  | 0.9      | 1500 (L)                                 | 6000 (K)    |            |          |
|                                 | <b>LQH32P</b>   | 3.2                  | 2.5  | 1.55     | 2000 (L)                                 | 7500 (K)    |            |          |
|                                 | <b>LQH44P</b>   | 4.0                  | 4.0  | 1.65     | 1000 (L)                                 | 3500 (K)    |            |          |
|                                 | <b>LQH55P</b>   | 5.87                 | 5.2  | 1.85     | 500 (L)                                  | 3000 (K)    |            |          |
| for General Use Multilayer Type | <b>LQM18N</b>   | 1.6                  | 0.8  | 0.8      | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |          |
|                                 | <b>LQM21N</b> (0.1 to 2.2μH)                          | 2.0                  | 1.25 | 0.85     | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |          |
|                                 | <b>LQM21N</b> (2.7 to 4.7μH)                          | 2.0                  | 1.25 | 1.25     | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |          |
| for Choke Wire Wound Type       | <b>LQH31C</b>   | 3.2                  | 1.6  | 1.8      | 2000 (L)                                 | 7500 (K)    |            |          |
|                                 | <b>LQH32C</b>   | 3.2                  | 2.5  | 2.0/1.55 | 2000 (L)                                 | 7500 (K)    |            |          |
|                                 | <b>LQH43C</b>   | 4.5                  | 3.2  | 2.6      | 500 (L)                                  |             |            |          |
| for Choke Multilayer Type       | <b>LQM18F</b>   | 1.6                  | 0.8  | 0.8      | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |          |
|                                 | <b>LQM21D</b> (1 to 10μH)                             | 2.0                  | 1.25 | 0.85     | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |          |
|                                 | <b>LQM21D</b> (22 to 47μH)                            | 2.0                  | 1.25 | 1.25     | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |          |
|                                 | <b>LQM21F</b> (1 to 2.2μH)                            | 2.0                  | 1.25 | 0.85     | 4000 (D)                                 | 10000 (J)   | 1000 (B)   |          |
|                                 | <b>LQM21F</b> (4.7 to 47μH)                           | 2.0                  | 1.25 | 1.25     | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |          |
|                                 | <b>LQM31F</b>   | 3.2                  | 1.6  | 1.0      | 3000 (L)                                 | 10000 (K)   | 1000 (B)   |          |
| for Choke Large Current Type    | <b>LQH55D</b>   | 5.7                  | 5.0  | 4.7      | 350 (L)                                  | 1500 (K)    |            |          |
|                                 | <b>LQH66S</b>   | 6.3                  | 6.3  | 4.7      | 350 (L)                                  | 1500 (K)    |            |          |
| ● Micro Chip Transformer        | Balun Film Type                                       | <b>DXP18B</b>        | 1.6  | 0.8      | 0.45                                     | 5000 (L)    |            | 500 (B)  |
|                                 | Coupler Film Type                                     | <b>DXP18C</b>        | 1.6  | 0.8      | 0.45                                     | 5000 (L)    |            | 500 (B)  |
|                                 | Balun Wire Wound Type                                 | <b>DXW21B</b>        | 2.0  | 1.2      | 1.2                                      | 2000 (L)    |            | 500 (B)  |

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**4 Resistors**

| Product Names                                      | Part Number    | Dimensions (mm) |     |       | Minimum Quantity (pcs.) (Packaging Code) |             |            |                          |            |      |
|--|----------------|-----------------|-----|-------|--|-------------|------------|--------------------------|------------|------|
|  |                | L               | W   | T     | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Ammo Pack                | Magazine   | Tray |
| ● High Voltage Resistors                           | <b>MHR*</b>    |                 |     |       |  |             | 1000       |                          |            |      |
| ● R Networks                                       | <b>RGLD*</b>   |                 |     |       |  |             | 1000       | 1000 (T2)                |            |      |
|  | <b>RGLE*</b>   |                 |     |       |  |             | 1000       |                          |            |      |
| ● Trimmer Potentiometers<br>SMD Open Type 2mm Size | <b>PVA2</b>    | 2.75            | 2.2 | 0.8   | 3000 (R00)                               |             | 1000 (B00) |                          |            |      |
|  | <b>PVZ2A</b>   | 2.7             | 2.1 | 0.8   | 3000 (R00)                               |             | 1000 (B00) |                          |            |      |
|  | <b>PVZ2R</b>   | 4.8             | 2.1 | 0.8   | 3000 (R00)                               |             | 1000 (B00) |                          |            |      |
| SMD Open Type 3mm Size                             | <b>PVZ3A</b>   | 3.6             | 3.1 | 1.85  | 2000 (R00)                               |             | 1000 (B00) |                          |            |      |
|  | <b>PVZ3G</b>   | 3.6             | 3.1 | 1.15  | 2500 (R00)                               |             | 1000 (B00) |                          |            |      |
|  | <b>PVZ3K</b>   | 5.4             | 3.1 | 2.1   | 1500 (R00)                               |             | 1000 (B00) |                          |            |      |
| SMD Sealed Type 2mm Size                           | <b>PVF2</b>    | 2.15            | 2.0 | 2.3   | 500 (R00)                                |             | 100 (B00)  |                          |            |      |
| SMD Sealed Type 3mm Size                           | <b>PVG3A/G</b> | 3.6             | 3.4 | 2.0   | 1000 (R00)                               |             | 500 (B00)  |                          |            |      |
|  | <b>PVG3K</b>   | 3.6             | 3.4 | (2.5) | 500 (R00)                                |             |            |                          |            |      |
| SMD Sealed Type 4mm Size                           | <b>PVM4</b>    | 4.7             | 4.0 | 2.0   | 500 (R00)                                | 3000 (R00)  | 500 (B00)  |                          |            |      |
| SMD Sealed Type Multi Turns                        | <b>PVG5A</b>   | 5.0             | 4.8 | 3.9   | 250 (R00)                                |             | 100 (B00)  |                          |            |      |
|  | <b>PVG5H</b>   | 4.9             | 4.8 | 3.7   | 500 (R00)                                |             | 100 (B00)  |                          |            |      |
| Lead Sealed Type Single Turn                       | <b>PV32</b>    |                 |     |       |  |             | 300 (B00)  |                          |            |      |
| Lead Sealed Type Multi Turns                       | <b>PV12</b>    |                 |     |       |  |             | 50 (B00)   |                          |            |      |
|  | <b>PV36P</b>   |                 |     |       |  |             | 100 (B00)  |                          | 800 (M12)  |      |
|  | <b>PV36W</b>   |                 |     |       |  |             | 100 (B00)  | 1000 (A00)               | 1000 (M15) |      |
|  | <b>PV36X</b>   |                 |     |       |  |             | 100 (B00)  | 1000 (A00)               | 800 (M15)  |      |
|  | <b>PV36Y</b>   |                 |     |       |  |             | 100 (B00)  |                          | 1000 (M15) |      |
|  | <b>PV36Z</b>   |                 |     |       |  |             | 100 (B00)  |                          | 800 (M15)  |      |
|  | <b>PV37</b>    |                 |     |       |  |             | 100 (B00)  | 1000 <sup>2)</sup> (A00) |            |      |

1) Ammo Pack for PVC6M/Q Type.  
2) Ammo Pack for PV37Y/Z Type.

**5 Resonators**

| Product Names  | Part Number       | Dimensions (mm) |          |                       | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |
|--|-------------------|-----------------|----------|-----------------------|--|-------------|------------|-----------|
|  |                   | L               | W        | T                     | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Ammo Pack |
| ● Crystal Resonators   | <b>XRCGA</b>      | 2.0             | 1.6      | 0.7 max.              | 3000 (-R0)                               | 9000 (-R1)  |            |           |
| ● CERALOCK® (for Automotive)<br>MHz Chip Type<br>(Tight Frequency Tolerance) | <b>CSTCR_G15C</b> | 4.5             | 2.0      | 1.2 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |           |
|  | <b>CSTCE_G15C</b> | 3.2             | 1.3      | 0.8 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |           |
|  | <b>CSTCE_V13C</b> | 3.2             | 1.3      | 1.0 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |           |
| MHz Chip Type<br>(Standard Frequency Tolerance)                              | <b>CSTCC_G_A</b>  | 7.2             | 3.0      | 1.8 max.<br>/1.6 max. | 2000 (-R0)                               | 6000 (-R1)  | 500 (-B0)  |           |
|  | <b>CSTCR_G_B</b>  | 4.5             | 2.0      | 1.2 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |           |
|  | <b>CSTCE_G_A</b>  | 3.2             | 1.3      | 0.8 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |           |
|  | <b>CSTCE_V_C</b>  | 3.2             | 1.3      | 1.0 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |           |
|  | <b>CSTCV_X_Q</b>  | 3.7             | 3.1      | 1.4 max.              | 2000 (-R0)                               | 6000 (-R1)  | 500 (-B0)  |           |
| <b>CSACV_X_Q</b>   | 3.7               | 3.1             | 1.4 max. | 2000 (-R0)            | 6000 (-R1)                               | 500 (-B0)   |            |           |

Continued on the following page.

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Continued from the preceding page.

| Product Names   | Part Number                  | Dimensions (mm) |     |                       | Minimum Quantity (pcs.) (Packaging Code) |             |            |                   |
|---|------------------------------|-----------------|-----|-----------------------|--|-------------|------------|-------------------|
|   |                              | L               | W   | T                     | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Ammo Pack         |
| ● CERALOCK® (for General Usage)<br>MHz Chip Type<br>(Tight Frequency Tolerance) | <b>CSTCR_G15L</b>            | 4.5             | 2.0 | 1.2 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCE_G15L</b>            | 3.2             | 1.3 | 0.8 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCE_V13L</b>            | 3.2             | 1.3 | 1.0 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCZ_X1_R</b>            | 2.0             | 1.6 | 0.95 max.             | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCW_X11</b>             | 2.5             | 2.0 | 1.4 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCE_XT</b>              | 3.2             | 1.3 | 1.1 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
| MHz Chip Type<br>(Standard Frequency Tolerance)                                 | <b>CSTCC_G</b>               | 7.2             | 3.0 | 1.8 max.<br>/1.6 max. | 2000 (-R0)                               | 6000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCR_G</b>               | 4.5             | 2.0 | 1.2 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCE_G</b>               | 3.2             | 1.3 | 0.8 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCE_V</b>               | 3.2             | 1.3 | 1.0 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCG_V</b>               | 2.0             | 1.3 | 0.95 max.             | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCW_X</b>               | 2.5             | 2.0 | 1.4 max.              | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSTCW_X_M</b>             | 2.5             | 2.0 | 0.65 max.             | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSACW_X</b>               | 2.5             | 2.0 | 1.25 max.             | 3000 (-R0)                               | 9000 (-R1)  | 500 (-B0)  |                   |
| MHz Lead Type<br>(Standard Frequency Tolerance)                                 | <b>CSTLS_G</b>               |                 |     |                       |  |             | 500 (-B0)  | 2000 (-A0)        |
|   | <b>CSTLS_X</b>               |                 |     |                       |  |             | 500 (-B0)  | 2000 (-A0)        |
|   | <b>CSALS_X</b>               |                 |     |                       |  |             | 500 (-B0)  | 2000 (-A0)        |
| kHz Chip Type<br>(Standard Frequency Tolerance)                                 | <b>CSBFB_J</b> (430-519kHz)  | 8.5             | 7.5 | 3.6 max.              |  | 1500 (-R1)  | 500 (-B0)  |                   |
|   | <b>CSBFB_J</b> (700-1250kHz) | 6.0             | 5.0 | 2.5 max.              |  | 3000 (-R1)  | 1000 (-B0) | 50 <sup>1)</sup>  |
| kHz Lead Type<br>(Standard Frequency Tolerance)                                 | <b>CSBLA_E</b> (375-699kHz)  |                 |     |                       |  |             | 500 (-B0)  |                   |
|   | <b>CSBLA_J</b> (700-1250kHz) |                 |     |                       |  |             | 1000 (-B0) | 100 <sup>1)</sup> |

1) Magazine

## 6 Filters for Audio Visual Equipment

| Product Names                     | Part Number          | Dimensions (mm)    |              |      | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |            |
|-----------------------------------|----------------------|--------------------|--------------|------|--|-------------|------------|-----------|------------|
|                                   |                      | L                  | W            | T    | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Ammo Pack |            |
| ● CERAFIL® kHz                    | Chip Type            | <b>SFPKA</b>       | 8.4 max.     | 7.0  | 5.0 max.                                 |             | 1000 (-R1) |           |            |
|                                   | Lead Type            | <b>CFULA</b>       |              |      |  |             |            | 200 (-B0) |            |
|                                   |                      | <b>CFWLA</b>       |              |      |  |             |            | 150 (-B0) |            |
|                                   |                      | <b>SFPLA</b>       |              |      |  |             |            | 200 (-B0) |            |
|                                   |                      | <b>SFULA</b>       |              |      |  |             |            | 500 (-B0) |            |
|                                   |                      | <b>SFZLA</b>       |              |      |  |             |            | 200 (-B0) |            |
| ● CERAFIL® MHz                    | Chip Type            | <b>SFSKB</b>       | 5.2          | 3.6  | 1.5 max.                                 |             | 3000 (-R1) |           |            |
|                                   |                      | <b>SFSKA</b>       | 8.5          | 3.8  | 2.0 max.                                 |             | 3000 (-R1) |           |            |
|                                   |                      | <b>SFECF</b>       | 3.45         | 3.1  | 1.4 max.                                 | 2000 (-R0)  |            |           |            |
|                                   |                      | <b>SFECV/SFECK</b> | 6.9          | 2.9  | 1.7 max.                                 | 2000 (-R0)  |            |           |            |
|                                   | Lead Type            | <b>SFELF</b>       |              |      |  |             |            | 500 (-B0) | 1500 (-A0) |
|                                   |                      | <b>SFELG</b>       |              |      |  |             |            | 500 (-B0) | 1500 (-A0) |
|                                   |                      | <b>SFVLF</b>       |              |      |  |             |            | 500 (-B0) | 1000 (-A2) |
|                                   | ● Discriminators MHz | Chip Type          | <b>CDSCB</b> | 4.5  | 2.0                                      | 1.0 max.    | 2000 (-R0) |           |            |
| Lead Type                         |                      | <b>CDALF</b>       |              |      |  |             |            | 500 (-B0) | 1500 (-A0) |
| ● Traps MHz                       | Chip Type            | <b>TPSKA</b>       | 8.5          | 3.8  | 2.0 max.                                 |             | 3000 (-R1) |           |            |
|                                   |                      | <b>TPWKA</b>       | 8.5          | 5.0  | 1.7 max.                                 |             | 3000 (-R1) |           |            |
| ● SAW Traps for ISDB-T 1seg/DVB-H | Chip Type            | <b>SAEEA</b>       | 1.35         | 1.05 | 0.5                                      | 4000 (R14)  |            |           |            |
|                                   |                      | <b>SAEEB</b>       | 1.35         | 1.05 | 0.6                                      | 4000 (R14)  |            |           |            |
|                                   |                      | <b>SAEEN</b>       | 1.8          | 1.35 | 0.5                                      | 4000 (R14)  |            |           |            |

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## 7 Filters for Communication Equipment

| Product Names                               | Part Number        | Dimensions (mm)  |          |              | Minimum Quantity (pcs.) (Packaging Code) |             |            |
|---|--------------------|--|----------|--------------|--|-------------|------------|
|   |                    | L  | W        | T            | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) |
| ● Duplexers                                 |                    | Depends on each part number.<br>Please contact us for details. |          |              |  |             |            |
| Dielectric Duplexers (GIGAFIL®)             | <b>DFY</b>         |  |          |              |  |             |            |
| SAW Duplexers                               | <b>SAY</b>         |  |          |              |  |             |            |
| ● for RF/Local                              |                    |  |          |              |  |             |            |
| Dielectric Band Pass Filters (GIGAFIL®)     | <b>DFCH</b>        |  |          |              |  |             |            |
| SAW Filters                                 | <b>SAFEA</b>       | 1.35   | 1.05     | 0.5          | 4000 (R14)                               |             |            |
|   | <b>SAFEB</b>       | 1.35   | 1.05     | 0.6          | 4000 (R14)                               |             |            |
|   | <b>SAWEN</b>       | 1.8  | 1.35     | 0.5          | 4000 (R14)                               |             |            |
| Chip Multilayer LC Filters (BPF)            | <b>LFB15</b>       | 1.0  | 0.5      | 0.4 max.     | 10000                                    |             |            |
|   | <b>LFB18_SG</b>    | 1.6  | 0.8      | 0.7 max.     | 4000                                     |             |            |
|   | <b>LFB2H_SG6</b>   | 2.5  | 2.0      | 1.6 max.     | 2000                                     |             |            |
|   | <b>LFB2H_SG7</b>   | 2.5  | 2.0      | 1.0 max.     | 3000                                     |             |            |
|   | <b>LFB21_SG8</b>   | 2.0  | 1.25     | 1.05 max.    | 4000                                     |             |            |
|   | <b>LFB31_SG/SP</b> | 3.2  | 1.6      | 1.0-1.4 max. | 3000                                     |             |            |
| Chip Multilayer LC Filters (LPF)            | <b>LFL15_TC</b>    | 1.0  | 0.5      | 0.4 max.     | 10000                                    |             |            |
|   | <b>LFL18_TC</b>    | 1.6  | 0.8      | 0.7 max.     | 4000                                     |             |            |
|   | <b>LFL21_TC</b>    | 2.0  | 1.25     | 1.05 max.    | 4000                                     |             |            |
| Chip Multilayer LC Filters (Balance Filter) | <b>LFB21_BA</b>    | 2.0  | 1.25     | 1.0 max.     | 4000                                     |             |            |
| ● for IF                                    |                    |  |          |              |  |             |            |
| BGS Filters                                 | <b>MKFCC</b>       | 3.0  | 3.0      | 1.15         |  | 5000 (R05)  |            |
| Ceramic Filters (CERAFIL®)                  | <b>CFUKF</b>       | 6.0  | 7.5 max. | 4.0 max.     | 450 (-R0)                                |             |            |
|   | <b>CFUKG</b>       | 6.0  | 7.5 max. | 4.0 max.     | 450 (-R0)                                |             |            |
|   | <b>CFULA</b>       |  |          |              |  |             | 200 (-B0)  |
|   | <b>CFULB</b>       |  |          |              |  |             | 250 (-B0)  |
|   | <b>CFWKA</b>       | 11.5   | 7.5 max. | 3.0 max.     | 350 (-R0)                                |             |            |
|   | <b>CFWLA</b>       |  |          |              |  |             | 150 (-B0)  |
|   | <b>CFWLB</b>       |  |          |              |  |             | 150 (-B0)  |
|   | <b>SFECF</b>       | 3.45   | 3.1      | 1.4 max.     | 2000 (-R0)                               |             |            |
|   | <b>SFPKA</b>       | 7.0  | 8.4 max. | 5.0 max.     |  | 1000 (-R1)  |            |
|   | <b>SFSCE</b>       | 4.5  | 3.8      | 1.0 max.     | 1500 (-R0)                               |             |            |
| Ceramic Discriminators                      | <b>CDBKB</b>       | 6.6  | 6.0      | 3.1 max.     | 500 (-R0)                                |             |            |
|   | <b>CDBLA</b>       |  |          |              |  |             | 500 (-B0)  |
|   | <b>CDBLB</b>       |  |          |              |  |             | 500 (-B0)  |
|   | <b>CDSCB</b>       | 4.5  | 2.0      | 1.0 max.     | 2000 (-R0)                               |             |            |


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## 8 Microwave Components

| Product Names                                  | Part Number                     | Dimensions (mm)           |      |           | Minimum Quantity (pcs.) (Packaging Code) |             |            |          |
|--|---------------------------------|---------------------------|------|-----------|--|-------------|------------|----------|
|  |                                 | L                         | W    | T         | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) |          |
| ● Isolators                                    | <b>CES20</b>                    | 3.2                       | 2.5  | 1.2       | 1000 (RA1)                               | 4000 (RB4)  |            |          |
|  | <b>CEG23</b>                    | 2.0                       | 2.0  | 1.0       | 1000 (RA1)                               | 5000 (RB5)  |            |          |
|  | <b>CES30</b>                    | 3.2                       | 3.2  | 1.6       | 500 (RAB)                                | 2000 (RB2)  |            |          |
|  | <b>CES32</b>                    | 3.2                       | 3.2  | 1.5       | 500 (RAB)                                | 3000 (RB3)  |            |          |
|  | <b>CES40</b>                    | 4.0                       | 4.0  | 1.7       | 500 (RAB)                                | 2000 (RB2)  |            |          |
| ● Chip Multilayer Hybrid Couplers              | Hybrid Dividers                 | <b>LDD18</b>              | 1.6  | 0.8       | 0.7 max.                                 | 4000        |            |          |
|  |                                 | <b>LDD21</b>              | 2.0  | 1.25      | 1.05 max.                                | 4000        |            |          |
|  | Coupler                         | <b>LDC15</b>              | 1.0  | 0.5       | 0.4 max.                                 | 10000       |            |          |
|  |                                 | <b>LDC18</b>              | 1.6  | 0.8       | 0.7 max.                                 | 4000        |            |          |
|  |                                 | <b>LDC21</b>              | 2.0  | 1.25      | 1.05 max.                                | 4000        |            |          |
|  | 3dB Hybrid                      | <b>LDC32</b>              | 3.2  | 2.5       | 1.00 max.                                | 3000        |            |          |
|  | Chip Multilayer Diplexers       | <b>LFD18_DP</b>           | 1.6  | 0.8       | 0.7 max.                                 | 4000        |            |          |
|  |                                 | <b>LFD21_DP1, 2</b>       | 2.0  | 1.25      | 1.05 max.                                | 4000        |            |          |
|  |                                 | <b>LFD21_DP3, 4, F, G</b> | 2.0  | 1.25      | 1.0 max.                                 | 4000        |            |          |
|  | ● Chip Multilayer Hybrid Baluns | <b>LDB18/LDM18</b>        | 1.6  | 0.8       | 0.7 max.                                 | 4000        |            |          |
| <b>LDB21</b>                                   |                                 | 2.0                       | 1.25 | 1.05 max. | 4000                                     |             |            |          |
| ● Chip Antennas                                | <b>LDA21</b>                    | 2.0                       | 1.25 | 1.0 max.  | 4000                                     |             |            |          |
|  | <b>LDA2H</b>                    | 2.3                       | 1.8  | 4.0 max.  |  | 2000        |            |          |
|  | <b>LDA31</b>                    | 3.2                       | 1.6  | 1.3 max.  | 3000                                     |             |            |          |
|  | <b>ANCG11G57SAA136</b>          | 9.8                       | 3.0  | 4.2 max.  |  | 1000        |            |          |
|  | <b>ANCG11G57SAA137</b>          | 9.8                       | 3.0  | 4.2 max.  |  | 1000        |            |          |
|  | <b>ANCG11G57SAA146</b>          | 9.8                       | 2.5  | 4.5 max.  |  | 1000        |            |          |
|  | <b>ANCG11G57SAA160</b>          | 9.8                       | 3.0  | 3.0 max.  |  | 2000        |            |          |
|  | <b>ANCG12G44SAA145</b>          | 9.8                       | 2.0  | 4.0 max.  |  | 1000        |            |          |
|  | <b>ANCG12G44SAA148</b>          | 9.8                       | 2.0  | 4.0 max.  |  | 1000        |            |          |
|  | <b>ANCV11G57SAA128</b>          | 9.0                       | 1.5  | 1.95 max. |  | 3000        |            |          |
|  | <b>ANCV11G57SAA144</b>          | 6.0                       | 1.2  | 1.0 max.  |  | 5000        |            |          |
| ● High Frequency Monolithic Ceramic Capacitors | High Frequency High-Q Type      | <b>GQM18</b>              | 1.6  | 0.8       | 0.7/0.8                                  | 4000 (D)    | 10000 (J)  | 1000 (B) |
|  |                                 | <b>GQM21</b>              | 2.0  | 1.25      | 0.85                                     | 4000 (D)    | 10000 (J)  | 1000 (B) |
|  | High Frequency Type             | <b>ERB18</b>              | 1.6  | 0.8       | 0.9 max.                                 | 4000 (D)    | 10000 (J)  | 1000 (B) |
|  |                                 | <b>ERB21</b>              | 2.0  | 1.25      | 1.35 max.                                | 3000 (L)    | 10000 (K)  | 1000 (B) |
|  |                                 | <b>ERB32</b>              | 3.2  | 2.5       | 1.7 max.                                 | 2000 (L)    | 8000 (K)   | 1000 (B) |
| ● Coaxial Connectors                           | <b>MM4829-2702</b>              |                           |      |           | 4000 (RA4)                               | 10000 (RB0) |            |          |
|  | <b>MM9329-2700</b>              |                           |      |           | 1000 (RA1)                               | 5000 (RB5)  |            |          |
| ● Coaxial Connectors with Switches             | <b>MM8130-2600</b>              |                           |      |           |  | 8000 (RB8)  |            |          |
|  | <b>MM8430-2610</b>              |                           |      |           | 1000 (RA1)                               | 3000 (RB3)  |            |          |

Continued on the following page. 

● All dimensions given are nominal without mention.

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Continued from the preceding page.

| Product Names                         | Part Number | Dimensions (mm) |      |      | Minimum Quantity (pcs.) (Packaging Code) |                        |                         |
|---------------------------------------|-------------|-----------------|------|------|--|------------------------|-------------------------|
|                                       |             | L               | W    | T    | Ø180mm Reel                              | Ø330mm Reel            | Bulk (Bag)              |
| ● High Frequency Microchip Capacitors | CLB0A       | 0.25            | 0.25 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0B       | 0.30            | 0.25 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0C       | 0.35            | 0.25 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0D       | 0.38            | 0.38 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0E       | 0.55            | 0.38 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0H       | 0.71            | 0.38 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB05       | 0.50            | 0.50 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0G       | 0.70            | 0.50 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0K       | 0.90            | 0.50 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0F       | 0.64            | 0.64 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB1A       | 1.00            | 0.64 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB0J       | 0.76            | 0.76 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB1B       | 1.09            | 0.76 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB09       | 0.90            | 0.90 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB1E       | 1.49            | 0.90 | 0.35 |  |                        | 100 <sup>1)</sup> (TC1) |
|                                       | CLB1C       | 1.27            | 1.27 | 0.35 |  |                        | 50 <sup>1)</sup> (TC1)  |
|                                       | CLB1G       | 1.73            | 1.27 | 0.35 |  |                        | 50 <sup>1)</sup> (TC1)  |
|                                       | CLB2C       | 2.19            | 1.27 | 0.45 |  |                        | 50 <sup>1)</sup> (TC1)  |
|                                       | CLB1H       | 1.78            | 1.78 | 0.45 |  |                        | 50 <sup>1)</sup> (TC1)  |
|                                       | CLB2L       | 2.95            | 1.78 | 0.45 |  |                        | 50 <sup>1)</sup> (TC1)  |
| CLB2E                                 | 2.29        | 2.29            | 0.45 |      |  | 50 <sup>1)</sup> (TC1) |                         |
| CLB3G                                 | 3.71        | 2.29            | 0.45 |      |  | 50 <sup>1)</sup> (TC1) |                         |

1) Tray

## 9 Sensors

| Product Names                                 | Part Number    | Dimensions (mm) |      |      | Minimum Quantity (pcs.) (Packaging Code) |             |            |           |            |
|---|----------------|-----------------|------|------|--|-------------|------------|-----------|------------|
|   |                | L               | W    | T    | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag) | Ammo Pack | Tray       |
| ● POSISTOR® for Overheat Sensing<br>Chip Type | PRF15          | 1.0             | 0.5  | 0.5  | 10000 (RC)                               |             |            |           |            |
|   | PRF18          | 1.6             | 0.8  | 0.8  | 4000 (RB)                                |             |            |           |            |
|   | PRF21          | 2.0             | 1.25 | 0.9  | 4000 (RA)                                |             |            |           |            |
| Lead Type                                     | PTFL           |                 |      |      |  |             | 400 (B0)   |           |            |
|   | PTFM           |                 |      |      |  |             | 200 (B0)   |           |            |
| ● Shock Sensors                               | PKGS-00LD      | 6.4             | 2.8  | 1.2  | 2000 (-R)                                |             |            |           |            |
|   | PKGS-90LD      | 6.4             | 2.8  | 2.1  | 1500 (-R)                                |             |            |           |            |
|   | PKGS-00MF/25MF | 4.8             | 2.3  | 1.05 | 3000 (-R)                                |             |            |           |            |
|   | PKGS-25NB      | 3.8             | 2.0  | 1.05 | 3000 (-R)                                |             |            |           |            |
| ● Piezoelectric Gyroscopes (GYROSTAR®)        | ENC-03R        |                 |      |      |  | 2000 (-R)   |            |           |            |
| ● MEMS Gyro                                   | MEV-50A        |                 |      |      | 200 (-R)                                 |             |            |           |            |
| ● Rotary Position Sensors                     | SV01A          | 12.0            | 11.0 | 2.1  |  | 1000 (R00)  | 50 (B00)   |           |            |
|   | SV01L          | 12.0            | 11.0 | 2.9  |  |             |            |           | 1000 (T00) |
| ● Pyroelectric Infrared Sensors               | IRS-*          |                 |      |      |  | 1500 (-R1)  |            |           |            |
| ● Magnetic Switch                             | AS-*           |                 |      |      | 3000 (-R)                                |             |            |           |            |

● All dimensions given are nominal without mention.

## 10 Thermistors

| Product Names  | Part Number     | Dimensions (mm) |      |      | Minimum Quantity (pcs.) (Packaging Code) |             |                             |                             |          |      |
|--|-----------------|-----------------|------|------|--|-------------|-----------------------------|-----------------------------|----------|------|
|  |                 | L               | W    | T    | Ø180mm Reel                              | Ø330mm Reel | Bulk (Bag)                  | Ammo Pack                   | Magazine | Tray |
| ● POSISTOR® for Motor Starters<br>Plug-in Type         | <b>PTH7M/8M</b> |                 |      |      |  |             | 50 <sup>1)</sup>            |                             |          |      |
| ● POSISTOR® for Circuit Protection<br>Chip Type        | <b>PRG18</b>    | 1.6             | 0.8  | 0.8  | 4000 (RB)                                |             |                             |                             |          |      |
|  | <b>PRG21_RA</b> | 2.0             | 1.25 | 0.9  | 4000 (RA)                                |             |                             |                             |          |      |
|  | <b>PRG21_RK</b> | 2.0             | 1.25 | 1.25 | 3000 (RK)                                |             |                             |                             |          |      |
| Lead Type  | <b>PTGL*</b>    |                 |      |      |  |             | refer to <sup>2)</sup> (B0) | refer to <sup>3)</sup> (A0) |          |      |
| ● POSISTOR® for Overheat Sensing<br>Chip Type          | <b>PRF15</b>    | 1.0             | 0.5  | 0.5  | 10000 (RC)                               |             |                             |                             |          |      |
|  | <b>PRF18</b>    | 1.6             | 0.8  | 0.8  | 4000 (RB)                                |             |                             |                             |          |      |
|  | <b>PRF21</b>    | 2.0             | 1.25 | 0.9  | 4000 (RA)                                |             |                             |                             |          |      |
| Lead Type  | <b>PTFL</b>     |                 |      |      |  |             | 400                         |                             |          |      |
|  | <b>PTFM</b>     |                 |      |      |  |             | 200                         |                             |          |      |
| ● NTC Thermistors<br>for Temp. Sensor and Compensation | <b>NCP03</b>    | 0.6             | 0.3  | 0.3  | 15000 (RL)                               |             |                             |                             |          |      |
|  | <b>NCP15</b>    | 1.0             | 0.5  | 0.5  | 10000 (RC)                               |             |                             |                             |          |      |
|  | <b>NCP18</b>    | 1.6             | 0.8  | 0.8  | 4000 (RB)                                |             |                             |                             |          |      |
|  | <b>NCP21</b>    | 2.0             | 1.25 | 0.85 | 4000 (RA)                                |             |                             |                             |          |      |
| ● NTC Thermistors for Inrush Current Suppression       | <b>NTPA</b>     |                 |      |      |  |             | refer to <sup>4)</sup> (B0) | refer to <sup>5)</sup> (A0) |          |      |

- 1) Box
- 2) 100 to 500pcs. are available. Please contact us for details.
- 3) 1,000 to 2,000pcs. are available. Please contact us for details.
- 4) 50 to 500pcs. are available. Please contact us for details.
- 5) 400 to 1,000pcs. are available. Please contact us for details.

## 12 Sound Components

| Product Names                                       | Part Number       | Minimum Quantity (pcs.) (Packaging Code) |            |           |          |  |
|---|-------------------|--|------------|-----------|----------|--|
|   |                   | Ø330mm Reel                              | Bulk (Box) | Ammo Pack | Magazine |  |
| ● Piezoelectric Diaphragms*<br>External Drive Types | <b>7BB-12-9</b>   |  | 5120       |           |          |  |
|   | <b>7BB-15-6</b>   |  | 8000       |           |          |  |
|   | <b>7BB-20-3</b>   |  | 3000       |           |          |  |
|   | <b>7BB-20-6</b>   |  | 1800       |           |          |  |
|   | <b>7BB-20-6L0</b> |  | 600        |           |          |  |
|   | <b>7BB-27-4</b>   |  | 1500       |           |          |  |
|   | <b>7BB-27-4L0</b> |  | 600        |           |          |  |
|   | <b>7BB-35-3</b>   |  | 800        |           |          |  |
|   | <b>7BB-35-3L0</b> |  | 400        |           |          |  |
|   | <b>7BB-41-2</b>   |  | 400        |           |          |  |
|   | <b>7BB-41-2L0</b> |  | 250        |           |          |  |
|   | <b>7NB-31R2-1</b> |  | 3000       |           |          |  |
|   | Self Drive Types  | <b>7BB-20-6C</b>                         |            | 1800      |          |  |
|   |                   | <b>7BB-20-6CL0</b>                       |            | 600       |          |  |
| <b>7BB-27-4C</b>                                    |                   |  | 1500       |           |          |  |
| <b>7BB-27-4CL0</b>                                  |                   |  | 600        |           |          |  |
| <b>7BB-35-3C</b>                                    |                   |  | 800        |           |          |  |
| <b>7BB-35-3CL0</b>                                  |                   |  | 400        |           |          |  |
| <b>7BB-41-2C</b>                                    |                   |  | 600        |           |          |  |
| <b>7BB-41-2CL0</b>                                  |                   |  | 250        |           |          |  |
| <b>7SB-34R7-3C</b>                                  |                   | 800                                      |            |           |          |  |

Continued on the following page.

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Continued from the preceding page.

| Product Names                                     | Part Number              | Minimum Quantity (pcs.) (Packaging Code) |            |           |          |
|---|--------------------------|--|------------|-----------|----------|
|   |                          | Ø330mm Reel                              | Bulk (Box) | Ammo Pack | Magazine |
| ● Piezoelectric Sounders*<br>External Drive Types | <b>PKLCS1212E4001-R1</b> | 1000                                     |            |           |          |
|   | <b>PKLCS1212E40A1-R1</b> | 1000                                     |            |           |          |
|   | <b>PKLCS1212E2000-R1</b> | 1000                                     |            |           |          |
|   | <b>PKLCS1212E20A0-R1</b> | 1000                                     |            |           |          |
|   | <b>PKM13EPYH4000-A0</b>  |  |            | 500       |          |
|   | <b>PKM13EPYH4002-B0</b>  |  | 330        |           |          |
|   | <b>PKM17EPP-2002-B0</b>  |  | 200        |           |          |
|   | <b>PKM17EPPH4001-B0</b>  |  | 200        |           |          |
|   | <b>PKM17EWH2001</b>      |  | 250        |           |          |
|   | <b>PKM17EWH4000</b>      |  | 500        |           |          |
|   | <b>PKM22EPH2001</b>      |  | 360        |           |          |
|   | <b>PKM22EPPH2001-B0</b>  |  | 750        |           |          |
|   | <b>PKM22EPPH4001-B0</b>  |  | 900        |           |          |
|   | <b>PKM22EPPH4005-B0</b>  |  | 750        |           |          |
|   | <b>PKM22EPPH4007-B0</b>  |  | 750        |           |          |
|   | Self Drive Types         | <b>PKM22EPH2001-B0</b>                   |            | 300       |          |
| <b>PKM24SPH3805</b>                               |                          |  | 360        |           |          |
| <b>PKM30SPH2001-B0</b>                            |                          |  | 70         |           |          |
| <b>PKM30SPH2501-B0</b>                            |                          |  | 70         |           |          |
| ● Piezoelectric Buzzers*                          | <b>PKB24SPCH3601-B0</b>  |  | 650        |           |          |
|   | <b>PKB24SWH3301</b>      |  | 200        |           |          |
| ● Piezoelectric Ringers (PIEZORINGER®)*           | <b>PKM33EPH1201C</b>     |  | 300        |           |          |
|   | <b>PKM34EWH1101C</b>     |  | 25         |           |          |
|   | <b>PKM34EWH1201C</b>     |  | 25         |           |          |
|   | <b>PKM44EWH1001C</b>     |  | 25         |           |          |

1) The last two digits are changed to M0.

● All dimensions given are nominal without mention.



# 1

## Capacitors

**Monolithic Ceramic Capacitors**

**Monolithic Ceramic Capacitors for Medium Voltage**

**Monolithic Ceramic Capacitors Safety Standard Certified**

**Monolithic Ceramic Capacitors (Lead Type)**

**High Voltage Ceramic Capacitors (250V-6.3kV)**

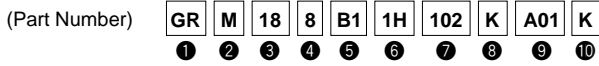
**Safety Standard Certified Ceramic Capacitors**

**High Voltage Ceramic Capacitors (10-40kV)**

**Ceramic Trimmer Capacitors**

● Part Numbering

Chip Monolithic Ceramic Capacitors



① Product ID

② Series

| Product ID | Code | Series                                   |
|------------|------|--|
| GR         | M    | Tin Plated Layer                         |
|            | 4    | Only for Information Devices             |
|            | 7    | Only for Camera Flash Circuit            |
| ER         | B    | High Frequency Type                      |
| GQ         | M    | High Frequency for Flow/Reflow Soldering |
| GM         | A    | Monolithic Microchip                     |
|            | D    | for Bonding                              |
| GN         | M    | Capacitor Array                          |
| LL         | L    | Low ESL Wide Width Type                  |
|            | A    | Eight-termination Low ESL Type           |
|            | M    | Ten-termination Low ESL Type             |
| GJ         | M    | High Frequency Low Loss Type             |
| GA         | 2    | for AC250V (r.m.s.)                      |
|            | 3    | Safety Standard Certified Type           |
| GC         | M    | Automotive Tin Plated Layer              |


③ Dimension (L×W)

| Code | Dimension (L×W) | EIA    |
|------|-----------------|--------|
| 02   | 0.4×0.2mm       | 01005  |
| 03   | 0.6×0.3mm       | 0201   |
| 05   | 0.5×0.5mm       | 0202   |
| 08   | 0.8×0.8mm       | 0303   |
| 0D   | 0.38×0.38mm     | 015015 |
| 0M   | 0.9×0.6mm       | 0302   |
| 11   | 1.25×1.0mm      | 0504   |
| 15   | 1.0×0.5mm       | 0402   |
| 18   | 1.6×0.8mm       | 0603   |
| 1M   | 1.37×1.0mm      | 0504   |
| 21   | 2.0×1.25mm      | 0805   |
| 22   | 2.8×2.8mm       | 1111   |
| 31   | 3.2×1.6mm       | 1206   |
| 32   | 3.2×2.5mm       | 1210   |
| 42   | 4.5×2.0mm       | 1808   |
| 43   | 4.5×3.2mm       | 1812   |
| 52   | 5.7×2.8mm       | 2211   |
| 55   | 5.7×5.0mm       | 2220   |

④ Dimension (T)

| Code | Dimension (T)                    |
|------|----------------------------------|
| 2    | 0.2mm                            |
| 2    | 2-elements (Array Type)          |
| 3    | 0.3mm                            |
| 4    | 4-elements (Array Type)          |
| 5    | 0.5mm                            |
| 6    | 0.6mm                            |
| 7    | 0.7mm                            |
| 8    | 0.8mm                            |
| 9    | 0.85mm                           |
| A    | 1.0mm                            |
| B    | 1.25mm                           |
| C    | 1.6mm                            |
| D    | 2.0mm                            |
| E    | 2.5mm                            |
| F    | 3.2mm                            |
| M    | 1.15mm                           |
| N    | 1.35mm                           |
| Q    | 1.5mm                            |
| R    | 1.8mm                            |
| S    | 2.8mm                            |
| X    | Depends on individual standards. |

With the array type GNM series, "Dimension(T)" indicates the number of elements.

Continued on the following page. 

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5 Temperature Characteristics

| Temperature Characteristic Codes |                 |     | Temperature Characteristics |                   |   | Operating Temperature Range |
|----------------------------------|-----------------|-----|-----------------------------|-------------------|---|-----------------------------|
| Code                             | Public STD Code |     | Reference Temperature       | Temperature Range | Capacitance Change or Temperature Coefficient |                             |
| 1X                               | SL *1           | JIS | 20°C                        | 20 to 85°C        | +350 to -1000ppm/°C                           | -55 to 125°C                |
| 2C                               | CH *1           | JIS | 20°C                        | 20 to 125°C       | 0±60ppm/°C                                    | -55 to 125°C                |
| 2P                               | PH *1           | JIS | 20°C                        | 20 to 85°C        | -150±60ppm/°C                                 | -25 to 85°C                 |
| 2R                               | RH *1           | JIS | 20°C                        | 20 to 85°C        | -220±60ppm/°C                                 | -25 to 85°C                 |
| 2S                               | SH *1           | JIS | 20°C                        | 20 to 85°C        | -330±60ppm/°C                                 | -25 to 85°C                 |
| 2T                               | TH *1           | JIS | 20°C                        | 20 to 85°C        | -470±60ppm/°C                                 | -25 to 85°C                 |
| 3C                               | CJ *1           | JIS | 20°C                        | 20 to 125°C       | 0±120ppm/°C                                   | -55 to 125°C                |
| 3P                               | PJ *1           | JIS | 20°C                        | 20 to 85°C        | -150±120ppm/°C                                | -25 to 85°C                 |
| 3R                               | RJ *1           | JIS | 20°C                        | 20 to 85°C        | -220±120ppm/°C                                | -25 to 85°C                 |
| 3S                               | SJ *1           | JIS | 20°C                        | 20 to 85°C        | -330±120ppm/°C                                | -25 to 85°C                 |
| 3T                               | TJ *1           | JIS | 20°C                        | 20 to 85°C        | -470±120ppm/°C                                | -25 to 85°C                 |
| 3U                               | UJ *1           | JIS | 20°C                        | 20 to 85°C        | -750±120ppm/°C                                | -25 to 85°C                 |
| 4C                               | CK *1           | JIS | 20°C                        | 20 to 125°C       | 0±250ppm/°C                                   | -55 to 125°C                |
| 5C                               | COG *1          | EIA | 25°C                        | 25 to 125°C       | 0±30ppm/°C                                    | -55 to 125°C                |
| 5G                               | X8G *1          | EIA | 25°C                        | 25 to 150°C       | 0±30ppm/°C                                    | -55 to 150°C                |
| 6C                               | COH *1          | EIA | 25°C                        | 25 to 125°C       | 0±60ppm/°C                                    | -55 to 125°C                |
| 6P                               | P2H *1          | EIA | 25°C                        | 25 to 85°C        | -150±60ppm/°C                                 | -55 to 125°C                |
| 6R                               | R2H *1          | EIA | 25°C                        | 25 to 85°C        | -220±60ppm/°C                                 | -55 to 125°C                |
| 6S                               | S2H *1          | EIA | 25°C                        | 25 to 85°C        | -330±60ppm/°C                                 | -55 to 125°C                |
| 6T                               | T2H *1          | EIA | 25°C                        | 25 to 85°C        | -470±60ppm/°C                                 | -55 to 125°C                |
| 7U                               | U2J *1          | EIA | 25°C                        | 25 to 125°C *6    | -750±120ppm/°C                                | -55 to 125°C                |
| B1                               | B *2            | JIS | 20°C                        | -25 to 85°C       | ±10%  | -25 to 85°C                 |
| B3                               | B               | JIS | 20°C                        | -25 to 85°C       | ±10%  | -25 to 85°C                 |
| C7                               | X7S             | EIA | 25°C                        | -55 to 125°C      | ±22%  | -55 to 125°C                |
| C8                               | X6S             | EIA | 25°C                        | -55 to 105°C      | ±22%  | -55 to 105°C                |
| D7                               | X7T             | EIA | 25°C                        | -55 to 125°C      | +22, -33%                                     | -55 to 125°C                |
| D8                               | X6T             | EIA | 25°C                        | -55 to 105°C      | +22, -33%                                     | -55 to 105°C                |
| E7                               | X7U             | EIA | 25°C                        | -55 to 125°C      | +22, -56%                                     | -55 to 125°C                |
| F1                               | F *2            | JIS | 20°C                        | -25 to 85°C       | +30, -80%                                     | -25 to 85°C                 |
| F5                               | Y5V             | EIA | 25°C                        | -30 to 85°C       | +22, -82%                                     | -30 to 85°C                 |
| L8                               | X8L             | *3  | 25°C                        | -55 to 150°C      | +15, -40%                                     | -55 to 150°C                |
| R1                               | R *2            | JIS | 20°C                        | -55 to 125°C      | ±15%  | -55 to 125°C                |
| R3                               | R               | JIS | 20°C                        | -55 to 125°C      | ±15%  | -55 to 125°C                |
| R6                               | X5R             | EIA | 25°C                        | -55 to 85°C       | ±15%  | -55 to 85°C                 |
| R7                               | X7R             | EIA | 25°C                        | -55 to 125°C      | ±15%  | -55 to 125°C                |
| R9                               | X8R             | EIA | 25°C                        | -55 to 150°C      | ±15%  | -55 to 150°C                |
| W0                               | -               | -   | 25°C                        | -55 to 125°C      | ±10% *4                                       | -55 to 125°C                |
|                                  |                 |     |                             |                   | +22, -33% *5                                  |                             |

\*1 Please refer to table for Capacitance Change under reference temperature.


\*2 Capacitance change is specified with 50% rated voltage applied.

\*3 Murata Temperature Characteristic Code.

\*4 Apply DC350V bias.

\*5 No DC bias.

\*6 Rated Voltage 100Vdc max.: 25 to 85°C

Continued on the following page. 

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## ● Capacitance Change from each temperature


JIS Code

| Murata Code | Capacitance Change from 20°C (%) |       |       |       |       |       |
|-------------|----------------------------------|-------|-------|-------|-------|-------|
|             | -55°C                            |       | -25°C |       | -10°C |       |
|             | Max.                             | Min.  | Max.  | Min.  | Max.  | Min.  |
| <b>1X</b>   | -                                | -     | -     | -     | -     | -     |
| <b>2C</b>   | 0.82                             | -0.45 | 0.49  | -0.27 | 0.33  | -0.18 |
| <b>2P</b>   | -                                | -     | 1.32  | 0.41  | 0.88  | 0.27  |
| <b>2R</b>   | -                                | -     | 1.70  | 0.72  | 1.13  | 0.48  |
| <b>2S</b>   | -                                | -     | 2.30  | 1.22  | 1.54  | 0.81  |
| <b>2T</b>   | -                                | -     | 3.07  | 1.85  | 2.05  | 1.23  |
| <b>3C</b>   | 1.37                             | -0.90 | 0.82  | -0.54 | 0.55  | -0.36 |
| <b>3P</b>   | -                                | -     | 1.65  | 0.14  | 1.10  | 0.09  |
| <b>3R</b>   | -                                | -     | 2.03  | 0.45  | 1.35  | 0.30  |
| <b>3S</b>   | -                                | -     | 2.63  | 0.95  | 1.76  | 0.63  |
| <b>3T</b>   | -                                | -     | 3.40  | 1.58  | 2.27  | 1.05  |
| <b>3U</b>   | -                                | -     | 4.94  | 2.84  | 3.29  | 1.89  |
| <b>4C</b>   | 2.56                             | -1.88 | 1.54  | -1.13 | 1.02  | -0.75 |

EIA Code

| Murata Code  | Capacitance Change from 25°C (%) |       |       |       |       |       |
|--------------|----------------------------------|-------|-------|-------|-------|-------|
|              | -55°C                            |       | -30°C |       | -10°C |       |
|              | Max.                             | Min.  | Max.  | Min.  | Max.  | Min.  |
| <b>5C/5G</b> | 0.58                             | -0.24 | 0.40  | -0.17 | 0.25  | -0.11 |
| <b>6C</b>    | 0.87                             | -0.48 | 0.59  | -0.33 | 0.38  | -0.21 |
| <b>6P</b>    | 2.33                             | 0.72  | 1.61  | 0.50  | 1.02  | 0.32  |
| <b>6R</b>    | 3.02                             | 1.28  | 2.08  | 0.88  | 1.32  | 0.56  |
| <b>6S</b>    | 4.09                             | 2.16  | 2.81  | 1.49  | 1.79  | 0.95  |
| <b>6T</b>    | 5.46                             | 3.28  | 3.75  | 2.26  | 2.39  | 1.44  |
| <b>7U</b>    | 8.78                             | 5.04  | 6.04  | 3.47  | 3.84  | 2.21  |

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⑥ Rated Voltage


| Code      | Rated Voltage   |
|-----------|---|
| <b>0E</b> | DC2.5V  |
| <b>0G</b> | DC4V  |
| <b>0J</b> | DC6.3V  |
| <b>1A</b> | DC10V   |
| <b>1C</b> | DC16V   |
| <b>1E</b> | DC25V   |
| <b>YA</b> | DC35V   |
| <b>1H</b> | DC50V   |
| <b>2A</b> | DC100V  |
| <b>2D</b> | DC200V  |
| <b>2E</b> | DC250V  |
| <b>YD</b> | DC300V  |
| <b>2H</b> | DC500V  |
| <b>2J</b> | DC630V  |
| <b>3A</b> | DC1kV   |
| <b>3D</b> | DC2kV   |
| <b>3F</b> | DC3.15kV  |
| <b>BB</b> | DC350V (for Camera Flash Circuit)                     |
| <b>E2</b> | AC250V  |
| <b>GB</b> | X2; AC250V (Safety Standard Certified Type GB)        |
| <b>GC</b> | X1/Y2; AC250V (Safety Standard Certified Type GC)     |
| <b>GD</b> | Y3; AC250V (Safety Standard Certified Type GD)        |
| <b>GF</b> | Y2, X1/Y2; AC250V (Safety Standard Certified Type GF) |

⑦ Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

| Code       | Capacitance |
|------------|-------------|
| <b>R50</b> | 0.5pF       |
| <b>1R0</b> | 1.0pF       |
| <b>100</b> | 10pF        |
| <b>103</b> | 10000pF     |

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**8** Capacitance Tolerance

| Code         | Capacitance Tolerance   | TC                      | Series                           | Capacitance Step |                         |
|--------------|-------------------------|-------------------------|----------------------------------|------------------|-------------------------|
| <b>W</b>     | ±0.05pF                 | CΔ                      | <b>GRM/GJM</b>                   | ≤9.9pF           | 0.1pF                   |
| <b>B</b>     | ±0.1pF                  | CΔ                      | <b>GRM/GJM</b>                   | ≤9.9pF           | 0.1pF                   |
|              |                         |                         | <b>GQM</b>                       | ≤1pF             | 0.1pF                   |
|              |                         |                         |                                  | 1.1 to 9.9pF     | 1pF step and E24 Series |
| <b>ERB</b>   | ≤9.9pF                  | 1pF step and E24 Series |                                  |                  |                         |
| <b>C</b>     | ±0.25pF                 | CΔ                      | <b>GRM/GJM</b>                   | ≤9.9pF           | 0.1pF                   |
|              |                         | except CΔ               | <b>GRM</b>                       | ≤5pF             | * 1pF                   |
|              |                         | CΔ                      | <b>ERB</b>                       | ≤9.9pF           | 1pF step and E24 Series |
|              |                         |                         | <b>GQM</b>                       | ≤1pF             | 0.1pF                   |
| 1.1 to 9.9pF | 1pF step and E24 Series |                         |                                  |                  |                         |
| <b>D</b>     | ±0.5pF                  | CΔ                      | <b>GRM/GJM</b>                   | 5.1 to 9.9pF     | 0.1pF                   |
|              |                         | except CΔ               | <b>GRM</b>                       | 5.1 to 9.9pF     | * 1pF                   |
|              |                         | CΔ                      | <b>ERB/GQM</b>                   | 5.1 to 9.9pF     | 1pF step and E24 Series |
| <b>G</b>     | ±2%                     | CΔ                      | <b>GJM</b>                       | ≥10pF            | E12 Series              |
|              |                         | CΔ                      | <b>GQM/ERB</b>                   | ≥10pF            | E24 Series              |
| <b>J</b>     | ±5%                     | CΔ-SL                   | <b>GRM/GA3</b>                   | ≥10pF            | E12 Series              |
|              |                         | CΔ                      | <b>ERB/GQM/GJM</b>               | ≥10pF            | E24 Series              |
|              |                         | U2J                     | <b>GCM</b>                       |                  | E6 Series               |
| <b>K</b>     | ±10%                    | B, R, X7R, X5R, ZLM     | <b>GRM/GR7/GA3</b>               |                  | E6 Series               |
|              |                         | C0G                     | <b>GNM</b>                       |                  | E6 Series               |
|              |                         | B, R, X7R, X5R, ZLM     | <b>GR4, GMD</b>                  |                  | E12 Series              |
| <b>M</b>     | ±20%                    | B, R, X7R, X7S          | <b>GRM/GMA</b>                   |                  | E6 Series               |
|              |                         | X5R, X7R, X7S           | <b>GNM</b>                       |                  | E3 Series               |
|              |                         | X7R                     | <b>GA2</b>                       |                  | E3 Series               |
|              |                         | X5R, X7R, X7S, X6S      | <b>LLL/LLA/LLM</b>               |                  | E3 Series               |
| <b>Z</b>     | +80%, -20%              | F, Y5V                  | <b>GRM</b>                       |                  | E3 Series               |
| <b>R</b>     |                         |                         | Depends on individual standards. |                  |                         |

\* E24 series is also available.

**9** Individual Specification Code

Expressed by three figures.

**10** Packaging

| Code     | Packaging                   |
|----------|-----------------------------|
| <b>L</b> | ø180mm Embossed Taping      |
| <b>D</b> | ø180mm Paper Taping         |
| <b>E</b> | ø180mm Paper Taping (LLL15) |
| <b>K</b> | ø330mm Embossed Taping      |
| <b>J</b> | ø330mm Paper Taping         |
| <b>F</b> | ø330mm Paper Taping (LLL15) |
| <b>B</b> | Bulk                        |
| <b>C</b> | Bulk Case                   |
| <b>T</b> | Bulk Tray                   |

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**Radial Lead Type Monolithic Ceramic Capacitors**

(Part Number) **RP** **E** **R7** **1H** **104** **K** **2** **M1** **A03** **A**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Product ID / ② Series/Terminal

| Product ID | Series/Terminal |   |
|------------|-----------------|---|
| <b>RP</b>  | <b>E</b>        | Radial Lead Type Monolithic Ceramic Capacitors (DC25V-DC100V)                             |
| <b>RH</b>  | <b>E/D</b>      | Radial Lead Type Monolithic Ceramic Capacitors 150°C max. (for Automotive) (DC50V-DC100V) |
| <b>RD</b>  | <b>E</b>        | Radial Lead Type Monolithic Ceramic Capacitors (Only for Commercial Use) (DC250V-DC630V)  |

③ Temperature Characteristics

| Code      | Temperature Characteristics | Temperature Range | Capacitance Change or Temperature Coefficient | Operating Temperature Range |
|-----------|-----------------------------|-------------------|---|-----------------------------|
| <b>5C</b> | C0G                         | 25 to 125°C       | 0±30ppm/°C                                    | -55 to 125°C                |
| <b>F5</b> | Y5V                         | -30 to 85°C       | +22, -82%                                     | -30 to 85°C                 |
| <b>L8</b> | X8L                         | -55 to 125°C      | ±15%  | -55 to 150°C                |
|           |                             | 125 to 150°C      | +15, -40%                                     |                             |
| <b>R7</b> | X7R                         | -55 to 125°C      | ±15%  | -55 to 125°C                |

④ Rated Voltage

| Code      | Rated Voltage |
|-----------|---------------|
| <b>1E</b> | DC25V         |
| <b>1H</b> | DC50V         |
| <b>2A</b> | DC100V        |
| <b>2E</b> | DC250V        |
| <b>2J</b> | DC630V        |

⑥ Capacitance Tolerance

| Code     | Capacitance Tolerance | Temperature Characteristics | Capacitance Step    |
|----------|-----------------------|-----------------------------|---------------------|
| <b>C</b> | ±0.25pF               | C0G                         | ≤5pF : 1pF Step     |
| <b>D</b> | ±0.5pF                |                             | 6 to 9pF : 1pF Step |
| <b>J</b> | ±5%                   |                             | ≥10 : E12 Series    |
| <b>K</b> | ±10%                  | X7R                         | E6 Series           |
| <b>M</b> | ±20%                  | Z5U                         | E3 Series           |
| <b>Z</b> | +80%, -20%            | Y5V                         | E3 Series           |

⑦ Dimensions (LxW)

| Code     | Dimensions (LxW)   |
|----------|--|
| <b>1</b> | 4.0×3.5mm  |
| <b>2</b> | 5.0×3.5mm or 5.5×4.0mm or 5.7×4.5mm<br>(Depends on Part Number List) |
| <b>3</b> | 5.0×4.5mm or 5.5×5.0mm (Depends on Part Number List)                 |
| <b>4</b> | 7.5×5.0mm  |
| <b>5</b> | 7.5×7.5mm*   |
| <b>6</b> | 10.0×10.0mm  |
| <b>7</b> | 12.5×12.5mm  |
| <b>8</b> | 7.5×5.5mm  |
| <b>U</b> | 7.7×12.5mm*  |

\* DC630V: W+0.5mm

⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑧ Lead Style

| Code         | Lead Style           | Lead Spacing |
|--------------|----------------------|--------------|
| <b>A2</b>    | Straight Long        | 2.5mm        |
| <b>B1</b>    | Straight Long        | 5.0mm        |
| <b>C1</b>    | Straight Long        | 10.0mm       |
| <b>DB</b>    | Straight Taping      | 2.5mm        |
| <b>E1/E2</b> | Straight Taping      | 5.0mm        |
| <b>K1</b>    | Inside Crimp         | 5.0mm        |
| <b>M1/M2</b> | Inside Crimp Taping  | 5.0mm        |
| <b>P1</b>    | Outside Crimp        | 2.5mm        |
| <b>S1/S2</b> | Outside Crimp Taping | 2.5mm        |

Lead distance between reference and bottom planes.

M1, S1 : H<sub>0</sub> = 16.0±0.5mm

M2, S2 : H<sub>0</sub> = 20.0±0.5mm

E1 : H = 17.5±0.5mm

E2 : H = 20.0±0.5mm

⑨ Individual Specification Code

Expressed by three figures.

⑩ Packaging

| Code     | Packaging |
|----------|-----------|
| <b>A</b> | Ammo Pack |
| <b>B</b> | Bulk      |

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**High Voltage Ceramic Capacitors (250V-6.3kV)**

(Part Number) **DE B B3 3A 102 K N2 A**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

**① Product ID**

| Product ID |   |
|------------|---|
| <b>DE</b>  | High Voltage Ceramic Capacitors (250V - 6.3kV) / Safety Standard Certified Ceramic Capacitors |

**② Series Category**

| Code     | Outline      | Contents   |
|----------|--------------|--|
| <b>A</b> | High Voltage | Class 1 (char. SL) DC1-3.15kV Rated                              |
| <b>B</b> |              | Class 2 DC1-3.15kV Rated   |
| <b>C</b> |              | Class 1, 2 DC6.3kV Rated   |
| <b>H</b> |              | High Temperature Guaranteed, Low-dissipation Factor (char. R, C) |
| <b>S</b> |              | High Temperature Guaranteed, Low-dissipation Factor (char. D)    |
| <b>F</b> |              | LCD Backlight Inverter Circuit/6.3kVp-p                          |

First three digits (①Product ID and ②Series Category) express "Series Name".

**③ Temperature Characteristics**

| Code      | Temperature Characteristics | Cap. Change or Temp. Coeff. | Temperature Range |
|-----------|-----------------------------|-----------------------------|-------------------|
| <b>B3</b> | B                           | ±10%                        | -25 to +85°C      |
| <b>E3</b> | E                           | +20%, -55%                  |                   |
| <b>F3</b> | F                           | +30%, -80%                  |                   |
| <b>C3</b> | C                           | ±20%                        | -25 to +85°C      |
|           |                             | +15%, -30%                  | +85 to +125°C     |
| <b>R3</b> | R                           | ±15%                        | -25 to +85°C      |
|           |                             | +15%, -30%                  | +85 to +125°C     |
| <b>D3</b> | D                           | +20%, -30%                  | -25 to +125°C     |
| <b>1X</b> | SL                          | +350 to -1000ppm/°C         | +20 to +85°C      |
| <b>2C</b> | CH                          | 0±60ppm/°C                  | +20 to +85°C      |

**④ Rated Voltage**

| Code      | Rated Voltage |
|-----------|---------------|
| <b>2E</b> | DC250V        |
| <b>2H</b> | DC500V        |
| <b>3A</b> | DC1kV         |
| <b>3D</b> | DC2kV         |
| <b>3F</b> | DC3.15kV      |
| <b>3J</b> | DC6.3kV       |
| <b>LH</b> | 6.3kVp-p      |

**⑤ Capacitance**

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers.

**⑥ Capacitance Tolerance**

| Code     | Capacitance Tolerance |
|----------|-----------------------|
| <b>C</b> | ±0.25pF               |
| <b>D</b> | ±0.5pF                |
| <b>J</b> | ±5%                   |
| <b>K</b> | ±10%                  |
| <b>Z</b> | +80%, -20%            |

**⑦ Lead Style**

| Code         | Lead Style            | Dimensions(mm) |               |                     |
|--------------|-----------------------|----------------|---------------|---------------------|
|              |                       | Lead Spacing   | Lead Diameter | Pitch of Components |
| <b>A2</b>    | Vertical Crimp Long   | 5              | ø0.6±0.05     | -                   |
| <b>A3</b>    |                       | 7.5            |               |                     |
| <b>A4</b>    |                       | 10             |               |                     |
| <b>B2/J2</b> | Vertical Crimp Short  | 5              | ø0.6±0.05     | -                   |
| <b>B3/J3</b> |                       | 7.5            |               |                     |
| <b>B4</b>    |                       | 10             |               |                     |
| <b>C1</b>    | Straight Long         | 5              | ø0.5±0.05     | -                   |
| <b>C3</b>    |                       | 7.5            |               |                     |
| <b>C4</b>    |                       | 10             |               |                     |
| <b>CD</b>    | Straight Short        | 7.5            | ø0.5±0.05     | -                   |
| <b>D1</b>    |                       | 5              |               |                     |
| <b>D3</b>    |                       | 7.5            |               |                     |
| <b>DD</b>    | Vertical Crimp Taping | 7.5            | ø0.6±0.05     | -                   |
| <b>N2</b>    |                       | 5              |               |                     |
| <b>N3</b>    |                       | 7.5            |               |                     |
| <b>N7</b>    | Straight Taping       | 7.5            | ø0.6±0.05     | -                   |
| <b>P2</b>    |                       | 5              |               |                     |
| <b>P3</b>    |                       | 7.5            |               |                     |

**⑧ Packaging**

| Code     | Packaging |
|----------|-----------|
| <b>A</b> | Ammo Pack |
| <b>B</b> | Bulk      |

**⑨ Individual Specification Code**

In case part number cannot be identified without "Individual Specification", it is added at the end of part number. Expressed by three-digit alphanumerics.



**Safety Standard Certified Ceramic Capacitors**

(Part Number) **DE** **2** **E3** **KH** **102** **M** **N3** **A**   
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

| Product ID |   |
|------------|---|
| <b>DE</b>  | High Voltage Ceramic Capacitors (250V - 6.3kV) / Safety Standard Certified Ceramic Capacitors |

② Series Category

| Code     | Outline                   | Contents  |
|----------|---------------------------|---|
| <b>1</b> | Safety Standard Certified | IEC60384-14 Class X1, Y1  |
| <b>2</b> |                           | IEC60384-14 Class X1, Y2  |
| <b>J</b> | AC250V (r.m.s.)           | "Products which are based on the Electrical Appliance and Material Safety Law of Japan" |

In case of Electrical Appliance and Material Safety Law of Japan, first three digits (①Product ID and ②Series Category) express "Series Name".  
 In case of Safety Certified Capacitors, first three digits express product code. The following fourth figure expresses certified type shown in ④Safety Standard Certified Type column.

③ Temperature Characteristics

| Code      | Temperature Characteristics | Cap.Change or Temp. Coeff. | Temperature Range |
|-----------|-----------------------------|----------------------------|-------------------|
| <b>B3</b> | B                           | ±10%                       | -25 to +85°C      |
| <b>E3</b> | E                           | +20%, -55%                 |                   |
| <b>F3</b> | F                           | +30%, -80%                 |                   |
| <b>1X</b> | SL                          | +350 to -1000ppm/°C        | +20 to +85°C      |

④ Rated Voltage/Safety Standard Certified Type

| Code      | Rated Voltage                                       |
|-----------|---|
| <b>E2</b> | AC250V  |
| <b>KH</b> | X1, Y2; AC250V, (Safety Standard Certified Type KH) |
| <b>KY</b> | X1, Y2; AC250V, (Safety Standard Certified Type KY) |
| <b>KX</b> | X1, Y1; AC250V, (Safety Standard Certified Type KX) |

⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers.

⑥ Capacitance Tolerance

| Code     | Capacitance Tolerance |
|----------|-----------------------|
| <b>J</b> | ±5%                   |
| <b>K</b> | ±10%                  |
| <b>M</b> | ±20%                  |
| <b>Z</b> | +80%, -20%            |

⑦ Lead Style

| Code      | Lead Style            | Dimensions (mm) |                 |                     |      |
|-----------|-----------------------|-----------------|-----------------|---------------------|------|
|           |                       | Lead Spacing    | Lead Diameter   | Pitch of Components |      |
| <b>A2</b> | Vertical Crimp Long   | 5               | ø0.6±0.05       | -                   |      |
| <b>A3</b> |                       | 7.5             |                 |                     |      |
| <b>A4</b> |                       | 10              |                 |                     |      |
| <b>A5</b> |                       | 10              | ø0.6+0.1, -0.05 |                     |      |
| <b>B2</b> | Vertical Crimp Short  | 5               | ø0.6±0.05       | -                   |      |
| <b>B3</b> |                       | 7.5             |                 |                     |      |
| <b>B4</b> |                       | 10              |                 |                     |      |
| <b>B5</b> |                       | 10              | ø0.6+0.1, -0.05 |                     |      |
| <b>C3</b> | Straight Long         | 7.5             | ø0.6±0.05       | -                   |      |
| <b>D3</b> | Straight Short        | 7.5             | ø0.6±0.05       | -                   |      |
| <b>N2</b> | Vertical Crimp Taping | 5               | ø0.6±0.05       | 12.7                |      |
| <b>N3</b> |                       | 7.5             |                 | 15                  |      |
| <b>N4</b> |                       | 10              |                 | 25.4                |      |
| <b>N5</b> |                       | 10              |                 | ø0.6+0.1, -0.05     | 25.4 |
| <b>N7</b> |                       | 7.5             |                 | ø0.6±0.05           | 30   |
| <b>P3</b> | Straight Taping       | 7.5             | ø0.6±0.05       | 15                  |      |

⑧ Packaging

| Code     | Packaging |
|----------|-----------|
| <b>A</b> | Ammo Pack |
| <b>B</b> | Bulk      |

⑨ Individual Specification

In case part number cannot be identified without "Individual Specification", it is added at the end of part number. Expressed by three figures.

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**High Voltage Ceramic Capacitors (over 10kV)**

(Part Number) **DH S 4E 4D 142 K L2 B**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

| Product ID |   |
|------------|---|
| <b>DH</b>  | High Voltage Ceramic Capacitors (over 10kV) |

② Series Category

| Code     | Contents  |
|----------|-----------|
| <b>S</b> | Mold Type |

First three digits of part number (①Product ID and ②Series Category) express "Series Name".

③ Temperature Characteristics

| Code      | Temp. Char.  | Cap. Change or Temp. Coeff. | Temp. Range  |
|-----------|--------------|-----------------------------|--------------|
| <b>F4</b> | <b>Z5V</b>   | +22%, -82%                  | +10 to +85°C |
| <b>4E</b> | <b>N4700</b> | -4700±1000ppm/°C            | +20 to +85°C |

④ Rated Voltage

| Code      | Rated Voltage |
|-----------|---------------|
| <b>4A</b> | DC10kV        |
| <b>4C</b> | DC15kV        |
| <b>4D</b> | DC20kV        |
| <b>4F</b> | DC30kV        |
| <b>4G</b> | DC40kV        |

⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers.

⑥ Capacitance Tolerance

| Code     | Capacitance Tolerance |
|----------|-----------------------|
| <b>K</b> | ±10%                  |
| <b>M</b> | ±20%                  |
| <b>Z</b> | +80%, -20%            |

⑦ Body Diameter and Terminal Type

| Code      | Body Diameter | Terminal Type   |
|-----------|---------------|---|
| <b>C2</b> | 20mm          | ISO M4, P0.7<br>Tapped Holes<br>(Metric Screw Thread) |
| <b>D2</b> | 24mm          |   |
| <b>H2</b> | 30mm          |   |
| <b>L2</b> | 38mm          |   |
| <b>N2</b> | 43mm          |   |
| <b>R2</b> | 52mm          |   |
| <b>T2</b> | 60mm          | No.8-32, NC-2B<br>Tapped Holes<br>(Inch Screw Thread) |
| <b>CX</b> | 20mm          |   |
| <b>DX</b> | 24mm          |   |
| <b>HX</b> | 30mm          |   |
| <b>LX</b> | 38mm          |   |
| <b>NX</b> | 43mm          |   |
| <b>RX</b> | 52mm          |   |
| <b>TX</b> | 60mm          |   |

⑧ Packaging

| Code     | Packaging |
|----------|-----------|
| <b>B</b> | Bulk      |

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Ceramic Trimmer Capacitors

(Part Number) **TZ** **Y2** **R** **200** **A** **001** **R00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Series/Terminal

| Code      | Series/Terminal                   |
|-----------|-----------------------------------|
| <b>03</b> | 6mm Size Lead Type                |
| <b>B4</b> | 4mm Size SMD/Lead Type            |
| <b>W4</b> | 4mm Size SMD Type                 |
| <b>C3</b> | 3mm Size SMD Type                 |
| <b>S2</b> | 2mm Size SMD Type (Height 1.0mm)  |
| <b>Y2</b> | 2mm Size SMD Type (Height 1.25mm) |
| <b>V2</b> | 2mm Size SMD Type (Height 1.45mm) |
| <b>R1</b> | 1mm Size SMD Type (Height 0.90mm) |

③ Temperature Characteristics

④ Maximum Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑤ Terminal Shape

⑥ Individual Specification

| Code       | Individual Specifications                    |
|------------|--|
| <b>001</b> | <b>TZR1, TZS2, TZY2, TZW4</b> Standard Type  |
| <b>110</b> | <b>TZV2, TZC3</b> (Minus Slot) Standard Type |
| <b>169</b> | <b>TZ03</b> Standard Type                    |
| <b>310</b> | <b>TZC3</b> (Plus Slot) Standard Type        |
| <b>A10</b> | <b>TZB4</b> No-cover Film Standard Type      |
| <b>B10</b> | <b>TZB4</b> with Cover Film Standard Type    |

⑦ Packaging

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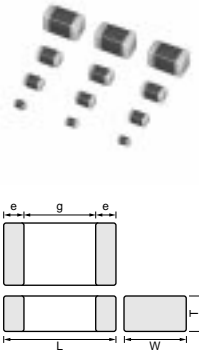
# Monolithic Ceramic Capacitors

|  | Series                | Dimensions (mm)  | Capacitance Range (F) |       |      |       |        |        |        |         |         |        |      |         |  |
|--|-----------------------|------------------|-----------------------|-------|------|-------|--------|--------|--------|---------|---------|--------|------|---------|--|
|  |                       |                  | 0.1p                  | 1p    | 10p  | 100p  | 1000p  | 0.01μ  | 0.1μ   | 1μ      | 10μ     | 100μ   |      |         |  |
| For General Electronics Equipment        | GRM02                 | 0.4X0.2          | 0.2pF                 |       |      |       |        |        |        | 0.01μF  |         |        |      |         |  |
|  | GRM03                 | 0.6X0.3          | 0.1pF                 |       |      |       |        |        |        | 0.047μF |         |        |      |         |  |
|  | GRM15                 | 1.0X0.5          | 0.1pF                 |       |      |       |        |        |        |         |         | 4.7μF  |      |         |  |
|  | GRM18                 | 1.6X0.8          |                       |       | 10pF |       |        |        |        |         |         |        | 10μF |         |  |
|  | GRM21                 | 2.0X1.25         |                       |       |      | 100pF |        |        |        |         |         |        | 22μF |         |  |
|  | GRM31                 | 3.2X1.6          |                       |       |      |       | 1800pF |        |        |         |         |        |      | 100μF   |  |
| For Automotive                           | GCM03                 | 0.6X0.3          |                       | 1pF   |      |       |        |        |        | 0.01μF  |         |        |      |         |  |
|  | GCM15                 | 1.0X0.5          |                       | 1pF   |      |       |        |        |        | 0.1μF   |         |        |      |         |  |
|  | GCM18                 | 1.6X0.8          |                       | 1pF   |      |       |        |        |        |         | 2.2μF   |        |      |         |  |
|  | GCM21                 | 2.0X1.25         |                       |       |      | 100pF |        |        |        |         |         |        | 10μF |         |  |
|  | GCM31                 | 3.2X1.6          |                       |       |      |       | 1800pF |        |        |         |         |        | 22μF |         |  |
|  | GCM32                 | 3.2X2.5          |                       |       |      |       |        |        |        | 1.0μF   |         |        | 47μF |         |  |
| Array                                    | GNM0M                 | 0.9X0.6          |                       |       |      |       |        | 0.01μF |        | 1.0μF   |         |        |      |         |  |
|  | GNM1M                 | 1.37X1.0         |                       |       | 10pF |       |        |        |        | 2.2μF   |         |        |      |         |  |
|  | GNM21                 | 2.0X1.25         |                       |       | 10pF |       |        |        |        | 2.2μF   |         |        |      |         |  |
|  | GNM31                 | 3.2X1.6          |                       |       | 10pF |       |        |        |        | 1.0μF   |         |        |      |         |  |
| Low ESL                                  | LLL15                 | 0.5X1.0          |                       |       |      |       |        |        | 0.1μF  | 0.47μF  |         |        |      |         |  |
|  | LLL18                 | 0.8X1.6          |                       |       |      |       | 2200pF |        |        | 2.2μF   |         |        |      |         |  |
|  | LLL21                 | 1.25X2.0         |                       |       |      |       |        |        | 0.01μF | 2.2μF   |         |        |      |         |  |
|  | LLL31                 | 1.6X3.2          |                       |       |      |       |        |        | 0.01μF |         |         | 10μF   |      |         |  |
|  | LLA18                 | 1.6X0.8          |                       |       |      |       |        |        | 0.1μF  | 2.2μF   |         |        |      |         |  |
|  | LLA21                 | 2.0X1.25         |                       |       |      |       |        |        | 0.01μF | 4.7μF   |         |        |      |         |  |
|  | LLA31                 | 3.2X1.6          |                       |       |      |       |        |        | 0.1μF  | 2.2μF   |         |        |      |         |  |
|  | LLM21                 | 2.0X1.25         |                       |       |      |       |        |        | 0.01μF | 2.2μF   |         |        |      |         |  |
|  | LLM31                 | 3.2X1.6          |                       |       |      |       |        |        | 0.1μF  | 2.2μF   |         |        |      |         |  |
| High-Q                                   | GJM03                 | 0.6X0.3          | 0.2pF                 |       |      | 33pF  |        |        |        |         |         |        |      |         |  |
|  | GJM15                 | 1.0X0.5          | 0.1pF                 |       |      | 20pF  |        |        |        |         |         |        |      |         |  |
| High Frequency Series                    | GQM18                 | 1.6X0.8          | 0.1pF                 |       |      | 100pF |        |        |        |         |         |        |      |         |  |
|  | GQM21                 | 2.0X1.25         |                       |       |      | 100pF |        |        |        |         |         |        |      |         |  |
|  | ERB18                 | 1.6X0.8          |                       | 0.5pF |      | 100pF |        |        |        |         |         |        |      |         |  |
|  | ERB21                 | 2.0X1.25         |                       | 0.5pF |      | 100pF |        |        |        |         |         |        |      |         |  |
|  | ERB32                 | 3.2X2.5          |                       | 0.5pF |      | 160pF |        |        |        |         |         |        |      |         |  |
| Micro Chip                               | GMA0D                 | 0.38X0.38        |                       |       |      |       |        |        |        | 0.01μF  |         |        |      |         |  |
|  | GMA05                 | 0.5X0.5          |                       |       |      | 100pF |        |        |        | 0.1μF   |         |        |      |         |  |
|  | GMA08                 | 0.8X0.8          |                       |       |      |       | 1500pF |        |        | 0.47μF  |         |        |      |         |  |
|  | GMD03                 | 0.6X0.3          |                       |       |      | 100pF |        |        |        | 0.1μF   |         |        |      |         |  |
|  | GMD15                 | 1.0X0.5          |                       |       |      |       | 220pF  |        |        | 1.0μF   |         |        |      |         |  |
| Medium Voltage                           | GRM (Low Dissipation) | 2.0X1.25-4.5X2.0 | Rated Voltage         |       |      |       |        |        |        |         |         |        |      |         |  |
|  |                       |                  | DC250V                |       |      | 100pF |        |        |        |         |         | 0.01μF |      |         |  |
|  |                       |                  | DC630V                |       | 10pF |       |        |        |        |         | 2200pF  |        |      |         |  |
|  | DC1kV                 |                  | 10pF                  |       |      |       |        |        | 470pF  |         |         |        |      |         |  |
|  | DC2kV                 |                  | 10pF                  |       |      |       |        |        | 220pF  |         |         |        |      |         |  |
|  | DC3.15kV              |                  | 27pF                  |       |      | 100pF |        |        |        |         |         |        |      |         |  |
| GRM (High Capacitance)                   | 1.6X0.8-5.7X5.0       | DC250V           |                       |       |      | 220pF |        |        |        |         |         |        | 1μF  |         |  |
|  |                       | DC630V           |                       |       |      |       |        |        | 1000pF |         |         | 0.22μF |      |         |  |
|  |                       | DC1kV            |                       |       |      |       |        |        | 470pF  |         |         | 0.1μF  |      |         |  |
| GRM (for LCD Backlight Inverter Circuit) | 4.5X2.0               | DC3.15kV         |                       |       | 5pF  |       |        |        |        |         | 47pF    |        |      |         |  |
| GR4 (for Information Devices)            | 4.5X2.0-5.7X5.0       | DC2kV            |                       |       |      |       |        | 100pF  |        |         | 0.01μF  |        |      |         |  |
| GR7 (for Camera Flash Circuit)           | 3.2X1.6               | DC350V           |                       |       |      |       |        |        | 0.01μF |         | 0.047μF |        |      |         |  |
| GCM (Automotive Low Dissipation)         | 2.0X1.25-3.2X2.5      | DC250V           |                       |       |      | 100pF |        |        |        |         |         | 0.01μF |      |         |  |
|  |                       | DC630V           |                       |       |      | 10pF  |        |        |        |         |         | 2200pF |      |         |  |
| AC250V                                   | GA2                   | 4.5X2.0-5.7X5.0  | AC250V                |       |      |       |        |        |        | 470pF   |         | 0.1μF  |      |         |  |
| Safety Standard Certified                | GA3 (Type GC)         | 5.7X5.0          | Class / Rated Voltage |       |      |       |        |        |        |         |         |        |      |         |  |
|  |                       |                  | X1,Y2/AC250V          |       |      |       |        |        |        |         |         | 100pF  |      | 330pF   |  |
|  |                       |                  | Y3/AC250V             |       |      |       |        |        |        |         | 10pF    |        |      | 4700pF  |  |
|  |                       |                  | Y2/AC250V             |       |      |       |        |        |        |         | 10pF    |        |      | 4700pF  |  |
| GA3 (Type GF)                            | 4.5X2.0-5.7X5.0       | X1,Y2/AC250V     |                       |       |      |       |        |        |        |         |         | 470pF  |      | 4700pF  |  |
|  |                       | X2/AC250V        |                       |       |      |       |        |        |        |         |         | 0.01μF |      | 0.056μF |  |

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# Monolithic Ceramic Capacitors

for General Purpose GRM Series



| Part Number | Dimensions (mm) |           |            |              |        |
|-------------|-----------------|-----------|------------|--------------|--------|
|             | L               | W         | T          | e            | g min. |
| GRM022      | 0.4 ±0.02       | 0.2 ±0.02 | 0.2 ±0.02  | 0.07 to 0.14 | 0.13   |
| GRM033      | 0.6 ±0.03       | 0.3 ±0.03 | 0.3 ±0.03  | 0.1 to 0.2   | 0.2    |
| GRM15X      |                 |           | 0.25 ±0.05 |              |        |
| GRM153      | 1.0 ±0.05       | 0.5 ±0.05 | 0.3 ±0.03  | 0.1 to 0.3   | 0.4    |
| GRM155      |                 |           | 0.5 ±0.05  | 0.15 to 0.35 | 0.3    |
| GRM185      | 1.6 ±0.1        | 0.8 ±0.1  | 0.5 ±0.1   | 0.2 to 0.5   | 0.5    |
| GRM188*     |                 |           | 0.8 ±0.1   |              |        |
| GRM216      |                 |           | 0.6 ±0.1   |              |        |
| GRM219      | 2.0 ±0.1        | 1.25 ±0.1 | 0.85 ±0.1  | 0.2 to 0.7   | 0.7    |
| GRM21A      |                 |           | 1.0 ±0.1   |              |        |
| GRM21B      |                 |           | 1.25 ±0.1  |              |        |
| GRM316      |                 |           | 0.6 ±0.1   |              |        |
| GRM319      | 3.2 ±0.15       | 1.6 ±0.15 | 0.85 ±0.1  | 0.3 to 0.8   | 1.5    |
| GRM31M      |                 |           | 1.15 ±0.1  |              |        |
| GRM31C      | 3.2 ±0.2        | 1.6 ±0.2  | 1.6 ±0.2   |              |        |

| Part Number | Dimensions (mm) |          |                  |          |        |
|-------------|-----------------|----------|------------------|----------|--------|
|             | L               | W        | T                | e        | g min. |
| GRM329      |                 |          | 0.85 ±0.15/-0.05 |          |        |
| GRM32A      |                 |          | 1.0 ±0/-0.2      |          |        |
| GRM32M      |                 |          | 1.15 ±0.1        |          |        |
| GRM32N      | 3.2 ±0.3        | 2.5 ±0.2 | 1.35 ±0.15       | 0.3 min. | 1.0    |
| GRM32C      |                 |          | 1.6 ±0.2         |          |        |
| GRM32R      |                 |          | 1.8 ±0.2         |          |        |
| GRM32D      |                 |          | 2.0 ±0.2         |          |        |
| GRM32E      |                 |          | 2.5 ±0.2         |          |        |

\* Bulk Case: 1.6 ±0.07(L) × 0.8 ±0.07(W) × 0.8 ±0.07(T)  
\* The figure indicates typical Specification.

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 0.1pF(R10)        | ±0.05pF(W) |                    | GRM0335C1HR10WD01D | GRM1555C1HR10WA01D |
|                   | ±0.1pF(B)  |                    | GRM0335C1HR10BD01D | GRM1555C1HR10BA01D |
| 0.2pF(R20)        | ±0.05pF(W) | GRM0225C1CR20WD05L | GRM0335C1HR20WD01D | GRM1555C1HR20WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR20BD05L | GRM0335C1HR20BD01D | GRM1555C1HR20BA01D |
| 0.3pF(R30)        | ±0.05pF(W) | GRM0225C1CR30WD05L | GRM0335C1HR30WD01D | GRM1555C1HR30WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR30BD05L | GRM0335C1HR30BD01D | GRM1555C1HR30BA01D |
| 0.4pF(R40)        | ±0.05pF(W) | GRM0225C1CR40WD05L | GRM0335C1HR40WD01D | GRM1555C1HR40WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR40BD05L | GRM0335C1HR40BD01D | GRM1555C1HR40BA01D |
| 0.5pF(R50)        | ±0.05pF(W) | GRM0225C1CR50WD05L | GRM0335C1HR50WD01D | GRM1555C1HR50WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR50BD05L | GRM0335C1HR50BD01D | GRM1555C1HR50BA01D |
| 0.6pF(R60)        | ±0.05pF(W) | GRM0225C1CR60WD05L | GRM0335C1HR60WD01D | GRM1555C1HR60WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR60BD05L | GRM0335C1HR60BD01D | GRM1555C1HR60BA01D |
| 0.7pF(R70)        | ±0.05pF(W) | GRM0225C1CR70WD05L | GRM0335C1HR70WD01D | GRM1555C1HR70WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR70BD05L | GRM0335C1HR70BD01D | GRM1555C1HR70BA01D |
| 0.8pF(R80)        | ±0.05pF(W) | GRM0225C1CR80WD05L | GRM0335C1HR80WD01D | GRM1555C1HR80WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR80BD05L | GRM0335C1HR80BD01D | GRM1555C1HR80BA01D |
| 0.9pF(R90)        | ±0.05pF(W) | GRM0225C1CR90WD05L | GRM0335C1HR90WD01D | GRM1555C1HR90WA01D |
|                   | ±0.1pF(B)  | GRM0225C1CR90BD05L | GRM0335C1HR90BD01D | GRM1555C1HR90BA01D |
| 1.0pF(1R0)        | ±0.05pF(W) | GRM0225C1C1R0WD05L | GRM0335C1H1R0WD01D | GRM1555C1H1R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R0BD05L | GRM0335C1H1R0BD01D | GRM1555C1H1R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R0CD05L | GRM0335C1H1R0CD01D | GRM1555C1H1R0CA01D |
| 1.1pF(1R1)        | ±0.05pF(W) | GRM0225C1C1R1WD05L | GRM0335C1H1R1WD01D | GRM1555C1H1R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R1BD05L | GRM0335C1H1R1BD01D | GRM1555C1H1R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R1CD05L | GRM0335C1H1R1CD01D | GRM1555C1H1R1CA01D |
| 1.2pF(1R2)        | ±0.05pF(W) | GRM0225C1C1R2WD05L | GRM0335C1H1R2WD01D | GRM1555C1H1R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R2BD05L | GRM0335C1H1R2BD01D | GRM1555C1H1R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R2CD05L | GRM0335C1H1R2CD01D | GRM1555C1H1R2CA01D |
| 1.3pF(1R3)        | ±0.05pF(W) | GRM0225C1C1R3WD05L | GRM0335C1H1R3WD01D | GRM1555C1H1R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R3BD05L | GRM0335C1H1R3BD01D | GRM1555C1H1R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R3CD05L | GRM0335C1H1R3CD01D | GRM1555C1H1R3CA01D |
| 1.4pF(1R4)        | ±0.05pF(W) | GRM0225C1C1R4WD05L | GRM0335C1H1R4WD01D | GRM1555C1H1R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R4BD05L | GRM0335C1H1R4BD01D | GRM1555C1H1R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R4CD05L | GRM0335C1H1R4CD01D | GRM1555C1H1R4CA01D |
| 1.5pF(1R5)        | ±0.05pF(W) | GRM0225C1C1R5WD05L | GRM0335C1H1R5WD01D | GRM1555C1H1R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R5BD05L | GRM0335C1H1R5BD01D | GRM1555C1H1R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R5CD05L | GRM0335C1H1R5CD01D | GRM1555C1H1R5CA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 1.6pF(1R6)        | ±0.05pF(W) | GRM0225C1C1R6WD05L | GRM0335C1H1R6WD01D | GRM1555C1H1R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R6BD05L | GRM0335C1H1R6BD01D | GRM1555C1H1R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R6CD05L | GRM0335C1H1R6CD01D | GRM1555C1H1R6CA01D |
| 1.7pF(1R7)        | ±0.05pF(W) | GRM0225C1C1R7WD05L | GRM0335C1H1R7WD01D | GRM1555C1H1R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R7BD05L | GRM0335C1H1R7BD01D | GRM1555C1H1R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R7CD05L | GRM0335C1H1R7CD01D | GRM1555C1H1R7CA01D |
| 1.8pF(1R8)        | ±0.05pF(W) | GRM0225C1C1R8WD05L | GRM0335C1H1R8WD01D | GRM1555C1H1R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R8BD05L | GRM0335C1H1R8BD01D | GRM1555C1H1R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R8CD05L | GRM0335C1H1R8CD01D | GRM1555C1H1R8CA01D |
| 1.9pF(1R9)        | ±0.05pF(W) | GRM0225C1C1R9WD05L | GRM0335C1H1R9WD01D | GRM1555C1H1R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C1R9BD05L | GRM0335C1H1R9BD01D | GRM1555C1H1R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C1R9CD05L | GRM0335C1H1R9CD01D | GRM1555C1H1R9CA01D |
| 2.0pF(2R0)        | ±0.05pF(W) | GRM0225C1C2R0WD05L | GRM0335C1H2R0WD01D | GRM1555C1H2R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R0BD05L | GRM0335C1H2R0BD01D | GRM1555C1H2R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R0CD05L | GRM0335C1H2R0CD01D | GRM1555C1H2R0CA01D |
| 2.1pF(2R1)        | ±0.05pF(W) | GRM0225C1C2R1WD05L | GRM0335C1H2R1WD01D | GRM1555C1H2R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R1BD05L | GRM0335C1H2R1BD01D | GRM1555C1H2R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R1CD05L | GRM0335C1H2R1CD01D | GRM1555C1H2R1CA01D |
| 2.2pF(2R2)        | ±0.05pF(W) | GRM0225C1C2R2WD05L | GRM0335C1H2R2WD01D | GRM1555C1H2R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R2BD05L | GRM0335C1H2R2BD01D | GRM1555C1H2R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R2CD05L | GRM0335C1H2R2CD01D | GRM1555C1H2R2CA01D |
| 2.3pF(2R3)        | ±0.05pF(W) | GRM0225C1C2R3WD05L | GRM0335C1H2R3WD01D | GRM1555C1H2R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R3BD05L | GRM0335C1H2R3BD01D | GRM1555C1H2R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R3CD05L | GRM0335C1H2R3CD01D | GRM1555C1H2R3CA01D |
| 2.4pF(2R4)        | ±0.05pF(W) | GRM0225C1C2R4WD05L | GRM0335C1H2R4WD01D | GRM1555C1H2R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R4BD05L | GRM0335C1H2R4BD01D | GRM1555C1H2R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R4CD05L | GRM0335C1H2R4CD01D | GRM1555C1H2R4CA01D |
| 2.5pF(2R5)        | ±0.05pF(W) | GRM0225C1C2R5WD05L | GRM0335C1H2R5WD01D | GRM1555C1H2R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R5BD05L | GRM0335C1H2R5BD01D | GRM1555C1H2R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R5CD05L | GRM0335C1H2R5CD01D | GRM1555C1H2R5CA01D |
| 2.6pF(2R6)        | ±0.05pF(W) | GRM0225C1C2R6WD05L | GRM0335C1H2R6WD01D | GRM1555C1H2R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R6BD05L | GRM0335C1H2R6BD01D | GRM1555C1H2R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R6CD05L | GRM0335C1H2R6CD01D | GRM1555C1H2R6CA01D |
| 2.7pF(2R7)        | ±0.05pF(W) | GRM0225C1C2R7WD05L | GRM0335C1H2R7WD01D | GRM1555C1H2R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R7BD05L | GRM0335C1H2R7BD01D | GRM1555C1H2R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R7CD05L | GRM0335C1H2R7CD01D | GRM1555C1H2R7CA01D |
| 2.8pF(2R8)        | ±0.05pF(W) | GRM0225C1C2R8WD05L | GRM0335C1H2R8WD01D | GRM1555C1H2R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R8BD05L | GRM0335C1H2R8BD01D | GRM1555C1H2R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R8CD05L | GRM0335C1H2R8CD01D | GRM1555C1H2R8CA01D |
| 2.9pF(2R9)        | ±0.05pF(W) | GRM0225C1C2R9WD05L | GRM0335C1H2R9WD01D | GRM1555C1H2R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C2R9BD05L | GRM0335C1H2R9BD01D | GRM1555C1H2R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C2R9CD05L | GRM0335C1H2R9CD01D | GRM1555C1H2R9CA01D |
| 3.0pF(3R0)        | ±0.05pF(W) | GRM0225C1C3R0WD05L | GRM0335C1H3R0WD01D | GRM1555C1H3R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R0BD05L | GRM0335C1H3R0BD01D | GRM1555C1H3R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R0CD05L | GRM0335C1H3R0CD01D | GRM1555C1H3R0CA01D |
| 3.1pF(3R1)        | ±0.05pF(W) | GRM0225C1C3R1WD05L | GRM0335C1H3R1WD01D | GRM1555C1H3R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R1BD05L | GRM0335C1H3R1BD01D | GRM1555C1H3R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R1CD05L | GRM0335C1H3R1CD01D | GRM1555C1H3R1CA01D |
| 3.2pF(3R2)        | ±0.05pF(W) | GRM0225C1C3R2WD05L | GRM0335C1H3R2WD01D | GRM1555C1H3R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R2BD05L | GRM0335C1H3R2BD01D | GRM1555C1H3R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R2CD05L | GRM0335C1H3R2CD01D | GRM1555C1H3R2CA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 3.3pF(3R3)        | ±0.05pF(W) | GRM0225C1C3R3WD05L | GRM0335C1H3R3WD01D | GRM1555C1H3R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R3BD05L | GRM0335C1H3R3BD01D | GRM1555C1H3R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R3CD05L | GRM0335C1H3R3CD01D | GRM1555C1H3R3CA01D |
| 3.4pF(3R4)        | ±0.05pF(W) | GRM0225C1C3R4WD05L | GRM0335C1H3R4WD01D | GRM1555C1H3R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R4BD05L | GRM0335C1H3R4BD01D | GRM1555C1H3R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R4CD05L | GRM0335C1H3R4CD01D | GRM1555C1H3R4CA01D |
| 3.5pF(3R5)        | ±0.05pF(W) | GRM0225C1C3R5WD05L | GRM0335C1H3R5WD01D | GRM1555C1H3R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R5BD05L | GRM0335C1H3R5BD01D | GRM1555C1H3R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R5CD05L | GRM0335C1H3R5CD01D | GRM1555C1H3R5CA01D |
| 3.6pF(3R6)        | ±0.05pF(W) | GRM0225C1C3R6WD05L | GRM0335C1H3R6WD01D | GRM1555C1H3R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R6BD05L | GRM0335C1H3R6BD01D | GRM1555C1H3R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R6CD05L | GRM0335C1H3R6CD01D | GRM1555C1H3R6CA01D |
| 3.7pF(3R7)        | ±0.05pF(W) | GRM0225C1C3R7WD05L | GRM0335C1H3R7WD01D | GRM1555C1H3R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R7BD05L | GRM0335C1H3R7BD01D | GRM1555C1H3R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R7CD05L | GRM0335C1H3R7CD01D | GRM1555C1H3R7CA01D |
| 3.8pF(3R8)        | ±0.05pF(W) | GRM0225C1C3R8WD05L | GRM0335C1H3R8WD01D | GRM1555C1H3R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R8BD05L | GRM0335C1H3R8BD01D | GRM1555C1H3R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R8CD05L | GRM0335C1H3R8CD01D | GRM1555C1H3R8CA01D |
| 3.9pF(3R9)        | ±0.05pF(W) | GRM0225C1C3R9WD05L | GRM0335C1H3R9WD01D | GRM1555C1H3R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C3R9BD05L | GRM0335C1H3R9BD01D | GRM1555C1H3R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C3R9CD05L | GRM0335C1H3R9CD01D | GRM1555C1H3R9CA01D |
| 4.0pF(4R0)        | ±0.05pF(W) | GRM0225C1C4R0WD05L | GRM0335C1H4R0WD01D | GRM1555C1H4R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R0BD05L | GRM0335C1H4R0BD01D | GRM1555C1H4R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R0CD05L | GRM0335C1H4R0CD01D | GRM1555C1H4R0CA01D |
| 4.1pF(4R1)        | ±0.05pF(W) | GRM0225C1C4R1WD05L | GRM0335C1H4R1WD01D | GRM1555C1H4R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R1BD05L | GRM0335C1H4R1BD01D | GRM1555C1H4R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R1CD05L | GRM0335C1H4R1CD01D | GRM1555C1H4R1CA01D |
| 4.2pF(4R2)        | ±0.05pF(W) | GRM0225C1C4R2WD05L | GRM0335C1H4R2WD01D | GRM1555C1H4R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R2BD05L | GRM0335C1H4R2BD01D | GRM1555C1H4R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R2CD05L | GRM0335C1H4R2CD01D | GRM1555C1H4R2CA01D |
| 4.3pF(4R3)        | ±0.05pF(W) | GRM0225C1C4R3WD05L | GRM0335C1H4R3WD01D | GRM1555C1H4R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R3BD05L | GRM0335C1H4R3BD01D | GRM1555C1H4R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R3CD05L | GRM0335C1H4R3CD01D | GRM1555C1H4R3CA01D |
| 4.4pF(4R4)        | ±0.05pF(W) | GRM0225C1C4R4WD05L | GRM0335C1H4R4WD01D | GRM1555C1H4R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R4BD05L | GRM0335C1H4R4BD01D | GRM1555C1H4R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R4CD05L | GRM0335C1H4R4CD01D | GRM1555C1H4R4CA01D |
| 4.5pF(4R5)        | ±0.05pF(W) | GRM0225C1C4R5WD05L | GRM0335C1H4R5WD01D | GRM1555C1H4R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R5BD05L | GRM0335C1H4R5BD01D | GRM1555C1H4R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R5CD05L | GRM0335C1H4R5CD01D | GRM1555C1H4R5CA01D |
| 4.6pF(4R6)        | ±0.05pF(W) | GRM0225C1C4R6WD05L | GRM0335C1H4R6WD01D | GRM1555C1H4R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R6BD05L | GRM0335C1H4R6BD01D | GRM1555C1H4R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R6CD05L | GRM0335C1H4R6CD01D | GRM1555C1H4R6CA01D |
| 4.7pF(4R7)        | ±0.05pF(W) | GRM0225C1C4R7WD05L | GRM0335C1H4R7WD01D | GRM1555C1H4R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R7BD05L | GRM0335C1H4R7BD01D | GRM1555C1H4R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R7CD05L | GRM0335C1H4R7CD01D | GRM1555C1H4R7CA01D |
| 4.8pF(4R8)        | ±0.05pF(W) | GRM0225C1C4R8WD05L | GRM0335C1H4R8WD01D | GRM1555C1H4R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R8BD05L | GRM0335C1H4R8BD01D | GRM1555C1H4R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R8CD05L | GRM0335C1H4R8CD01D | GRM1555C1H4R8CA01D |
| 4.9pF(4R9)        | ±0.05pF(W) | GRM0225C1C4R9WD05L | GRM0335C1H4R9WD01D | GRM1555C1H4R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C4R9BD05L | GRM0335C1H4R9BD01D | GRM1555C1H4R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C4R9CD05L | GRM0335C1H4R9CD01D | GRM1555C1H4R9CA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 5.0pF(5R0)        | ±0.05pF(W) | GRM0225C1C5R0WD05L | GRM0335C1H5R0WD01D | GRM1555C1H5R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R0BD05L | GRM0335C1H5R0BD01D | GRM1555C1H5R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R0CD05L | GRM0335C1H5R0CD01D | GRM1555C1H5R0CA01D |
| 5.1pF(5R1)        | ±0.05pF(W) | GRM0225C1C5R1WD05L | GRM0335C1H5R1WD01D | GRM1555C1H5R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R1BD05L | GRM0335C1H5R1BD01D | GRM1555C1H5R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R1CD05L | GRM0335C1H5R1CD01D | GRM1555C1H5R1CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R1DD05L | GRM0335C1H5R1DD01D | GRM1555C1H5R1DA01D |
| 5.2pF(5R2)        | ±0.05pF(W) | GRM0225C1C5R2WD05L | GRM0335C1H5R2WD01D | GRM1555C1H5R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R2BD05L | GRM0335C1H5R2BD01D | GRM1555C1H5R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R2CD05L | GRM0335C1H5R2CD01D | GRM1555C1H5R2CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R2DD05L | GRM0335C1H5R2DD01D | GRM1555C1H5R2DA01D |
| 5.3pF(5R3)        | ±0.05pF(W) | GRM0225C1C5R3WD05L | GRM0335C1H5R3WD01D | GRM1555C1H5R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R3BD05L | GRM0335C1H5R3BD01D | GRM1555C1H5R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R3CD05L | GRM0335C1H5R3CD01D | GRM1555C1H5R3CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R3DD05L | GRM0335C1H5R3DD01D | GRM1555C1H5R3DA01D |
| 5.4pF(5R4)        | ±0.05pF(W) | GRM0225C1C5R4WD05L | GRM0335C1H5R4WD01D | GRM1555C1H5R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R4BD05L | GRM0335C1H5R4BD01D | GRM1555C1H5R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R4CD05L | GRM0335C1H5R4CD01D | GRM1555C1H5R4CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R4DD05L | GRM0335C1H5R4DD01D | GRM1555C1H5R4DA01D |
| 5.5pF(5R5)        | ±0.05pF(W) | GRM0225C1C5R5WD05L | GRM0335C1H5R5WD01D | GRM1555C1H5R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R5BD05L | GRM0335C1H5R5BD01D | GRM1555C1H5R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R5CD05L | GRM0335C1H5R5CD01D | GRM1555C1H5R5CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R5DD05L | GRM0335C1H5R5DD01D | GRM1555C1H5R5DA01D |
| 5.6pF(5R6)        | ±0.05pF(W) | GRM0225C1C5R6WD05L | GRM0335C1H5R6WD01D | GRM1555C1H5R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R6BD05L | GRM0335C1H5R6BD01D | GRM1555C1H5R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R6CD05L | GRM0335C1H5R6CD01D | GRM1555C1H5R6CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R6DD05L | GRM0335C1H5R6DD01D | GRM1555C1H5R6DA01D |
| 5.7pF(5R7)        | ±0.05pF(W) | GRM0225C1C5R7WD05L | GRM0335C1H5R7WD01D | GRM1555C1H5R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R7BD05L | GRM0335C1H5R7BD01D | GRM1555C1H5R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R7CD05L | GRM0335C1H5R7CD01D | GRM1555C1H5R7CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R7DD05L | GRM0335C1H5R7DD01D | GRM1555C1H5R7DA01D |
| 5.8pF(5R8)        | ±0.05pF(W) | GRM0225C1C5R8WD05L | GRM0335C1H5R8WD01D | GRM1555C1H5R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R8BD05L | GRM0335C1H5R8BD01D | GRM1555C1H5R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R8CD05L | GRM0335C1H5R8CD01D | GRM1555C1H5R8CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R8DD05L | GRM0335C1H5R8DD01D | GRM1555C1H5R8DA01D |
| 5.9pF(5R9)        | ±0.05pF(W) | GRM0225C1C5R9WD05L | GRM0335C1H5R9WD01D | GRM1555C1H5R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C5R9BD05L | GRM0335C1H5R9BD01D | GRM1555C1H5R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C5R9CD05L | GRM0335C1H5R9CD01D | GRM1555C1H5R9CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C5R9DD05L | GRM0335C1H5R9DD01D | GRM1555C1H5R9DA01D |
| 6.0pF(6R0)        | ±0.05pF(W) | GRM0225C1C6R0WD05L | GRM0335C1H6R0WD01D | GRM1555C1H6R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R0BD05L | GRM0335C1H6R0BD01D | GRM1555C1H6R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R0CD05L | GRM0335C1H6R0CD01D | GRM1555C1H6R0CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R0DD05L | GRM0335C1H6R0DD01D | GRM1555C1H6R0DA01D |
| 6.1pF(6R1)        | ±0.05pF(W) | GRM0225C1C6R1WD05L | GRM0335C1H6R1WD01D | GRM1555C1H6R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R1BD05L | GRM0335C1H6R1BD01D | GRM1555C1H6R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R1CD05L | GRM0335C1H6R1CD01D | GRM1555C1H6R1CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R1DD05L | GRM0335C1H6R1DD01D | GRM1555C1H6R1DA01D |
| 6.2pF(6R2)        | ±0.05pF(W) | GRM0225C1C6R2WD05L | GRM0335C1H6R2WD01D | GRM1555C1H6R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R2BD05L | GRM0335C1H6R2BD01D | GRM1555C1H6R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R2CD05L | GRM0335C1H6R2CD01D | GRM1555C1H6R2CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R2DD05L | GRM0335C1H6R2DD01D | GRM1555C1H6R2DA01D |

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● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 6.3pF(6R3)        | ±0.05pF(W) | GRM0225C1C6R3WD05L | GRM0335C1H6R3WD01D | GRM1555C1H6R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R3BD05L | GRM0335C1H6R3BD01D | GRM1555C1H6R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R3CD05L | GRM0335C1H6R3CD01D | GRM1555C1H6R3CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R3DD05L | GRM0335C1H6R3DD01D | GRM1555C1H6R3DA01D |
| 6.4pF(6R4)        | ±0.05pF(W) | GRM0225C1C6R4WD05L | GRM0335C1H6R4WD01D | GRM1555C1H6R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R4BD05L | GRM0335C1H6R4BD01D | GRM1555C1H6R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R4CD05L | GRM0335C1H6R4CD01D | GRM1555C1H6R4CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R4DD05L | GRM0335C1H6R4DD01D | GRM1555C1H6R4DA01D |
| 6.5pF(6R5)        | ±0.05pF(W) | GRM0225C1C6R5WD05L | GRM0335C1H6R5WD01D | GRM1555C1H6R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R5BD05L | GRM0335C1H6R5BD01D | GRM1555C1H6R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R5CD05L | GRM0335C1H6R5CD01D | GRM1555C1H6R5CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R5DD05L | GRM0335C1H6R5DD01D | GRM1555C1H6R5DA01D |
| 6.6pF(6R6)        | ±0.05pF(W) | GRM0225C1C6R6WD05L | GRM0335C1H6R6WD01D | GRM1555C1H6R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R6BD05L | GRM0335C1H6R6BD01D | GRM1555C1H6R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R6CD05L | GRM0335C1H6R6CD01D | GRM1555C1H6R6CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R6DD05L | GRM0335C1H6R6DD01D | GRM1555C1H6R6DA01D |
| 6.7pF(6R7)        | ±0.05pF(W) | GRM0225C1C6R7WD05L | GRM0335C1H6R7WD01D | GRM1555C1H6R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R7BD05L | GRM0335C1H6R7BD01D | GRM1555C1H6R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R7CD05L | GRM0335C1H6R7CD01D | GRM1555C1H6R7CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R7DD05L | GRM0335C1H6R7DD01D | GRM1555C1H6R7DA01D |
| 6.8pF(6R8)        | ±0.05pF(W) | GRM0225C1C6R8WD05L | GRM0335C1H6R8WD01D | GRM1555C1H6R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R8BD05L | GRM0335C1H6R8BD01D | GRM1555C1H6R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R8CD05L | GRM0335C1H6R8CD01D | GRM1555C1H6R8CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R8DD05L | GRM0335C1H6R8DD01D | GRM1555C1H6R8DA01D |
| 6.9pF(6R9)        | ±0.05pF(W) | GRM0225C1C6R9WD05L | GRM0335C1H6R9WD01D | GRM1555C1H6R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C6R9BD05L | GRM0335C1H6R9BD01D | GRM1555C1H6R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C6R9CD05L | GRM0335C1H6R9CD01D | GRM1555C1H6R9CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C6R9DD05L | GRM0335C1H6R9DD01D | GRM1555C1H6R9DA01D |
| 7.0pF(7R0)        | ±0.05pF(W) | GRM0225C1C7R0WD05L | GRM0335C1H7R0WD01D | GRM1555C1H7R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R0BD05L | GRM0335C1H7R0BD01D | GRM1555C1H7R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R0CD05L | GRM0335C1H7R0CD01D | GRM1555C1H7R0CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R0DD05L | GRM0335C1H7R0DD01D | GRM1555C1H7R0DA01D |
| 7.1pF(7R1)        | ±0.05pF(W) | GRM0225C1C7R1WD05L | GRM0335C1H7R1WD01D | GRM1555C1H7R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R1BD05L | GRM0335C1H7R1BD01D | GRM1555C1H7R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R1CD05L | GRM0335C1H7R1CD01D | GRM1555C1H7R1CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R1DD05L | GRM0335C1H7R1DD01D | GRM1555C1H7R1DA01D |
| 7.2pF(7R2)        | ±0.05pF(W) | GRM0225C1C7R2WD05L | GRM0335C1H7R2WD01D | GRM1555C1H7R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R2BD05L | GRM0335C1H7R2BD01D | GRM1555C1H7R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R2CD05L | GRM0335C1H7R2CD01D | GRM1555C1H7R2CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R2DD05L | GRM0335C1H7R2DD01D | GRM1555C1H7R2DA01D |
| 7.3pF(7R3)        | ±0.05pF(W) | GRM0225C1C7R3WD05L | GRM0335C1H7R3WD01D | GRM1555C1H7R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R3BD05L | GRM0335C1H7R3BD01D | GRM1555C1H7R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R3CD05L | GRM0335C1H7R3CD01D | GRM1555C1H7R3CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R3DD05L | GRM0335C1H7R3DD01D | GRM1555C1H7R3DA01D |
| 7.4pF(7R4)        | ±0.05pF(W) | GRM0225C1C7R4WD05L | GRM0335C1H7R4WD01D | GRM1555C1H7R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R4BD05L | GRM0335C1H7R4BD01D | GRM1555C1H7R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R4CD05L | GRM0335C1H7R4CD01D | GRM1555C1H7R4CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R4DD05L | GRM0335C1H7R4DD01D | GRM1555C1H7R4DA01D |
| 7.5pF(7R5)        | ±0.05pF(W) | GRM0225C1C7R5WD05L | GRM0335C1H7R5WD01D | GRM1555C1H7R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R5BD05L | GRM0335C1H7R5BD01D | GRM1555C1H7R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R5CD05L | GRM0335C1H7R5CD01D | GRM1555C1H7R5CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R5DD05L | GRM0335C1H7R5DD01D | GRM1555C1H7R5DA01D |

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● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 7.6pF(7R6)        | ±0.05pF(W) | GRM0225C1C7R6WD05L | GRM0335C1H7R6WD01D | GRM1555C1H7R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R6BD05L | GRM0335C1H7R6BD01D | GRM1555C1H7R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R6CD05L | GRM0335C1H7R6CD01D | GRM1555C1H7R6CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R6DD05L | GRM0335C1H7R6DD01D | GRM1555C1H7R6DA01D |
| 7.7pF(7R7)        | ±0.05pF(W) | GRM0225C1C7R7WD05L | GRM0335C1H7R7WD01D | GRM1555C1H7R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R7BD05L | GRM0335C1H7R7BD01D | GRM1555C1H7R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R7CD05L | GRM0335C1H7R7CD01D | GRM1555C1H7R7CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R7DD05L | GRM0335C1H7R7DD01D | GRM1555C1H7R7DA01D |
| 7.8pF(7R8)        | ±0.05pF(W) | GRM0225C1C7R8WD05L | GRM0335C1H7R8WD01D | GRM1555C1H7R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R8BD05L | GRM0335C1H7R8BD01D | GRM1555C1H7R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R8CD05L | GRM0335C1H7R8CD01D | GRM1555C1H7R8CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R8DD05L | GRM0335C1H7R8DD01D | GRM1555C1H7R8DA01D |
| 7.9pF(7R9)        | ±0.05pF(W) | GRM0225C1C7R9WD05L | GRM0335C1H7R9WD01D | GRM1555C1H7R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C7R9BD05L | GRM0335C1H7R9BD01D | GRM1555C1H7R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C7R9CD05L | GRM0335C1H7R9CD01D | GRM1555C1H7R9CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C7R9DD05L | GRM0335C1H7R9DD01D | GRM1555C1H7R9DA01D |
| 8.0pF(8R0)        | ±0.05pF(W) | GRM0225C1C8R0WD05L | GRM0335C1H8R0WD01D | GRM1555C1H8R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R0BD05L | GRM0335C1H8R0BD01D | GRM1555C1H8R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R0CD05L | GRM0335C1H8R0CD01D | GRM1555C1H8R0CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R0DD05L | GRM0335C1H8R0DD01D | GRM1555C1H8R0DA01D |
| 8.1pF(8R1)        | ±0.05pF(W) | GRM0225C1C8R1WD05L | GRM0335C1H8R1WD01D | GRM1555C1H8R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R1BD05L | GRM0335C1H8R1BD01D | GRM1555C1H8R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R1CD05L | GRM0335C1H8R1CD01D | GRM1555C1H8R1CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R1DD05L | GRM0335C1H8R1DD01D | GRM1555C1H8R1DA01D |
| 8.2pF(8R2)        | ±0.05pF(W) | GRM0225C1C8R2WD05L | GRM0335C1H8R2WD01D | GRM1555C1H8R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R2BD05L | GRM0335C1H8R2BD01D | GRM1555C1H8R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R2CD05L | GRM0335C1H8R2CD01D | GRM1555C1H8R2CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R2DD05L | GRM0335C1H8R2DD01D | GRM1555C1H8R2DA01D |
| 8.3pF(8R3)        | ±0.05pF(W) | GRM0225C1C8R3WD05L | GRM0335C1H8R3WD01D | GRM1555C1H8R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R3BD05L | GRM0335C1H8R3BD01D | GRM1555C1H8R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R3CD05L | GRM0335C1H8R3CD01D | GRM1555C1H8R3CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R3DD05L | GRM0335C1H8R3DD01D | GRM1555C1H8R3DA01D |
| 8.4pF(8R4)        | ±0.05pF(W) | GRM0225C1C8R4WD05L | GRM0335C1H8R4WD01D | GRM1555C1H8R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R4BD05L | GRM0335C1H8R4BD01D | GRM1555C1H8R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R4CD05L | GRM0335C1H8R4CD01D | GRM1555C1H8R4CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R4DD05L | GRM0335C1H8R4DD01D | GRM1555C1H8R4DA01D |
| 8.5pF(8R5)        | ±0.05pF(W) | GRM0225C1C8R5WD05L | GRM0335C1H8R5WD01D | GRM1555C1H8R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R5BD05L | GRM0335C1H8R5BD01D | GRM1555C1H8R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R5CD05L | GRM0335C1H8R5CD01D | GRM1555C1H8R5CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R5DD05L | GRM0335C1H8R5DD01D | GRM1555C1H8R5DA01D |
| 8.6pF(8R6)        | ±0.05pF(W) | GRM0225C1C8R6WD05L | GRM0335C1H8R6WD01D | GRM1555C1H8R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R6BD05L | GRM0335C1H8R6BD01D | GRM1555C1H8R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R6CD05L | GRM0335C1H8R6CD01D | GRM1555C1H8R6CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R6DD05L | GRM0335C1H8R6DD01D | GRM1555C1H8R6DA01D |
| 8.7pF(8R7)        | ±0.05pF(W) | GRM0225C1C8R7WD05L | GRM0335C1H8R7WD01D | GRM1555C1H8R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R7BD05L | GRM0335C1H8R7BD01D | GRM1555C1H8R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R7CD05L | GRM0335C1H8R7CD01D | GRM1555C1H8R7CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R7DD05L | GRM0335C1H8R7DD01D | GRM1555C1H8R7DA01D |
| 8.8pF(8R8)        | ±0.05pF(W) | GRM0225C1C8R8WD05L | GRM0335C1H8R8WD01D | GRM1555C1H8R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R8BD05L | GRM0335C1H8R8BD01D | GRM1555C1H8R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R8CD05L | GRM0335C1H8R8CD01D | GRM1555C1H8R8CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R8DD05L | GRM0335C1H8R8DD01D | GRM1555C1H8R8DA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.4x0.2(02)<01005> | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 16(1C)             | 50(1H)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 8.9pF(8R9)        | ±0.05pF(W) | GRM0225C1C8R9WD05L | GRM0335C1H8R9WD01D | GRM1555C1H8R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C8R9BD05L | GRM0335C1H8R9BD01D | GRM1555C1H8R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C8R9CD05L | GRM0335C1H8R9CD01D | GRM1555C1H8R9CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C8R9DD05L | GRM0335C1H8R9DD01D | GRM1555C1H8R9DA01D |
| 9.0pF(9R0)        | ±0.05pF(W) | GRM0225C1C9R0WD05L | GRM0335C1H9R0WD01D | GRM1555C1H9R0WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R0BD05L | GRM0335C1H9R0BD01D | GRM1555C1H9R0BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R0CD05L | GRM0335C1H9R0CD01D | GRM1555C1H9R0CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R0DD05L | GRM0335C1H9R0DD01D | GRM1555C1H9R0DA01D |
| 9.1pF(9R1)        | ±0.05pF(W) | GRM0225C1C9R1WD05L | GRM0335C1H9R1WD01D | GRM1555C1H9R1WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R1BD05L | GRM0335C1H9R1BD01D | GRM1555C1H9R1BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R1CD05L | GRM0335C1H9R1CD01D | GRM1555C1H9R1CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R1DD05L | GRM0335C1H9R1DD01D | GRM1555C1H9R1DA01D |
| 9.2pF(9R2)        | ±0.05pF(W) | GRM0225C1C9R2WD05L | GRM0335C1H9R2WD01D | GRM1555C1H9R2WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R2BD05L | GRM0335C1H9R2BD01D | GRM1555C1H9R2BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R2CD05L | GRM0335C1H9R2CD01D | GRM1555C1H9R2CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R2DD05L | GRM0335C1H9R2DD01D | GRM1555C1H9R2DA01D |
| 9.3pF(9R3)        | ±0.05pF(W) | GRM0225C1C9R3WD05L | GRM0335C1H9R3WD01D | GRM1555C1H9R3WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R3BD05L | GRM0335C1H9R3BD01D | GRM1555C1H9R3BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R3CD05L | GRM0335C1H9R3CD01D | GRM1555C1H9R3CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R3DD05L | GRM0335C1H9R3DD01D | GRM1555C1H9R3DA01D |
| 9.4pF(9R4)        | ±0.05pF(W) | GRM0225C1C9R4WD05L | GRM0335C1H9R4WD01D | GRM1555C1H9R4WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R4BD05L | GRM0335C1H9R4BD01D | GRM1555C1H9R4BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R4CD05L | GRM0335C1H9R4CD01D | GRM1555C1H9R4CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R4DD05L | GRM0335C1H9R4DD01D | GRM1555C1H9R4DA01D |
| 9.5pF(9R5)        | ±0.05pF(W) | GRM0225C1C9R5WD05L | GRM0335C1H9R5WD01D | GRM1555C1H9R5WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R5BD05L | GRM0335C1H9R5BD01D | GRM1555C1H9R5BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R5CD05L | GRM0335C1H9R5CD01D | GRM1555C1H9R5CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R5DD05L | GRM0335C1H9R5DD01D | GRM1555C1H9R5DA01D |
| 9.6pF(9R6)        | ±0.05pF(W) | GRM0225C1C9R6WD05L | GRM0335C1H9R6WD01D | GRM1555C1H9R6WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R6BD05L | GRM0335C1H9R6BD01D | GRM1555C1H9R6BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R6CD05L | GRM0335C1H9R6CD01D | GRM1555C1H9R6CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R6DD05L | GRM0335C1H9R6DD01D | GRM1555C1H9R6DA01D |
| 9.7pF(9R7)        | ±0.05pF(W) | GRM0225C1C9R7WD05L | GRM0335C1H9R7WD01D | GRM1555C1H9R7WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R7BD05L | GRM0335C1H9R7BD01D | GRM1555C1H9R7BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R7CD05L | GRM0335C1H9R7CD01D | GRM1555C1H9R7CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R7DD05L | GRM0335C1H9R7DD01D | GRM1555C1H9R7DA01D |
| 9.8pF(9R8)        | ±0.05pF(W) | GRM0225C1C9R8WD05L | GRM0335C1H9R8WD01D | GRM1555C1H9R8WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R8BD05L | GRM0335C1H9R8BD01D | GRM1555C1H9R8BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R8CD05L | GRM0335C1H9R8CD01D | GRM1555C1H9R8CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R8DD05L | GRM0335C1H9R8DD01D | GRM1555C1H9R8DA01D |
| 9.9pF(9R9)        | ±0.05pF(W) | GRM0225C1C9R9WD05L | GRM0335C1H9R9WD01D | GRM1555C1H9R9WA01D |
|                   | ±0.1pF(B)  | GRM0225C1C9R9BD05L | GRM0335C1H9R9BD01D | GRM1555C1H9R9BA01D |
|                   | ±0.25pF(C) | GRM0225C1C9R9CD05L | GRM0335C1H9R9CD01D | GRM1555C1H9R9CA01D |
|                   | ±0.5pF(D)  | GRM0225C1C9R9DD05L | GRM0335C1H9R9DD01D | GRM1555C1H9R9DA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 0.4x0.2(02)<01005> |                    |                    | 0.6x0.3(03)<0201>  |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10pF(100)         | ±2%(G)    | GRM0225C1C100GD05L |                    |                    | GRM0335C1H100GD01D |
|                   | ±5%(J)    | GRM0225C1C100JD05L |                    |                    | GRM0335C1H100JD01D |
| 12pF(120)         | ±2%(G)    | GRM0225C1C120GD05L |                    |                    | GRM0335C1H120GD01D |
|                   | ±5%(J)    | GRM0225C1C120JD05L |                    |                    | GRM0335C1H120JD01D |
| 15pF(150)         | ±2%(G)    | GRM0225C1C150GD05L |                    |                    | GRM0335C1H150GD01D |
|                   | ±5%(J)    | GRM0225C1C150JD05L |                    |                    | GRM0335C1H150JD01D |
| 18pF(180)         | ±2%(G)    | GRM0225C1C180GD05L |                    |                    | GRM0335C1H180GD01D |
|                   | ±5%(J)    | GRM0225C1C180JD05L |                    |                    | GRM0335C1H180JD01D |
| 22pF(220)         | ±2%(G)    | GRM0225C1C220GD05L |                    |                    | GRM0335C1H220GD01D |
|                   | ±5%(J)    | GRM0225C1C220JD05L |                    |                    | GRM0335C1H220JD01D |
| 27pF(270)         | ±2%(G)    | GRM0225C1C270GD05L |                    |                    | GRM0335C1H270GD01D |
|                   | ±5%(J)    | GRM0225C1C270JD05L |                    |                    | GRM0335C1H270JD01D |
| 33pF(330)         | ±2%(G)    | GRM0225C1C330GD05L |                    |                    | GRM0335C1H330GD01D |
|                   | ±5%(J)    | GRM0225C1C330JD05L |                    |                    | GRM0335C1H330JD01D |
| 39pF(390)         | ±2%(G)    | GRM0225C1C390GD05L |                    |                    | GRM0335C1H390GD01D |
|                   | ±5%(J)    | GRM0225C1C390JD05L |                    |                    | GRM0335C1H390JD01D |
| 47pF(470)         | ±2%(G)    | GRM0225C1C470GD05L |                    |                    | GRM0335C1H470GD01D |
|                   | ±5%(J)    | GRM0225C1C470JD05L |                    |                    | GRM0335C1H470JD01D |
| 56pF(560)         | ±2%(G)    |                    | GRM0225C1A560GD05L | GRM0225C0J560GD05L | GRM0335C1H560GD01D |
|                   | ±5%(J)    |                    | GRM0225C1A560JD05L | GRM0225C0J560JD05L | GRM0335C1H560JD01D |
| 68pF(680)         | ±2%(G)    |                    | GRM0225C1A680GD05L | GRM0225C0J680GD05L | GRM0335C1H680GD01D |
|                   | ±5%(J)    |                    | GRM0225C1A680JD05L | GRM0225C0J680JD05L | GRM0335C1H680JD01D |
| 82pF(820)         | ±2%(G)    |                    | GRM0225C1A820GD05L | GRM0225C0J820GD05L | GRM0335C1H820GD01D |
|                   | ±5%(J)    |                    | GRM0225C1A820JD05L | GRM0225C0J820JD05L | GRM0335C1H820JD01D |
| 100pF(101)        | ±2%(G)    |                    | GRM0225C1A101GD05L | GRM0225C0J101GD05L | GRM0335C1H101GD01D |
|                   | ±5%(J)    |                    | GRM0225C1A101JD05L | GRM0225C0J101JD05L | GRM0335C1H101JD01D |

The part number code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             |
| TC                |           | C0G(5C)            |
| Capacitance       | Tolerance | Part Number        |
| 10pF(100)         | ±2%(G)    | GRM1555C1H100GA01D |
|                   | ±5%(J)    | GRM1555C1H100JA01D |
| 12pF(120)         | ±2%(G)    | GRM1555C1H120GA01D |
|                   | ±5%(J)    | GRM1555C1H120JA01D |
| 15pF(150)         | ±2%(G)    | GRM1555C1H150GA01D |
|                   | ±5%(J)    | GRM1555C1H150JA01D |
| 18pF(180)         | ±2%(G)    | GRM1555C1H180GA01D |
|                   | ±5%(J)    | GRM1555C1H180JA01D |
| 22pF(220)         | ±2%(G)    | GRM1555C1H220GA01D |
|                   | ±5%(J)    | GRM1555C1H220JA01D |
| 27pF(270)         | ±2%(G)    | GRM1555C1H270GA01D |
|                   | ±5%(J)    | GRM1555C1H270JA01D |
| 33pF(330)         | ±2%(G)    | GRM1555C1H330GA01D |
|                   | ±5%(J)    | GRM1555C1H330JA01D |
| 39pF(390)         | ±2%(G)    | GRM1555C1H390GA01D |
|                   | ±5%(J)    | GRM1555C1H390JA01D |
| 47pF(470)         | ±2%(G)    | GRM1555C1H470GA01D |
|                   | ±5%(J)    | GRM1555C1H470JA01D |
| 56pF(560)         | ±2%(G)    | GRM1555C1H560GA01D |
|                   | ±5%(J)    | GRM1555C1H560JA01D |
| 68pF(680)         | ±2%(G)    | GRM1555C1H680GA01D |
|                   | ±5%(J)    | GRM1555C1H680JA01D |
| 82pF(820)         | ±2%(G)    | GRM1555C1H820GA01D |
|                   | ±5%(J)    | GRM1555C1H820JA01D |
| 100pF(101)        | ±2%(G)    | GRM1555C1H101GA01D |
|                   | ±5%(J)    | GRM1555C1H101JA01D |
| 120pF(121)        | ±2%(G)    | GRM1555C1H121GA01D |
|                   | ±5%(J)    | GRM1555C1H121JA01D |
| 150pF(151)        | ±2%(G)    | GRM1555C1H151GA01D |
|                   | ±5%(J)    | GRM1555C1H151JA01D |
| 180pF(181)        | ±2%(G)    | GRM1555C1H181GA01D |
|                   | ±5%(J)    | GRM1555C1H181JA01D |
| 220pF(221)        | ±2%(G)    | GRM1555C1H221GA01D |
|                   | ±5%(J)    | GRM1555C1H221JA01D |
| 270pF(271)        | ±2%(G)    | GRM1555C1H271GA01D |
|                   | ±5%(J)    | GRM1555C1H271JA01D |
| 330pF(331)        | ±2%(G)    | GRM1555C1H331GA01D |
|                   | ±5%(J)    | GRM1555C1H331JA01D |
| 390pF(391)        | ±2%(G)    | GRM1555C1H391GA01D |
|                   | ±5%(J)    | GRM1555C1H391JA01D |
| 470pF(471)        | ±2%(G)    | GRM1555C1H471GA01D |
|                   | ±5%(J)    | GRM1555C1H471JA01D |
| 560pF(561)        | ±2%(G)    | GRM1555C1H561GA01D |
|                   | ±5%(J)    | GRM1555C1H561JA01D |
| 680pF(681)        | ±2%(G)    | GRM1555C1H681GA01D |
|                   | ±5%(J)    | GRM1555C1H681JA01D |
| 820pF(821)        | ±2%(G)    | GRM1555C1H821GA01D |
|                   | ±5%(J)    | GRM1555C1H821JA01D |
| 1000pF(102)       | ±2%(G)    | GRM1555C1H102GA01D |
|                   | ±5%(J)    | GRM1555C1H102JA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 10pF(100)         | ±5%(J)    | GRM1885C2A100JA01D | GRM1885C1H100JA01D |
| 12pF(120)         | ±5%(J)    | GRM1885C2A120JA01D | GRM1885C1H120JA01D |
| 15pF(150)         | ±5%(J)    | GRM1885C2A150JA01D | GRM1885C1H150JA01D |
| 18pF(180)         | ±5%(J)    | GRM1885C2A180JA01D | GRM1885C1H180JA01D |
| 22pF(220)         | ±5%(J)    | GRM1885C2A220JA01D | GRM1885C1H220JA01D |
| 27pF(270)         | ±5%(J)    | GRM1885C2A270JA01D | GRM1885C1H270JA01D |
| 33pF(330)         | ±5%(J)    | GRM1885C2A330JA01D | GRM1885C1H330JA01D |
| 39pF(390)         | ±5%(J)    | GRM1885C2A390JA01D | GRM1885C1H390JA01D |
| 47pF(470)         | ±5%(J)    | GRM1885C2A470JA01D | GRM1885C1H470JA01D |
| 56pF(560)         | ±5%(J)    | GRM1885C2A560JA01D | GRM1885C1H560JA01D |
| 68pF(680)         | ±5%(J)    | GRM1885C2A680JA01D | GRM1885C1H680JA01D |
| 82pF(820)         | ±5%(J)    | GRM1885C2A820JA01D | GRM1885C1H820JA01D |
| 100pF(101)        | ±5%(J)    | GRM1885C2A101JA01D | GRM1885C1H101JA01D |
| 120pF(121)        | ±5%(J)    | GRM1885C2A121JA01D | GRM1885C1H121JA01D |
| 150pF(151)        | ±5%(J)    | GRM1885C2A151JA01D | GRM1885C1H151JA01D |
| 180pF(181)        | ±5%(J)    | GRM1885C2A181JA01D | GRM1885C1H181JA01D |
| 220pF(221)        | ±5%(J)    | GRM1885C2A221JA01D | GRM1885C1H221JA01D |
| 270pF(271)        | ±5%(J)    | GRM1885C2A271JA01D | GRM1885C1H271JA01D |
| 330pF(331)        | ±5%(J)    | GRM1885C2A331JA01D | GRM1885C1H331JA01D |
| 390pF(391)        | ±5%(J)    | GRM1885C2A391JA01D | GRM1885C1H391JA01D |
| 470pF(471)        | ±5%(J)    | GRM1885C2A471JA01D | GRM1885C1H471JA01D |
| 560pF(561)        | ±5%(J)    | GRM1885C2A561JA01D | GRM1885C1H561JA01D |
| 680pF(681)        | ±5%(J)    | GRM1885C2A681JA01D | GRM1885C1H681JA01D |
| 820pF(821)        | ±5%(J)    | GRM1885C2A821JA01D | GRM1885C1H821JA01D |
| 1000pF(102)       | ±5%(J)    | GRM1885C2A102JA01D | GRM1885C1H102JA01D |
| 1200pF(122)       | ±5%(J)    | GRM1885C2A122JA01D | GRM1885C1H122JA01D |
| 1500pF(152)       | ±5%(J)    | GRM1885C2A152JA01D | GRM1885C1H152JA01D |
| 1800pF(182)       | ±5%(J)    |                    | GRM1885C1H182JA01D |
| 2200pF(222)       | ±5%(J)    |                    | GRM1885C1H222JA01D |
| 2700pF(272)       | ±5%(J)    |                    | GRM1885C1H272JA01D |
| 3300pF(332)       | ±5%(J)    |                    | GRM1885C1H332JA01D |
| 3900pF(392)       | ±5%(J)    |                    | GRM1885C1H392JA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    | 3.2x1.6(31)<1206>  |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 100(2A)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 100pF(101)        | ±5%(J)    | GRM2165C2A101JA01D |                    |                    |                    |
| 120pF(121)        | ±5%(J)    | GRM2165C2A121JA01D |                    |                    |                    |
| 150pF(151)        | ±5%(J)    | GRM2165C2A151JA01D |                    |                    |                    |
| 180pF(181)        | ±5%(J)    | GRM2165C2A181JA01D |                    |                    |                    |
| 220pF(221)        | ±5%(J)    | GRM2165C2A221JA01D |                    |                    |                    |
| 270pF(271)        | ±5%(J)    | GRM2165C2A271JA01D |                    |                    |                    |
| 330pF(331)        | ±5%(J)    | GRM2165C2A331JA01D |                    |                    |                    |
| 390pF(391)        | ±5%(J)    | GRM2165C2A391JA01D |                    |                    |                    |
| 470pF(471)        | ±5%(J)    | GRM2165C2A471JA01D |                    |                    |                    |
| 560pF(561)        | ±5%(J)    | GRM2165C2A561JA01D |                    |                    |                    |
| 680pF(681)        | ±5%(J)    | GRM2165C2A681JA01D |                    |                    |                    |
| 820pF(821)        | ±5%(J)    | GRM2165C2A821JA01D |                    |                    |                    |
| 1000pF(102)       | ±5%(J)    | GRM2165C2A102JA01D |                    |                    |                    |
| 1200pF(122)       | ±5%(J)    | GRM2165C2A122JA01D | GRM2165C1H122JA01D |                    |                    |
| 1500pF(152)       | ±5%(J)    | GRM2165C2A152JA01D | GRM2165C1H152JA01D |                    |                    |
| 1800pF(182)       | ±5%(J)    | GRM2165C2A182JA01D | GRM2165C1H182JA01D | GRM3195C2A182JA01D |                    |
| 2200pF(222)       | ±5%(J)    | GRM2165C2A222JA01D | GRM2165C1H222JA01D | GRM3195C2A222JA01D |                    |
| 2700pF(272)       | ±5%(J)    | GRM2165C2A272JA01D | GRM2165C1H272JA01D | GRM3195C2A272JA01D |                    |
| 3300pF(332)       | ±5%(J)    | GRM2165C2A332JA01D | GRM2165C1H332JA01D | GRM3195C2A332JA01D |                    |
| 3900pF(392)       | ±5%(J)    |                    | GRM2165C1H392JA01D | GRM3195C2A392JA01D |                    |
| 4700pF(472)       | ±5%(J)    |                    | GRM2165C1H472JA01D | GRM3195C2A472JA01D | GRM3195C1H472JA01D |
| 5600pF(562)       | ±5%(J)    |                    | GRM2195C1H562JA01D | GRM3195C2A562JA01D | GRM3195C1H562JA01D |
| 6800pF(682)       | ±5%(J)    |                    | GRM2195C1H682JA01D | GRM3195C2A682JA01D | GRM3195C1H682JA01D |
| 8200pF(822)       | ±5%(J)    |                    | GRM2195C1H822JA01D | GRM3195C2A822JA01D | GRM3195C1H822JA01D |
| 10000pF(103)      | ±5%(J)    |                    | GRM2195C1H103JA01D | GRM3195C2A103JA01D | GRM3195C1H103JA01D |
| 12000pF(123)      | ±5%(J)    |                    | GRM2195C1H123JA01D |                    | GRM3195C1H123JA01D |
| 15000pF(153)      | ±5%(J)    |                    | GRM2195C1H153JA01D |                    | GRM3195C1H153JA01D |
| 18000pF(183)      | ±5%(J)    |                    | GRM21B5C1H183JA01L |                    | GRM3195C1H183JA01D |
| 22000pF(223)      | ±5%(J)    |                    | GRM21B5C1H223JA01L |                    | GRM3195C1H223JA01D |
| 27000pF(273)      | ±5%(J)    |                    |                    |                    | GRM3195C1H273JA01D |
| 33000pF(333)      | ±5%(J)    |                    |                    |                    | GRM3195C1H333JA01D |
| 39000pF(393)      | ±5%(J)    |                    |                    |                    | GRM3195C1H393JA01D |
| 47000pF(473)      | ±5%(J)    |                    |                    |                    | GRM31M5C1H473JA01L |
| 56000pF(563)      | ±5%(J)    |                    |                    |                    | GRM31M5C1H563JA01L |
| 68000pF(683)      | ±5%(J)    |                    |                    |                    | GRM31C5C1H683JA01L |
| 82000pF(823)      | ±5%(J)    |                    |                    |                    | GRM31C5C1H823JA01L |
| 100000pF(104)     | ±5%(J)    |                    |                    |                    | GRM31C5C1H104JA01L |

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● Temperature Compensating Type C0G(5C) Characteristics Low Profile

| LxW [mm]          |            | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|
| Rated Volt. [Vdc] |            | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |
| 0.1pF(R10)        | ±0.1pF(B)  | GRM1535C1HR10BDD5D |
| 0.2pF(R20)        | ±0.1pF(B)  | GRM1535C1HR20BDD5D |
| 0.3pF(R30)        | ±0.1pF(B)  | GRM1535C1HR30BDD5D |
| 0.4pF(R40)        | ±0.1pF(B)  | GRM1535C1HR40BDD5D |
| 0.5pF(R50)        | ±0.1pF(B)  | GRM1535C1HR50BDD5D |
| 0.6pF(R60)        | ±0.1pF(B)  | GRM1535C1HR60BDD5D |
| 0.7pF(R70)        | ±0.1pF(B)  | GRM1535C1HR70BDD5D |
| 0.8pF(R80)        | ±0.1pF(B)  | GRM1535C1HR80BDD5D |
| 0.9pF(R90)        | ±0.1pF(B)  | GRM1535C1HR90BDD5D |
| 1.0pF(1R0)        | ±0.25pF(C) | GRM1535C1H1R0CDD5D |
| 1.1pF(1R1)        | ±0.25pF(C) | GRM1535C1H1R1CDD5D |
| 1.2pF(1R2)        | ±0.25pF(C) | GRM1535C1H1R2CDD5D |
| 1.3pF(1R3)        | ±0.25pF(C) | GRM1535C1H1R3CDD5D |
| 1.4pF(1R4)        | ±0.25pF(C) | GRM1535C1H1R4CDD5D |
| 1.5pF(1R5)        | ±0.25pF(C) | GRM1535C1H1R5CDD5D |
| 1.6pF(1R6)        | ±0.25pF(C) | GRM1535C1H1R6CDD5D |
| 1.7pF(1R7)        | ±0.25pF(C) | GRM1535C1H1R7CDD5D |
| 1.8pF(1R8)        | ±0.25pF(C) | GRM1535C1H1R8CDD5D |
| 1.9pF(1R9)        | ±0.25pF(C) | GRM1535C1H1R9CDD5D |
| 2.0pF(2R0)        | ±0.25pF(C) | GRM1535C1H2R0CDD5D |
| 2.1pF(2R1)        | ±0.25pF(C) | GRM1535C1H2R1CDD5D |
| 2.2pF(2R2)        | ±0.25pF(C) | GRM1535C1H2R2CDD5D |
| 2.3pF(2R3)        | ±0.25pF(C) | GRM1535C1H2R3CDD5D |
| 2.4pF(2R4)        | ±0.25pF(C) | GRM1535C1H2R4CDD5D |
| 2.5pF(2R5)        | ±0.25pF(C) | GRM1535C1H2R5CDD5D |
| 2.6pF(2R6)        | ±0.25pF(C) | GRM1535C1H2R6CDD5D |
| 2.7pF(2R7)        | ±0.25pF(C) | GRM1535C1H2R7CDD5D |
| 2.8pF(2R8)        | ±0.25pF(C) | GRM1535C1H2R8CDD5D |
| 2.9pF(2R9)        | ±0.25pF(C) | GRM1535C1H2R9CDD5D |
| 3.0pF(3R0)        | ±0.25pF(C) | GRM1535C1H3R0CDD5D |
| 3.1pF(3R1)        | ±0.25pF(C) | GRM1535C1H3R1CDD5D |
| 3.2pF(3R2)        | ±0.25pF(C) | GRM1535C1H3R2CDD5D |
| 3.3pF(3R3)        | ±0.25pF(C) | GRM1535C1H3R3CDD5D |
| 3.4pF(3R4)        | ±0.25pF(C) | GRM1535C1H3R4CDD5D |
| 3.5pF(3R5)        | ±0.25pF(C) | GRM1535C1H3R5CDD5D |
| 3.6pF(3R6)        | ±0.25pF(C) | GRM1535C1H3R6CDD5D |
| 3.7pF(3R7)        | ±0.25pF(C) | GRM1535C1H3R7CDD5D |
| 3.8pF(3R8)        | ±0.25pF(C) | GRM1535C1H3R8CDD5D |
| 3.9pF(3R9)        | ±0.25pF(C) | GRM1535C1H3R9CDD5D |
| 4.0pF(4R0)        | ±0.25pF(C) | GRM1535C1H4R0CDD5D |
| 4.1pF(4R1)        | ±0.25pF(C) | GRM1535C1H4R1CDD5D |
| 4.2pF(4R2)        | ±0.25pF(C) | GRM1535C1H4R2CDD5D |
| 4.3pF(4R3)        | ±0.25pF(C) | GRM1535C1H4R3CDD5D |
| 4.4pF(4R4)        | ±0.25pF(C) | GRM1535C1H4R4CDD5D |
| 4.5pF(4R5)        | ±0.25pF(C) | GRM1535C1H4R5CDD5D |
| 4.6pF(4R6)        | ±0.25pF(C) | GRM1535C1H4R6CDD5D |
| 4.7pF(4R7)        | ±0.25pF(C) | GRM1535C1H4R7CDD5D |
| 4.8pF(4R8)        | ±0.25pF(C) | GRM1535C1H4R8CDD5D |
| 4.9pF(4R9)        | ±0.25pF(C) | GRM1535C1H4R9CDD5D |
| 5.0pF(5R0)        | ±0.25pF(C) | GRM1535C1H5R0CDD5D |
| 5.1pF(5R1)        | ±0.5pF(D)  | GRM1535C1H5R1DDD5D |
| 5.2pF(5R2)        | ±0.5pF(D)  | GRM1535C1H5R2DDD5D |
| 5.3pF(5R3)        | ±0.5pF(D)  | GRM1535C1H5R3DDD5D |

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |
| 5.4pF(5R4)        | ±0.5pF(D) | GRM1535C1H5R4DDD5D |
| 5.5pF(5R5)        | ±0.5pF(D) | GRM1535C1H5R5DDD5D |
| 5.6pF(5R6)        | ±0.5pF(D) | GRM1535C1H5R6DDD5D |
| 5.7pF(5R7)        | ±0.5pF(D) | GRM1535C1H5R7DDD5D |
| 5.8pF(5R8)        | ±0.5pF(D) | GRM1535C1H5R8DDD5D |
| 5.9pF(5R9)        | ±0.5pF(D) | GRM1535C1H5R9DDD5D |
| 6.0pF(6R0)        | ±0.5pF(D) | GRM1535C1H6R0DDD5D |
| 6.1pF(6R1)        | ±0.5pF(D) | GRM1535C1H6R1DDD5D |
| 6.2pF(6R2)        | ±0.5pF(D) | GRM1535C1H6R2DDD5D |
| 6.3pF(6R3)        | ±0.5pF(D) | GRM1535C1H6R3DDD5D |
| 6.4pF(6R4)        | ±0.5pF(D) | GRM1535C1H6R4DDD5D |
| 6.5pF(6R5)        | ±0.5pF(D) | GRM1535C1H6R5DDD5D |
| 6.6pF(6R6)        | ±0.5pF(D) | GRM1535C1H6R6DDD5D |
| 6.7pF(6R7)        | ±0.5pF(D) | GRM1535C1H6R7DDD5D |
| 6.8pF(6R8)        | ±0.5pF(D) | GRM1535C1H6R8DDD5D |
| 6.9pF(6R9)        | ±0.5pF(D) | GRM1535C1H6R9DDD5D |
| 7.0pF(7R0)        | ±0.5pF(D) | GRM1535C1H7R0DDD5D |
| 7.1pF(7R1)        | ±0.5pF(D) | GRM1535C1H7R1DDD5D |
| 7.2pF(7R2)        | ±0.5pF(D) | GRM1535C1H7R2DDD5D |
| 7.3pF(7R3)        | ±0.5pF(D) | GRM1535C1H7R3DDD5D |
| 7.4pF(7R4)        | ±0.5pF(D) | GRM1535C1H7R4DDD5D |
| 7.5pF(7R5)        | ±0.5pF(D) | GRM1535C1H7R5DDD5D |
| 7.6pF(7R6)        | ±0.5pF(D) | GRM1535C1H7R6DDD5D |
| 7.7pF(7R7)        | ±0.5pF(D) | GRM1535C1H7R7DDD5D |
| 7.8pF(7R8)        | ±0.5pF(D) | GRM1535C1H7R8DDD5D |
| 7.9pF(7R9)        | ±0.5pF(D) | GRM1535C1H7R9DDD5D |
| 8.0pF(8R0)        | ±0.5pF(D) | GRM1535C1H8R0DDD5D |
| 8.1pF(8R1)        | ±0.5pF(D) | GRM1535C1H8R1DDD5D |
| 8.2pF(8R2)        | ±0.5pF(D) | GRM1535C1H8R2DDD5D |
| 8.3pF(8R3)        | ±0.5pF(D) | GRM1535C1H8R3DDD5D |
| 8.4pF(8R4)        | ±0.5pF(D) | GRM1535C1H8R4DDD5D |
| 8.5pF(8R5)        | ±0.5pF(D) | GRM1535C1H8R5DDD5D |
| 8.6pF(8R6)        | ±0.5pF(D) | GRM1535C1H8R6DDD5D |
| 8.7pF(8R7)        | ±0.5pF(D) | GRM1535C1H8R7DDD5D |
| 8.8pF(8R8)        | ±0.5pF(D) | GRM1535C1H8R8DDD5D |
| 8.9pF(8R9)        | ±0.5pF(D) | GRM1535C1H8R9DDD5D |
| 9.0pF(9R0)        | ±0.5pF(D) | GRM1535C1H9R0DDD5D |
| 9.1pF(9R1)        | ±0.5pF(D) | GRM1535C1H9R1DDD5D |
| 9.2pF(9R2)        | ±0.5pF(D) | GRM1535C1H9R2DDD5D |
| 9.3pF(9R3)        | ±0.5pF(D) | GRM1535C1H9R3DDD5D |
| 9.4pF(9R4)        | ±0.5pF(D) | GRM1535C1H9R4DDD5D |
| 9.5pF(9R5)        | ±0.5pF(D) | GRM1535C1H9R5DDD5D |
| 9.6pF(9R6)        | ±0.5pF(D) | GRM1535C1H9R6DDD5D |
| 9.7pF(9R7)        | ±0.5pF(D) | GRM1535C1H9R7DDD5D |
| 9.8pF(9R8)        | ±0.5pF(D) | GRM1535C1H9R8DDD5D |
| 9.9pF(9R9)        | ±0.5pF(D) | GRM1535C1H9R9DDD5D |
| 10pF(100)         | ±5%(J)    | GRM1535C1H100JDD5D |
| 12pF(120)         | ±5%(J)    | GRM1535C1H120JDD5D |
| 15pF(150)         | ±5%(J)    | GRM1535C1H150JDD5D |
| 18pF(180)         | ±5%(J)    | GRM1535C1H180JDD5D |
| 22pF(220)         | ±5%(J)    | GRM1535C1H220JDD5D |
| 27pF(270)         | ±5%(J)    | GRM1535C1H270JDD5D |
| 33pF(330)         | ±5%(J)    | GRM1535C1H330JDD5D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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● Temperature Compensating Type C0G(5C) Characteristics Low Profile

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |
| 39pF(390)         | ±5%(J)    | GRM1535C1H390JDD5D |
| 47pF(470)         | ±5%(J)    | GRM1535C1H470JDD5D |
| 56pF(560)         | ±5%(J)    | GRM1535C1H560JDD5D |
| 68pF(680)         | ±5%(J)    | GRM1535C1H680JDD5D |
| 82pF(820)         | ±5%(J)    | GRM1535C1H820JDD5D |
| 100pF(101)        | ±5%(J)    | GRM1535C1H101JDD5D |
| 120pF(121)        | ±5%(J)    | GRM1535C1H121JDD5D |
| 150pF(151)        | ±5%(J)    | GRM1535C1H151JDD5D |
| 180pF(181)        | ±5%(J)    | GRM1535C1H181JDD5D |
| 220pF(221)        | ±5%(J)    | GRM1535C1H221JDD5D |
| 270pF(271)        | ±5%(J)    | GRM1535C1H271JDD5D |
| 330pF(331)        | ±5%(J)    | GRM1535C1H331JDD5D |
| 390pF(391)        | ±5%(J)    | GRM1535C1H391JDD5D |
| 470pF(471)        | ±5%(J)    | GRM1535C1H471JDD5D |
| 560pF(561)        | ±5%(J)    | GRM1535C1H561JDD5D |
| 680pF(681)        | ±5%(J)    | GRM1535C1H681JDD5D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    | 3.2x1.6(31)<1206>  |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 100(2A)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 100pF(101)        | ±5%(J)    | GRM2165C2A101JA01D |                    |                    |                    |
| 120pF(121)        | ±5%(J)    | GRM2165C2A121JA01D |                    |                    |                    |
| 150pF(151)        | ±5%(J)    | GRM2165C2A151JA01D |                    |                    |                    |
| 180pF(181)        | ±5%(J)    | GRM2165C2A181JA01D |                    |                    |                    |
| 220pF(221)        | ±5%(J)    | GRM2165C2A221JA01D |                    |                    |                    |
| 270pF(271)        | ±5%(J)    | GRM2165C2A271JA01D |                    |                    |                    |
| 330pF(331)        | ±5%(J)    | GRM2165C2A331JA01D |                    |                    |                    |
| 390pF(391)        | ±5%(J)    | GRM2165C2A391JA01D |                    |                    |                    |
| 470pF(471)        | ±5%(J)    | GRM2165C2A471JA01D |                    |                    |                    |
| 560pF(561)        | ±5%(J)    | GRM2165C2A561JA01D |                    |                    |                    |
| 680pF(681)        | ±5%(J)    | GRM2165C2A681JA01D |                    |                    |                    |
| 820pF(821)        | ±5%(J)    | GRM2165C2A821JA01D |                    |                    |                    |
| 1000pF(102)       | ±5%(J)    | GRM2165C2A102JA01D |                    |                    |                    |
| 1200pF(122)       | ±5%(J)    | GRM2165C2A122JA01D | GRM2165C1H122JA01D |                    |                    |
| 1500pF(152)       | ±5%(J)    | GRM2165C2A152JA01D | GRM2165C1H152JA01D |                    |                    |
| 1800pF(182)       | ±5%(J)    | GRM2165C2A182JA01D | GRM2165C1H182JA01D | GRM3195C2A182JA01D |                    |
| 2200pF(222)       | ±5%(J)    | GRM2165C2A222JA01D | GRM2165C1H222JA01D | GRM3195C2A222JA01D |                    |
| 2700pF(272)       | ±5%(J)    | GRM2165C2A272JA01D | GRM2165C1H272JA01D | GRM3195C2A272JA01D |                    |
| 3300pF(332)       | ±5%(J)    | GRM2165C2A332JA01D | GRM2165C1H332JA01D | GRM3195C2A332JA01D |                    |
| 3900pF(392)       | ±5%(J)    |                    | GRM2165C1H392JA01D | GRM3195C2A392JA01D |                    |
| 4700pF(472)       | ±5%(J)    |                    | GRM2165C1H472JA01D | GRM3195C2A472JA01D | GRM3195C1H472JA01D |
| 5600pF(562)       | ±5%(J)    |                    | GRM2195C1H562JA01D | GRM3195C2A562JA01D | GRM3195C1H562JA01D |
| 6800pF(682)       | ±5%(J)    |                    | GRM2195C1H682JA01D | GRM3195C2A682JA01D | GRM3195C1H682JA01D |
| 8200pF(822)       | ±5%(J)    |                    | GRM2195C1H822JA01D | GRM3195C2A822JA01D | GRM3195C1H822JA01D |
| 10000pF(103)      | ±5%(J)    |                    | GRM2195C1H103JA01D | GRM3195C2A103JA01D | GRM3195C1H103JA01D |
| 12000pF(123)      | ±5%(J)    |                    | GRM2195C1H123JA01D |                    | GRM3195C1H123JA01D |
| 15000pF(153)      | ±5%(J)    |                    | GRM2195C1H153JA01D |                    | GRM3195C1H153JA01D |
| 18000pF(183)      | ±5%(J)    |                    |                    |                    | GRM3195C1H183JA01D |
| 22000pF(223)      | ±5%(J)    |                    |                    |                    | GRM3195C1H223JA01D |
| 27000pF(273)      | ±5%(J)    |                    |                    |                    | GRM3195C1H273JA01D |
| 33000pF(333)      | ±5%(J)    |                    |                    |                    | GRM3195C1H333JA01D |
| 39000pF(393)      | ±5%(J)    |                    |                    |                    | GRM3195C1H393JA01D |
| 47000pF(473)      | ±5%(J)    |                    |                    |                    | GRM31M5C1H473JA01L |
| 56000pF(563)      | ±5%(J)    |                    |                    |                    | GRM31M5C1H563JA01L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## ● Temperature Compensating Type U2J(7U) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  |                    | 1.0x0.5(15)<0402>  |                    |
|-------------------|------------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 50(1H)             | 25(1E)             | 50(1H)             | 10(1A)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |                    |
| 1.0pF(1R0)        | ±0.25pF(C) | GRM0337U1H1R0CD01D |                    | GRM1557U1H1R0CZ01D |                    |
| 2.0pF(2R0)        | ±0.25pF(C) | GRM0337U1H2R0CD01D |                    | GRM1557U1H2R0CZ01D |                    |
| 3.0pF(3R0)        | ±0.25pF(C) | GRM0337U1H3R0CD01D |                    | GRM1557U1H3R0CZ01D |                    |
| 4.0pF(4R0)        | ±0.25pF(C) | GRM0337U1H4R0CD01D |                    | GRM1557U1H4R0CZ01D |                    |
| 5.0pF(5R0)        | ±0.25pF(C) | GRM0337U1H5R0CD01D |                    | GRM1557U1H5R0CZ01D |                    |
| 6.0pF(6R0)        | ±0.5pF(D)  | GRM0337U1H6R0DD01D |                    | GRM1557U1H6R0DZ01D |                    |
| 7.0pF(7R0)        | ±0.5pF(D)  | GRM0337U1H7R0DD01D |                    | GRM1557U1H7R0DZ01D |                    |
| 8.0pF(8R0)        | ±0.5pF(D)  | GRM0337U1H8R0DD01D |                    | GRM1557U1H8R0DZ01D |                    |
| 9.0pF(9R0)        | ±0.5pF(D)  | GRM0337U1H9R0DD01D |                    | GRM1557U1H9R0DZ01D |                    |
| 10pF(100)         | ±5%(J)     | GRM0337U1H100JD01D |                    | GRM1557U1H100JZ01D |                    |
| 12pF(120)         | ±5%(J)     | GRM0337U1H120JD01D |                    | GRM1557U1H120JZ01D |                    |
| 15pF(150)         | ±5%(J)     | GRM0337U1H150JD01D |                    | GRM1557U1H150JZ01D |                    |
| 18pF(180)         | ±5%(J)     |                    | GRM0337U1E180JD01D | GRM1557U1H180JZ01D |                    |
| 22pF(220)         | ±5%(J)     |                    | GRM0337U1E220JD01D | GRM1557U1H220JZ01D |                    |
| 27pF(270)         | ±5%(J)     |                    | GRM0337U1E270JD01D | GRM1557U1H270JZ01D |                    |
| 33pF(330)         | ±5%(J)     |                    | GRM0337U1E330JD01D | GRM1557U1H330JZ01D |                    |
| 39pF(390)         | ±5%(J)     |                    | GRM0337U1E390JD01D | GRM1557U1H390JZ01D |                    |
| 47pF(470)         | ±5%(J)     |                    | GRM0337U1E470JD01D | GRM1557U1H470JZ01D |                    |
| 56pF(560)         | ±5%(J)     |                    | GRM0337U1E560JD01D | GRM1557U1H560JZ01D |                    |
| 68pF(680)         | ±5%(J)     |                    | GRM0337U1E680JD01D | GRM1557U1H680JZ01D |                    |
| 82pF(820)         | ±5%(J)     |                    | GRM0337U1E820JD01D | GRM1557U1H820JZ01D |                    |
| 100pF(101)        | ±5%(J)     |                    | GRM0337U1E101JD01D | GRM1557U1H101JZ01D |                    |
| 120pF(121)        | ±5%(J)     |                    |                    | GRM1557U1H121JZ01D |                    |
| 150pF(151)        | ±5%(J)     |                    |                    | GRM1557U1H151JZ01D |                    |
| 180pF(181)        | ±5%(J)     |                    |                    | GRM1557U1H181JZ01D |                    |
| 1200pF(122)       | ±5%(J)     |                    |                    |                    | GRM1557U1A122JA01D |
| 1500pF(152)       | ±5%(J)     |                    |                    |                    | GRM1557U1A152JA01D |
| 1800pF(182)       | ±5%(J)     |                    |                    |                    | GRM1557U1A182JA01D |
| 2200pF(222)       | ±5%(J)     |                    |                    |                    | GRM1557U1A222JA01D |
| 2700pF(272)       | ±5%(J)     |                    |                    |                    | GRM1557U1A272JA01D |
| 3300pF(332)       | ±5%(J)     |                    |                    |                    | GRM1557U1A332JA01D |
| 3900pF(392)       | ±5%(J)     |                    |                    |                    | GRM1557U1A392JA01D |
| 4700pF(472)       | ±5%(J)     |                    |                    |                    | GRM1557U1A472JA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code

## ● Temperature Compensating Type U2J(7U) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 1000pF(102)       | ±5%(J)    | GRM1887U1H102JA01D |                    |
| 1200pF(122)       | ±5%(J)    | GRM1887U1H122JA01D |                    |
| 1500pF(152)       | ±5%(J)    | GRM1887U1H152JA01D |                    |
| 1800pF(182)       | ±5%(J)    | GRM1887U1H182JA01D |                    |
| 2200pF(222)       | ±5%(J)    | GRM1887U1H222JA01D |                    |
| 2700pF(272)       | ±5%(J)    | GRM1887U1H272JA01D |                    |
| 3300pF(332)       | ±5%(J)    | GRM1887U1H332JA01D |                    |
| 3900pF(392)       | ±5%(J)    | GRM1887U1H392JA01D |                    |
| 4700pF(472)       | ±5%(J)    | GRM1887U1H472JA01D |                    |
| 5600pF(562)       | ±5%(J)    | GRM1887U1H562JA01D |                    |
| 6800pF(682)       | ±5%(J)    | GRM1887U1H682JA01D |                    |
| 8200pF(822)       | ±5%(J)    | GRM1887U1H822JA01D |                    |
| 10000pF(103)      | ±5%(J)    | GRM1887U1H103JA01D |                    |
| 12000pF(123)      | ±5%(J)    |                    | GRM1887U1A123JA01D |
| 15000pF(153)      | ±5%(J)    |                    | GRM1887U1A153JA01D |
| 18000pF(183)      | ±5%(J)    |                    | GRM1887U1A183JA01D |
| 22000pF(223)      | ±5%(J)    |                    | GRM1887U1A223JA01D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    | 3.2x1.6(31)<1206>  |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 10(1A)             | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 10000pF(103)      | ±5%(J)    | GRM2167U1H103JA01D |                    |                    |
| 12000pF(123)      | ±5%(J)    | GRM2167U1H123JA01D |                    |                    |
| 15000pF(153)      | ±5%(J)    | GRM2167U1H153JA01D |                    |                    |
| 18000pF(183)      | ±5%(J)    | GRM2167U1H183JA01D |                    |                    |
| 22000pF(223)      | ±5%(J)    | GRM2197U1H223JA01D |                    |                    |
| 27000pF(273)      | ±5%(J)    | GRM2197U1H273JA01D |                    |                    |
| 33000pF(333)      | ±5%(J)    | GRM21A7U1H333JA39L |                    |                    |
| 39000pF(393)      | ±5%(J)    | GRM21B7U1H393JA01L |                    |                    |
| 47000pF(473)      | ±5%(J)    | GRM21B7U1H473JA01L |                    |                    |
| 56000pF(563)      | ±5%(J)    |                    | GRM2197U1A563JA01D | GRM3197U1H563JA01D |
| 68000pF(683)      | ±5%(J)    |                    | GRM21B7U1A683JA01L | GRM31M7U1H683JA01L |
| 82000pF(823)      | ±5%(J)    |                    | GRM21B7U1A823JA01L | GRM31M7U1H823JA01L |
| 100000pF(104)     | ±5%(J)    |                    | GRM21B7U1A104JA01L | GRM31M7U1H104JA01L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

### ● Temperature Compensating Type U2J(7U) Characteristics Low Profile

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 2200pF(222)       | ±5%(J)    | GRM1857U1H222JA44D |                    |
| 2700pF(272)       | ±5%(J)    | GRM1857U1H272JA44D |                    |
| 3300pF(332)       | ±5%(J)    | GRM1857U1H332JA44D |                    |
| 3900pF(392)       | ±5%(J)    | GRM1857U1H392JA44D |                    |
| 4700pF(472)       | ±5%(J)    | GRM1857U1H472JA44D |                    |
| 5600pF(562)       | ±5%(J)    |                    | GRM1857U1A562JA44D |
| 6800pF(682)       | ±5%(J)    |                    | GRM1857U1A682JA44D |
| 8200pF(822)       | ±5%(J)    |                    | GRM1857U1A822JA44D |
| 10000pF(103)      | ±5%(J)    |                    | GRM1857U1A103JA44D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    | 3.2x1.6(31)<1206>  |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 10(1A)             | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 10000pF(103)      | ±5%(J)    | GRM2167U1H103JA01D |                    |                    |
| 12000pF(123)      | ±5%(J)    | GRM2167U1H123JA01D |                    |                    |
| 15000pF(153)      | ±5%(J)    | GRM2167U1H153JA01D |                    |                    |
| 18000pF(183)      | ±5%(J)    | GRM2167U1H183JA01D |                    |                    |
| 22000pF(223)      | ±5%(J)    | GRM2197U1H223JA01D |                    |                    |
| 27000pF(273)      | ±5%(J)    | GRM2197U1H273JA01D |                    |                    |
| 33000pF(333)      | ±5%(J)    | GRM21A7U1H333JA39L |                    |                    |
| 56000pF(563)      | ±5%(J)    |                    | GRM2197U1A563JA01D | GRM3197U1H563JA01D |
| 68000pF(683)      | ±5%(J)    |                    |                    | GRM31M7U1H683JA01L |
| 82000pF(823)      | ±5%(J)    |                    |                    | GRM31M7U1H823JA01L |
| 100000pF(104)     | ±5%(J)    |                    |                    | GRM31M7U1H104JA01L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

### ● Temperature Compensating Type P2H(6P) Characteristics

| LxW [mm]          |            | 1.0x0.5(15)<0402>  |  |
|-------------------|------------|--------------------|--|
| Rated Volt. [Vdc] |            | 50(1H)             |  |
| Capacitance       | Tolerance  | Part Number        |  |
| 1.0pF(1R0)        | ±0.25pF(C) | GRM1556P1H1R0CZ01D |  |
| 2.0pF(2R0)        | ±0.25pF(C) | GRM1556P1H2R0CZ01D |  |
| 3.0pF(3R0)        | ±0.25pF(C) | GRM1556P1H3R0CZ01D |  |
| 4.0pF(4R0)        | ±0.25pF(C) | GRM1556P1H4R0CZ01D |  |
| 5.0pF(5R0)        | ±0.25pF(C) | GRM1556P1H5R0CZ01D |  |
| 6.0pF(6R0)        | ±0.5pF(D)  | GRM1556P1H6R0DZ01D |  |
| 7.0pF(7R0)        | ±0.5pF(D)  | GRM1556P1H7R0DZ01D |  |
| 8.0pF(8R0)        | ±0.5pF(D)  | GRM1556P1H8R0DZ01D |  |
| 9.0pF(9R0)        | ±0.5pF(D)  | GRM1556P1H9R0DZ01D |  |
| 10pF(100)         | ±5%(J)     | GRM1556P1H100JZ01D |  |
| 12pF(120)         | ±5%(J)     | GRM1556P1H120JZ01D |  |
| 15pF(150)         | ±5%(J)     | GRM1556P1H150JZ01D |  |
| 18pF(180)         | ±5%(J)     | GRM1556P1H180JZ01D |  |
| 22pF(220)         | ±5%(J)     | GRM1556P1H220JZ01D |  |
| 27pF(270)         | ±5%(J)     | GRM1556P1H270JZ01D |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● Temperature Compensating Type R2H(6R) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 1.0pF(1R0)        | ±0.25pF(C) | GRM0336R1E1R0CD01D | GRM1556R1H1R0CD01D |
| 2.0pF(2R0)        | ±0.25pF(C) | GRM0336R1E2R0CD01D | GRM1556R1H2R0CZ01D |
| 3.0pF(3R0)        | ±0.25pF(C) | GRM0336R1E3R0CD01D | GRM1556R1H3R0CZ01D |
| 4.0pF(4R0)        | ±0.25pF(C) | GRM0336R1E4R0CD01D | GRM1556R1H4R0CZ01D |
| 5.0pF(5R0)        | ±0.25pF(C) | GRM0336R1E5R0CD01D | GRM1556R1H5R0CZ01D |
| 6.0pF(6R0)        | ±0.5pF(D)  | GRM0336R1E6R0DD01D | GRM1556R1H6R0DZ01D |
| 7.0pF(7R0)        | ±0.5pF(D)  | GRM0336R1E7R0DD01D | GRM1556R1H7R0DZ01D |
| 8.0pF(8R0)        | ±0.5pF(D)  | GRM0336R1E8R0DD01D | GRM1556R1H8R0DZ01D |
| 9.0pF(9R0)        | ±0.5pF(D)  | GRM0336R1E9R0DD01D | GRM1556R1H9R0DZ01D |
| 10pF(100)         | ±5%(J)     | GRM0336R1E100JD01D | GRM1556R1H100JZ01D |
| 12pF(120)         | ±5%(J)     | GRM0336R1E120JD01D | GRM1556R1H120JZ01D |
| 15pF(150)         | ±5%(J)     | GRM0336R1E150JD01D | GRM1556R1H150JZ01D |
| 18pF(180)         | ±5%(J)     | GRM0336R1E180JD01D | GRM1556R1H180JZ01D |
| 22pF(220)         | ±5%(J)     | GRM0336R1E220JD01D | GRM1556R1H220JZ01D |
| 27pF(270)         | ±5%(J)     | GRM0336R1E270JD01D | GRM1556R1H270JZ01D |
| 33pF(330)         | ±5%(J)     | GRM0336R1E330JD01D | GRM1556R1H330JZ01D |
| 39pF(390)         | ±5%(J)     | GRM0336R1E390JD01D |                    |
| 47pF(470)         | ±5%(J)     | GRM0336R1E470JD01D |                    |
| 56pF(560)         | ±5%(J)     | GRM0336R1E560JD01D |                    |
| 68pF(680)         | ±5%(J)     | GRM0336R1E680JD01D |                    |
| 82pF(820)         | ±5%(J)     | GRM0336R1E820JD01D |                    |
| 100pF(101)        | ±5%(J)     | GRM0336R1E101JD01D |                    |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● Temperature Compensating Type S2H(6S) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 1.0pF(1R0)        | ±0.25pF(C) | GRM0336S1E1R0CD01D | GRM1556S1H1R0CD01D |
| 2.0pF(2R0)        | ±0.25pF(C) | GRM0336S1E2R0CD01D | GRM1556S1H2R0CZ01D |
| 3.0pF(3R0)        | ±0.25pF(C) | GRM0336S1E3R0CD01D | GRM1556S1H3R0CZ01D |
| 4.0pF(4R0)        | ±0.25pF(C) | GRM0336S1E4R0CD01D | GRM1556S1H4R0CZ01D |
| 5.0pF(5R0)        | ±0.25pF(C) | GRM0336S1E5R0CD01D | GRM1556S1H5R0CZ01D |
| 6.0pF(6R0)        | ±0.5pF(D)  | GRM0336S1E6R0DD01D | GRM1556S1H6R0DZ01D |
| 7.0pF(7R0)        | ±0.5pF(D)  | GRM0336S1E7R0DD01D | GRM1556S1H7R0DZ01D |
| 8.0pF(8R0)        | ±0.5pF(D)  | GRM0336S1E8R0DD01D | GRM1556S1H8R0DZ01D |
| 9.0pF(9R0)        | ±0.5pF(D)  | GRM0336S1E9R0DD01D | GRM1556S1H9R0DZ01D |
| 10pF(100)         | ±5%(J)     | GRM0336S1E100JD01D | GRM1556S1H100JZ01D |
| 12pF(120)         | ±5%(J)     | GRM0336S1E120JD01D | GRM1556S1H120JZ01D |
| 15pF(150)         | ±5%(J)     | GRM0336S1E150JD01D | GRM1556S1H150JZ01D |
| 18pF(180)         | ±5%(J)     | GRM0336S1E180JD01D | GRM1556S1H180JZ01D |
| 22pF(220)         | ±5%(J)     | GRM0336S1E220JD01D | GRM1556S1H220JZ01D |
| 27pF(270)         | ±5%(J)     | GRM0336S1E270JD01D | GRM1556S1H270JZ01D |
| 33pF(330)         | ±5%(J)     | GRM0336S1E330JD01D | GRM1556S1H330JZ01D |
| 39pF(390)         | ±5%(J)     | GRM0336S1E390JD01D | GRM1556S1H390JZ01D |
| 47pF(470)         | ±5%(J)     | GRM0336S1E470JD01D |                    |
| 56pF(560)         | ±5%(J)     | GRM0336S1E560JD01D |                    |
| 68pF(680)         | ±5%(J)     | GRM0336S1E680JD01D |                    |
| 82pF(820)         | ±5%(J)     | GRM0336S1E820JD01D |                    |
| 100pF(101)        | ±5%(J)     | GRM0336S1E101JD01D |                    |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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## ● Temperature Compensating Type T2H(6T) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 1.0pF(1R0)        | ±0.25pF(C) | GRM0336T1E1R0CD01D | GRM1556T1H1R0CD01D |
| 2.0pF(2R0)        | ±0.25pF(C) | GRM0336T1E2R0CD01D | GRM1556T1H2R0CD01D |
| 3.0pF(3R0)        | ±0.25pF(C) | GRM0336T1E3R0CD01D | GRM1556T1H3R0CD01D |
| 4.0pF(4R0)        | ±0.25pF(C) | GRM0336T1E4R0CD01D | GRM1556T1H4R0CD01D |
| 5.0pF(5R0)        | ±0.25pF(C) | GRM0336T1E5R0CD01D | GRM1556T1H5R0CD01D |
| 6.0pF(6R0)        | ±0.5pF(D)  | GRM0336T1E6R0DD01D | GRM1556T1H6R0DD01D |
| 7.0pF(7R0)        | ±0.5pF(D)  | GRM0336T1E7R0DD01D | GRM1556T1H7R0DD01D |
| 8.0pF(8R0)        | ±0.5pF(D)  | GRM0336T1E8R0DD01D | GRM1556T1H8R0DD01D |
| 9.0pF(9R0)        | ±0.5pF(D)  | GRM0336T1E9R0DD01D | GRM1556T1H9R0DD01D |
| 10pF(100)         | ±5%(J)     | GRM0336T1E100JD01D | GRM1556T1H100JD01D |
| 12pF(120)         | ±5%(J)     | GRM0336T1E120JD01D | GRM1556T1H120JD01D |
| 15pF(150)         | ±5%(J)     | GRM0336T1E150JD01D | GRM1556T1H150JD01D |
| 18pF(180)         | ±5%(J)     | GRM0336T1E180JD01D | GRM1556T1H180JD01D |
| 22pF(220)         | ±5%(J)     | GRM0336T1E220JD01D | GRM1556T1H220JD01D |
| 27pF(270)         | ±5%(J)     | GRM0336T1E270JD01D | GRM1556T1H270JD01D |
| 33pF(330)         | ±5%(J)     | GRM0336T1E330JD01D | GRM1556T1H330JD01D |
| 39pF(390)         | ±5%(J)     | GRM0336T1E390JD01D | GRM1556T1H390JD01D |
| 47pF(470)         | ±5%(J)     | GRM0336T1E470JD01D | GRM1556T1H470JD01D |
| 56pF(560)         | ±5%(J)     | GRM0336T1E560JD01D | GRM1556T1H560JD01D |
| 68pF(680)         | ±5%(J)     | GRM0336T1E680JD01D | GRM1556T1H680JD01D |
| 82pF(820)         | ±5%(J)     | GRM0336T1E820JD01D | GRM1556T1H820JD01D |
| 100pF(101)        | ±5%(J)     | GRM0336T1E101JD01D | GRM1556T1H101JD01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● High Dielectric Constant Type X7R(R7) Characteristics

| LxW [mm]          |           | 0.4x0.2(02)<01005> |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |
| 68pF(680)         | ±10%(K)   | GRM022R71A680KA01L |
| 100pF(101)        | ±10%(K)   | GRM022R71A101KA01L |
| 150pF(151)        | ±10%(K)   | GRM022R71A151KA01L |
| 220pF(221)        | ±10%(K)   | GRM022R71A221KA01L |
| 330pF(331)        | ±10%(K)   | GRM022R71A331KA01L |
| 470pF(471)        | ±10%(K)   | GRM022R71A471KA01L |

| LxW [mm]          |           | 0.6x0.3(03)<0201>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 100pF(101)        | ±10%(K)   | GRM033R71E101KA01D |                    |                    |
| 150pF(151)        | ±10%(K)   | GRM033R71E151KA01D |                    |                    |
| 220pF(221)        | ±10%(K)   | GRM033R71E221KA01D |                    |                    |
| 330pF(331)        | ±10%(K)   | GRM033R71E331KA01D |                    |                    |
| 470pF(471)        | ±10%(K)   | GRM033R71E471KA01D |                    |                    |
| 680pF(681)        | ±10%(K)   | GRM033R71E681KA01D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GRM033R71E102KA01D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GRM033R71E152KA01D |                    |                    |
| 2200pF(222)       | ±10%(K)   |                    | GRM033R71C222KA88D |                    |
| 3300pF(332)       | ±10%(K)   |                    | GRM033R71C332KA88D |                    |
| 4700pF(472)       | ±10%(K)   |                    |                    | GRM033R71A472KA01D |
| 6800pF(682)       | ±10%(K)   |                    |                    | GRM033R71A682KA01D |
| 10000pF(103)      | ±10%(K)   |                    |                    | GRM033R71A103KA01D |

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 220pF(221)        | ±10%(K)   | GRM155R72A221KA01D | GRM155R71H221KA01D |                    |                    |
| 330pF(331)        | ±10%(K)   | GRM155R72A331KA01D | GRM155R71H331KA01D |                    |                    |
| 470pF(471)        | ±10%(K)   | GRM155R72A471KA01D | GRM155R71H471KA01D |                    |                    |
| 680pF(681)        | ±10%(K)   | GRM155R72A681KA01D | GRM155R71H681KA01D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GRM155R72A102KA01D | GRM155R71H102KA01D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GRM155R72A152KA01D | GRM155R71H152KA01D |                    |                    |
| 2200pF(222)       | ±10%(K)   | GRM155R72A222KA01D | GRM155R71H222KA01D |                    |                    |
| 3300pF(332)       | ±10%(K)   | GRM155R72A332KA01D | GRM155R71H332KA01D |                    |                    |
| 4700pF(472)       | ±10%(K)   | GRM155R72A472KA01D | GRM155R71H472KA01D | GRM155R71E472KA01D |                    |
| 6800pF(682)       | ±10%(K)   |                    | GRM155R71H682KA88D | GRM155R71E682KA01D |                    |
| 10000pF(103)      | ±10%(K)   |                    | GRM155R71H103KA88D | GRM155R71E103KA01D |                    |
| 15000pF(153)      | ±10%(K)   |                    | GRM155R71H153KA12D | GRM155R71E153KA61D | GRM155R71C153KA01D |
| 22000pF(223)      | ±10%(K)   |                    | GRM155R71H223KA12D | GRM155R71E223KA61D | GRM155R71C223KA01D |
| 33000pF(333)      | ±10%(K)   |                    |                    | GRM155R71E333KA88D | GRM155R71C333KA01D |
| 47000pF(473)      | ±10%(K)   |                    |                    | GRM155R71E473KA88D | GRM155R71C473KA01D |
| 68000pF(683)      | ±10%(K)   |                    |                    |                    | GRM155R71C683KA88D |
| 0.10μF(104)       | ±10%(K)   |                    |                    |                    | GRM155R71C104KA88D |

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |
| 68000pF(683)      | ±10%(K)   | GRM155R71A683KA01D |
| 0.10μF(104)       | ±10%(K)   | GRM155R71A104KA01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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## ● High Dielectric Constant Type X7R(R7)/X7S(C7) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 220pF(221)        | ±10%(K)   | GRM188R72A221KA01D | GRM188R71H221KA01D |                    |                    |
| 330pF(331)        | ±10%(K)   | GRM188R72A331KA01D | GRM188R71H331KA01D |                    |                    |
| 470pF(471)        | ±10%(K)   | GRM188R72A471KA01D | GRM188R71H471KA01D |                    |                    |
| 680pF(681)        | ±10%(K)   | GRM188R72A681KA01D | GRM188R71H681KA01D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GRM188R72A102KA01D | GRM188R71H102KA01D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GRM188R72A152KA01D | GRM188R71H152KA01D |                    |                    |
| 2200pF(222)       | ±10%(K)   | GRM188R72A222KA01D | GRM188R71H222KA01D |                    |                    |
| 3300pF(332)       | ±10%(K)   | GRM188R72A332KA01D | GRM188R71H332KA01D |                    |                    |
| 4700pF(472)       | ±10%(K)   | GRM188R72A472KA01D | GRM188R71H472KA01D |                    |                    |
| 6800pF(682)       | ±10%(K)   | GRM188R72A682KA01D | GRM188R71H682KA01D |                    |                    |
| 10000pF(103)      | ±10%(K)   | GRM188R72A103KA01D | GRM188R71H103KA01D | GRM188R71E103KA01D |                    |
| 15000pF(153)      | ±10%(K)   |                    | GRM188R71H153KA01D | GRM188R71E153KA01D |                    |
| 22000pF(223)      | ±10%(K)   |                    | GRM188R71H223KA01D | GRM188R71E223KA01D |                    |
| 33000pF(333)      | ±10%(K)   |                    | GRM188R71H333KA61D | GRM188R71E333KA01D |                    |
| 47000pF(473)      | ±10%(K)   |                    | GRM188R71H473KA61D | GRM188R71E473KA01D |                    |
| 68000pF(683)      | ±10%(K)   |                    | GRM188R71H683KA93D | GRM188R71E683KA01D |                    |
| 0.10μF(104)       | ±10%(K)   | GRM188R72A104KA35D | GRM188R71H104KA93D | GRM188R71E104KA01D |                    |
| 0.15μF(154)       | ±10%(K)   |                    |                    | GRM188R71E154KA01D | GRM188R71C154KA01D |
| 0.22μF(224)       | ±10%(K)   |                    |                    | GRM188R71E224KA88D | GRM188R71C224KA01D |
| 0.33μF(334)       | ±10%(K)   |                    |                    |                    | GRM188R71C334KA01D |
| 0.47μF(474)       | ±10%(K)   |                    |                    | GRM188R71E474KA12D | GRM188R71C474KA88D |
| 1.0μF(105)        | ±10%(K)   |                    |                    | GRM188R71E105KA12D | GRM188R71C105KA12D |

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 0.33μF(334)       | ±10%(K)   | GRM188R71A334KA61D |                    |                    |
| 0.47μF(474)       | ±10%(K)   | GRM188R71A474KA61D |                    |                    |
| 0.68μF(684)       | ±10%(K)   | GRM188R71A684KA61D |                    |                    |
| 1.0μF(105)        | ±10%(K)   | GRM188R71A105KA61D |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GRM188R71A225KE15D | GRM188C70J225KE20D | GRM188C70G225KE20D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code



## ● High Dielectric Constant Type X7R(R7)/X7U(E7) Characteristics

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |  |                    |
|-------------------|-----------|--------------------|--------------------|--|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)                                   | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |  |                    |
| 6800pF(682)       | ±10%(K)   | GRM219R72A682KA01D |                    |  |                    |
| 10000pF(103)      | ±10%(K)   | GRM21BR72A103KA01L |                    |  |                    |
| 15000pF(153)      | ±10%(K)   | GRM21BR72A153KA01L |                    |  |                    |
| 22000pF(223)      | ±10%(K)   | GRM21BR72A223KA01L |                    |  |                    |
| 33000pF(333)      | ±10%(K)   | GRM21BR72A333KA01L | GRM219R71H333KA01D |  |                    |
| 47000pF(473)      | ±10%(K)   | GRM21BR72A473KA01L | GRM21BR71H473KA01L |  |                    |
| 68000pF(683)      | ±10%(K)   |                    | GRM21BR71H683KA01L | GRM219R71E683KA01D                       |                    |
| 0.10μF(104)       | ±10%(K)   |                    | GRM21BR71H104KA01L | GRM21BR71E104KA01L                       |                    |
| 0.15μF(154)       | ±10%(K)   |                    | GRM21BR71H154KA01L | GRM21BR71E154KA01L                       |                    |
| 0.22μF(224)       | ±10%(K)   | GRM21AR72A224KAC5L | GRM21BR71H224KA01L | GRM21BR71E224KA01L                       |                    |
| 0.33μF(334)       | ±10%(K)   | GRM21AR72A334KAC5L | GRM219R71H334KA88D | GRM21BR71E334KA01L                       |                    |
| 0.47μF(474)       | ±10%(K)   | GRM21BR72A474KA73L | GRM21BR71H474KA88L | GRM219R71E474KA88D                       |                    |
| 0.68μF(684)       | ±10%(K)   |                    |                    | GRM219R71E684KA88D                       | GRM219R71C684KA01D |
| 1.0μF(105)        | ±10%(K)   |                    | GRM21BR71H105KA12L | GRM21BR71E105KA99L<br>GRM219R71E105KA88D | GRM21BR71C105KA01L |
| 2.2μF(225)        | ±10%(K)   |                    |                    | GRM21BR71E225KA73L                       | GRM21BR71C225KA12L |
| 4.7μF(475)        | ±10%(K)   |                    |                    |  | GRM21BR71C475KA73L |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GRM21BR71A225KA01L |                    |                    |
| 4.7μF(475)        | ±10%(K)   | GRM21BR71A475KA73L |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM21BR71A106KE51L | GRM21BR70J106KE76L |                    |
| 22μF(226)         | ±20%(M)   |                    |                    | GRM21BE70G226ME51L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● High Dielectric Constant Type X7R(R7)/X7U(E7) Characteristics

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 15000pF(153)      | ±10%(K)   | GRM319R72A153KA01L |                    |                    |                    |
| 22000pF(223)      | ±10%(K)   | GRM31MR72A223KA01L |                    |                    |                    |
| 33000pF(333)      | ±10%(K)   | GRM31MR72A333KA01L |                    |                    |                    |
| 47000pF(473)      | ±10%(K)   | GRM31MR72A473KA01L |                    |                    |                    |
| 68000pF(683)      | ±10%(K)   | GRM31MR72A683KA01L |                    |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GRM319R72A104KA01D |                    |                    |                    |
| 0.15μF(154)       | ±10%(K)   | GRM31MR72A154KA01L | GRM31MR71H154KA01L |                    |                    |
| 0.22μF(224)       | ±10%(K)   | GRM31MR72A224KA01L | GRM31MR71H224KA01L |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                    | GRM319R71H334KA01D |                    |                    |
| 0.47μF(474)       | ±10%(K)   | GRM31MR72A474KA35L | GRM31MR71H474KA01L |                    |                    |
| 0.68μF(684)       | ±10%(K)   | GRM31MR72A684KA35L | GRM31MR71H684KA88L |                    |                    |
| 1.0μF(105)        | ±10%(K)   | GRM31CR72A105KA01L | GRM31MR71H105KA88L |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                    | GRM31CR71H225KA88L | GRM31MR71E225KA93L | GRM31MR71C225KA35L |
| 4.7μF(475)        | ±10%(K)   |                    | GRM31CR71H475KA12L | GRM31CR71E475KA88L | GRM31CR71C475KA01L |
| 10μF(106)         | ±10%(K)   |                    |                    | GRM31CR71E106KA12L | GRM31CR71C106KAC7L |

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM31CR71A106KA01L |                    |                    |
| 22μF(226)         | ±20%(M)   | GRM31CR71A226ME15L | GRM31CR70J226ME19L |                    |
| 47μF(476)         | ±20%(M)   |                    |                    | GRM31CE70G476ME15L |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 35(YA)             | 25(1E)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 0.68μF(684)       | ±10%(K)   | GRM32CR72A684KA01L | GRM32NR71H684KA01L |                    |                    |
| 1.0μF(105)        | ±10%(K)   | GRM32CR72A105KA35L |                    |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GRM32ER72A225KA35L |                    |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                    | GRM32ER71H475KA88L |                    |                    |
| 10μF(106)         | ±10%(K)   |                    |                    | GRM32ER7YA106KA12L | GRM32DR71E106KA12L |
| 22μF(226)         | ±20%(M)   |                    |                    |                    | GRM32ER71E226ME15L |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 22μF(226)         | ±20%(M)   | GRM32ER71C226ME18L |                    |                    |
| 47μF(476)         | ±20%(M)   |                    | GRM32ER71A476ME15L | GRM32ER70J476ME20L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● High Dielectric Constant Type X7R(R7)/X7T(D7) Characteristics Low Profile

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 220pF(221)        | ±10%(K)   | GRM15XR71H221KA86D |                    |                    |
| 330pF(331)        | ±10%(K)   | GRM15XR71H331KA86D |                    |                    |
| 470pF(471)        | ±10%(K)   | GRM15XR71H471KA86D |                    |                    |
| 680pF(681)        | ±10%(K)   | GRM15XR71H681KA86D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GRM15XR71H102KA86D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GRM15XR71H152KA86D |                    |                    |
| 2200pF(222)       | ±10%(K)   |                    | GRM15XR71E222KA86D |                    |
| 3300pF(332)       | ±10%(K)   |                    |                    | GRM15XR71C332KA86D |
| 4700pF(472)       | ±10%(K)   |                    |                    | GRM15XR71C472KA86D |
| 6800pF(682)       | ±10%(K)   |                    |                    | GRM15XR71C682KA86D |
| 10000pF(103)      | ±10%(K)   |                    |                    | GRM15XR71C103KA86D |

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |
| 1.0μF(105)        | ±10%(K)   | GRM185D71A105KE36D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 6800pF(682)       | ±10%(K)   | GRM219R72A682KA01D |                    |                    |                    |
| 33000pF(333)      | ±10%(K)   |                    | GRM219R71H333KA01D |                    |                    |
| 68000pF(683)      | ±10%(K)   |                    |                    | GRM219R71E683KA01D |                    |
| 0.22μF(224)       | ±10%(K)   | GRM21AR72A224KAC5L |                    |                    |                    |
| 0.33μF(334)       | ±10%(K)   | GRM21AR72A334KAC5L | GRM219R71H334KA88D |                    |                    |
| 0.47μF(474)       | ±10%(K)   |                    |                    | GRM219R71E474KA88D |                    |
| 0.68μF(684)       | ±10%(K)   |                    |                    | GRM219R71E684KA88D | GRM219R71C684KA01D |
| 1.0μF(105)        | ±10%(K)   |                    |                    | GRM219R71E105KA88D |                    |

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 15000pF(153)      | ±10%(K)   | GRM319R72A153KA01L |                    |                    |                    |
| 22000pF(223)      | ±10%(K)   | GRM31MR72A223KA01L |                    |                    |                    |
| 33000pF(333)      | ±10%(K)   | GRM31MR72A333KA01L |                    |                    |                    |
| 47000pF(473)      | ±10%(K)   | GRM31MR72A473KA01L |                    |                    |                    |
| 68000pF(683)      | ±10%(K)   | GRM31MR72A683KA01L |                    |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GRM319R72A104KA01D |                    |                    |                    |
| 0.15μF(154)       | ±10%(K)   | GRM31MR72A154KA01L | GRM31MR71H154KA01L |                    |                    |
| 0.22μF(224)       | ±10%(K)   | GRM31MR72A224KA01L | GRM31MR71H224KA01L |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                    | GRM319R71H334KA01D |                    |                    |
| 0.47μF(474)       | ±10%(K)   | GRM31MR72A474KA35L | GRM31MR71H474KA01L |                    |                    |
| 0.68μF(684)       | ±10%(K)   | GRM31MR72A684KA35L | GRM31MR71H684KA88L |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    | GRM31MR71H105KA88L |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                    |                    | GRM31MR71E225KA93L | GRM31MR71C225KA35L |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 0.68μF(684)       | ±10%(K)   | GRM32CR72A684KA01L | GRM32NR71H684KA01L |
| 1.0μF(105)        | ±10%(K)   | GRM32CR72A105KA35L |                    |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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## ● High Dielectric Constant Type X6S(C8) Characteristics

| LxW [mm]          |           | 0.6x0.3(03)<0201>  |         |
|-------------------|-----------|--------------------|---------|
| Rated Volt. [Vdc] |           | 6.3(0J)            | 2.5(0E) |
| Capacitance       | Tolerance | Part Number        |         |
| 15000pF(153)      | ±10%(K)   | GRM033C80J153KE01D |         |
| 22000pF(223)      | ±10%(K)   | GRM033C80J223KE01D |         |
| 33000pF(333)      | ±10%(K)   | GRM033C80J333KE01D |         |
| 47000pF(473)      | ±10%(K)   | GRM033C80J473KE19D |         |
| 0.10μF(104)       | ±10%(K)   | GRM033C80J104KE84D |         |
| 0.22μF(224)       | ±10%(K)   | GRM033C80E224ME15D |         |

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 68000pF(683)      | ±10%(K)   | GRM155C81E683KA12D |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GRM155C81E104KA12D |                    |                    |
| 0.15μF(154)       | ±10%(K)   |                    | GRM155C80J154KE01D | GRM155C80G154KE01D |
| 0.22μF(224)       | ±10%(K)   |                    | GRM155C80J224KE01D | GRM155C80G224KE01D |
| 0.33μF(334)       | ±10%(K)   |                    | GRM155C80J334KE01D | GRM155C80G334KE01D |
| 0.47μF(474)       | ±10%(K)   |                    | GRM155C80J474KE19D | GRM155C80G474KE01D |
| 0.68μF(684)       | ±10%(K)   |                    |                    | GRM155C80G684KE19D |

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              | 2.5(0E)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    |                    | GRM188C80G105MA01D |                    |
| 2.2μF(225)        | ±10%(K)   | GRM188C81A225KE34D | GRM188C80J225KE19D |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                    |                    | GRM188C80G475KE19D |                    |
| 10μF(106)         | ±20%(M)   |                    |                    |                    | GRM188C80E106ME47D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    | GRM216C81C105KA12D |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                    | GRM219C81C225KA12D |                    |                    |
| 4.7μF(475)        | ±10%(K)   | GRM21BC81E475KA12L | GRM21BC81C475KA88L | GRM219C81A475KE34D | GRM219C80J475KE19D |
| 10μF(106)         | ±10%(K)   |                    |                    | GRM21BC81A106KE18L | GRM21BC80J106KE19L |
|                   |           |                    |                    |                    | GRM219C80J106KE39D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 4(0G)              |  |
| Capacitance       | Tolerance | Part Number        |  |
| 10μF(106)         | ±10%(K)   | GRM219C80G106KE19D |  |
| 22μF(226)         | ±20%(M)   | GRM21BC80G226ME39L |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● High Dielectric Constant Type X6S(C8)/X6T(D8) Characteristics

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                    | GRM316C81C225KA12D |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                    | GRM319C81C475KA12D |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM31CC81E106KE15L |                    |                    |                    |
| 22μF(226)         | ±20%(M)   |                    |                    | GRM31CC81A226ME19L | GRM31CC80J226ME19L |
| 47μF(476)         | ±20%(M)   |                    |                    |                    | GRM31CC80J476ME18L |

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 4(0G)              |  |
| Capacitance       | Tolerance | Part Number        |  |
| 47μF(476)         | ±20%(M)   | GRM31CC80G476ME19L |  |
| 100μF(107)        | ±20%(M)   | GRM31CD80G107ME39L |  |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM32DC81E106KA12L |                    |                    |
| 22μF(226)         | ±20%(M)   | GRM32EC81E226ME15L |                    |                    |
| 47μF(476)         | ±20%(M)   |                    | GRM32EC81A476ME19L | GRM32EC80J476ME64L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● High Dielectric Constant Type X6S(C8) Characteristics Low Profile

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |
| 1.0μF(105)        | ±10%(K)   | GRM185C81A105KE36D | GRM185C80J105KE26D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 1.0μF(105)        | ±10%(K)   | GRM216C81C105KA12D |                    |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GRM219C81C225KA12D |                    |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                    | GRM219C81A475KE34D | GRM219C80J475KE19D |                    |
| 10μF(106)         | ±10%(K)   |                    |                    | GRM219C80J106KE39D | GRM219C80G106KE19D |

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 16(1C)             |  |
| Capacitance       | Tolerance | Part Number        |  |
| 2.2μF(225)        | ±10%(K)   | GRM316C81C225KA12D |  |
| 4.7μF(475)        | ±10%(K)   | GRM319C81C475KA12D |  |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 25(1E)             |  |
| Capacitance       | Tolerance | Part Number        |  |
| 10μF(106)         | ±10%(K)   | GRM32DC81E106KA12L |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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## ● High Dielectric Constant Type X5R(R6) Characteristics

| LxW [mm]          |           | 0.4x0.2(02)<01005> |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |
| 68pF(680)         | ±10%(K)   | GRM022R61A680KA01L |                    |
| 100pF(101)        | ±10%(K)   | GRM022R61A101KA01L |                    |
| 150pF(151)        | ±10%(K)   | GRM022R61A151KA01L |                    |
| 220pF(221)        | ±10%(K)   | GRM022R61A221KA01L |                    |
| 330pF(331)        | ±10%(K)   | GRM022R61A331KA01L |                    |
| 470pF(471)        | ±10%(K)   | GRM022R61A471KA01L |                    |
| 680pF(681)        | ±10%(K)   |                    | GRM022R60J681KE19L |
| 1000pF(102)       | ±10%(K)   |                    | GRM022R60J102KE19L |
| 1500pF(152)       | ±10%(K)   |                    | GRM022R60J152KE19L |
| 2200pF(222)       | ±10%(K)   |                    | GRM022R60J222KE19L |
| 3300pF(332)       | ±10%(K)   |                    | GRM022R60J332KE19L |
| 4700pF(472)       | ±10%(K)   |                    | GRM022R60J472KE19L |
| 6800pF(682)       | ±10%(K)   |                    | GRM022R60J682KE19L |
| 10000pF(103)      | ±10%(K)   |                    | GRM022R60J103KE19L |

| LxW [mm]          |           | 0.6x0.3(03)<0201> |        |                    |                    |
|-------------------|-----------|-------------------|--------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)            | 16(1C) | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number       |        |                    |                    |
| 100pF(101)        | ±10%(K)   |                   |        |                    |                    |
| 150pF(151)        | ±10%(K)   |                   |        |                    |                    |
| 220pF(221)        | ±10%(K)   |                   |        |                    |                    |
| 330pF(331)        | ±10%(K)   |                   |        |                    |                    |
| 470pF(471)        | ±10%(K)   |                   |        |                    |                    |
| 680pF(681)        | ±10%(K)   |                   |        |                    |                    |
| 1000pF(102)       | ±10%(K)   |                   |        |                    |                    |
| 1500pF(152)       | ±10%(K)   |                   |        | GRM033R61A152KA01D |                    |
| 2200pF(222)       | ±10%(K)   |                   |        | GRM033R61A222KA01D |                    |
| 3300pF(332)       | ±10%(K)   |                   |        | GRM033R61A332KA01D |                    |
| 4700pF(472)       | ±10%(K)   |                   |        | GRM033R61A472KA01D |                    |
| 6800pF(682)       | ±10%(K)   |                   |        | GRM033R61A682KA01D |                    |
| 10000pF(103)      | ±10%(K)   |                   |        | GRM033R61A103KA01D |                    |
| 15000pF(153)      | ±10%(K)   |                   |        |                    | GRM033R60J153KE01D |
| 22000pF(223)      | ±10%(K)   |                   |        |                    | GRM033R60J223KE01D |
| 33000pF(333)      | ±10%(K)   |                   |        |                    | GRM033R60J333KE01D |
| 47000pF(473)      | ±10%(K)   |                   |        |                    | GRM033R60J473KE19D |
| 0.10μF(104)       | ±10%(K)   |                   |        | GRM033R61A104KE84D |                    |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

 : Please refer to X7R(R7) etc Characteristics.

● High Dielectric Constant Type X5R(R6) Characteristics

| LxW [mm]          |           | 1.0x0.5(15)<0402> |                    |                    |                    |
|-------------------|-----------|-------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)           | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number       |                    |                    |                    |
| 220pF(221)        | ±10%(K)   |                   |                    |                    |                    |
| 330pF(331)        | ±10%(K)   |                   |                    |                    |                    |
| 470pF(471)        | ±10%(K)   |                   |                    |                    |                    |
| 680pF(681)        | ±10%(K)   |                   |                    |                    |                    |
| 1000pF(102)       | ±10%(K)   |                   | GRM155R61H102KA01D |                    |                    |
| 1500pF(152)       | ±10%(K)   |                   |                    |                    |                    |
| 2200pF(222)       | ±10%(K)   |                   | GRM155R61H222KA01D |                    |                    |
| 3300pF(332)       | ±10%(K)   |                   |                    |                    |                    |
| 4700pF(472)       | ±10%(K)   |                   | GRM155R61H472KA01D |                    |                    |
| 6800pF(682)       | ±10%(K)   |                   |                    |                    |                    |
| 10000pF(103)      | ±10%(K)   |                   |                    |                    |                    |
| 15000pF(153)      | ±10%(K)   |                   |                    |                    |                    |
| 22000pF(223)      | ±10%(K)   |                   |                    |                    | GRM155R61C223KA01D |
| 33000pF(333)      | ±10%(K)   |                   |                    |                    | GRM155R61C333KA01D |
| 47000pF(473)      | ±10%(K)   |                   |                    |                    | GRM155R61C473KA01D |
| 68000pF(683)      | ±10%(K)   |                   |                    | GRM155R61E683KA87D | GRM155R61C683KA88D |
| 0.10μF(104)       | ±10%(K)   |                   |                    | GRM155R61E104KA87D | GRM155R61C104KA88D |

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 33000pF(333)      | ±10%(K)   | GRM155R61A333KA01D |                    |                    |
| 47000pF(473)      | ±10%(K)   | GRM155R61A473KA01D |                    |                    |
| 68000pF(683)      | ±10%(K)   | GRM155R61A683KA01D |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GRM155R61A104KA01D |                    |                    |
| 0.15μF(154)       | ±10%(K)   | GRM155R61A154KE19D | GRM155R60J154KE01D |                    |
| 0.22μF(224)       | ±10%(K)   | GRM155R61A224KE19D | GRM155R60J224KE01D |                    |
| 0.33μF(334)       | ±10%(K)   | GRM155R61A334KE15D | GRM155R60J334KE01D |                    |
| 0.47μF(474)       | ±10%(K)   | GRM155R61A474KE15D | GRM155R60J474KE19D |                    |
| 0.68μF(684)       | ±10%(K)   | GRM155R61A684KE15D | GRM155R60J684KE19D |                    |
| 1.0μF(105)        | ±10%(K)   | GRM155R61A105KE15D |                    |                    |
| 4.7μF(475)        | ±20%(M)   |                    |                    | GRM155R60G475ME87D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

□ : Please refer to X7R(R7) etc Characteristics.

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## ● High Dielectric Constant Type X5R(R6) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603> |                    |                    |                    |
|-------------------|-----------|-------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)           | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number       |                    |                    |                    |
| 220pF(221)        | ±10%(K)   |                   |                    |                    |                    |
| 330pF(331)        | ±10%(K)   |                   |                    |                    |                    |
| 470pF(471)        | ±10%(K)   |                   |                    |                    |                    |
| 680pF(681)        | ±10%(K)   |                   |                    |                    |                    |
| 1000pF(102)       | ±10%(K)   |                   | GRM188R61H102KA01D |                    |                    |
| 1500pF(152)       | ±10%(K)   |                   |                    |                    |                    |
| 2200pF(222)       | ±10%(K)   |                   | GRM188R61H222KA01D |                    |                    |
| 3300pF(332)       | ±10%(K)   |                   |                    |                    |                    |
| 4700pF(472)       | ±10%(K)   |                   | GRM188R61H472KA01D |                    |                    |
| 6800pF(682)       | ±10%(K)   |                   |                    |                    |                    |
| 10000pF(103)      | ±10%(K)   |                   | GRM188R61H103KA01D |                    |                    |
| 15000pF(153)      | ±10%(K)   |                   |                    |                    |                    |
| 22000pF(223)      | ±10%(K)   |                   | GRM188R61H223KA01D |                    |                    |
| 33000pF(333)      | ±10%(K)   |                   |                    |                    |                    |
| 47000pF(473)      | ±10%(K)   |                   |                    |                    |                    |
| 68000pF(683)      | ±10%(K)   |                   |                    |                    |                    |
| 0.10μF(104)       | ±10%(K)   |                   |                    | GRM188R61E104KA01D | GRM188R61C104KA01D |
| 0.15μF(154)       | ±10%(K)   |                   |                    |                    |                    |
| 0.22μF(224)       | ±10%(K)   |                   |                    | GRM188R61E224KA88D | GRM188R61C224KA88D |
| 0.33μF(334)       | ±10%(K)   |                   |                    |                    |                    |
| 0.47μF(474)       | ±10%(K)   |                   |                    | GRM188R61E474KA12D | GRM188R61C474KA93D |
| 1.0μF(105)        | ±10%(K)   |                   |                    | GRM188R61E105KA12D | GRM188R61C105KA93D |
| 2.2μF(225)        | ±10%(K)   |                   |                    |                    | GRM188R61C225KE15D |

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 0.15μF(154)       | ±10%(K)   | GRM188R61A154KA01D |                    |                    |
| 0.22μF(224)       | ±10%(K)   | GRM188R61A224KA01D |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                    |                    |                    |
| 0.47μF(474)       | ±10%(K)   | GRM188R61A474KA61D |                    |                    |
| 0.68μF(684)       | ±10%(K)   |                    |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GRM188R61A225KE34D |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                    | GRM188R60J475KE19D |                    |
| 10μF(106)         | ±20%(M)   |                    | GRM188R60J106ME47D | GRM188R60G106ME47D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

: Please refer to X7R(R7) etc Characteristics.



● High Dielectric Constant Type X5R(R6) Characteristics

| LxW [mm]          |           | 2.0x1.25(21)<0805> |        |                    |                    |
|-------------------|-----------|--------------------|--------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H) | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |        |                    |                    |
| 6800pF(682)       | ±10%(K)   |                    |        |                    |                    |
| 10000pF(103)      | ±10%(K)   |                    |        |                    |                    |
| 15000pF(153)      | ±10%(K)   |                    |        |                    |                    |
| 22000pF(223)      | ±10%(K)   |                    |        |                    |                    |
| 33000pF(333)      | ±10%(K)   |                    |        |                    |                    |
| 47000pF(473)      | ±10%(K)   |                    |        |                    |                    |
| 68000pF(683)      | ±10%(K)   |                    |        |                    |                    |
| 0.10μF(104)       | ±10%(K)   |                    |        |                    |                    |
| 0.15μF(154)       | ±10%(K)   |                    |        |                    |                    |
| 0.22μF(224)       | ±10%(K)   |                    |        |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                    |        |                    | GRM21BR61C334KA01L |
| 0.47μF(474)       | ±10%(K)   |                    |        |                    | GRM21BR61C474KA01L |
| 0.68μF(684)       | ±10%(K)   |                    |        |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    |        | GRM216R61E105KA12D | GRM21BR61C105KA01L |
| 2.2μF(225)        | ±10%(K)   |                    |        | GRM21BR61E225KA12L | GRM21BR61C225KA88L |
|                   |           |                    |        | GRM219R61E225KA12D | GRM219R61C225KA88D |
| 4.7μF(475)        | ±10%(K)   |                    |        | GRM21BR61E475KA12L | GRM21BR61C475KA88L |
|                   |           |                    |        |                    | GRM219R61C475KE15D |
| 10μF(106)         | ±10%(K)   |                    |        |                    | GRM21BR61C106KE15L |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GRM21BR61A225KA01L |                    |                    |
| 4.7μF(475)        | ±10%(K)   | GRM219R61A475KE34D |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM21BR61A106KE19L | GRM219R60J106KE19D |                    |
|                   |           | GRM219R61A106KE44D |                    |                    |
| 22μF(226)         | ±20%(M)   |                    | GRM21BR60J226ME39L | GRM219R60G226ME66D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

□ : Please refer to X7R(R7) etc Characteristics.

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## ● High Dielectric Constant Type X5R(R6) Characteristics

| LxW [mm]          |           | 3.2x1.6(31)<1206> |                    |                    |                    |
|-------------------|-----------|-------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)           | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number       |                    |                    |                    |
| 15000pF(153)      | ±10%(K)   |                   |                    |                    |                    |
| 22000pF(223)      | ±10%(K)   |                   |                    |                    |                    |
| 33000pF(333)      | ±10%(K)   |                   |                    |                    |                    |
| 47000pF(473)      | ±10%(K)   |                   |                    |                    |                    |
| 68000pF(683)      | ±10%(K)   |                   |                    |                    |                    |
| 0.10μF(104)       | ±10%(K)   |                   |                    |                    |                    |
| 0.15μF(154)       | ±10%(K)   |                   |                    |                    |                    |
| 0.22μF(224)       | ±10%(K)   |                   |                    |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                   |                    |                    |                    |
| 0.47μF(474)       | ±10%(K)   |                   |                    |                    |                    |
| 0.68μF(684)       | ±10%(K)   |                   |                    |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                   |                    |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                   | GRM31CR61H225KA88L | GRM316R61E225KA12D |                    |
| 4.7μF(475)        | ±10%(K)   |                   |                    | GRM31CR61E475KA88L | GRM31CR61C475KA01L |
|                   |           |                   |                    | GRM319R61E475KA12D | GRM319R61C475KA88D |
| 10μF(106)         | ±10%(K)   |                   |                    | GRM31CR61E106KA12L | GRM31CR61C106KA88L |
|                   |           |                   |                    |                    | GRM319R61C106KE15D |
| 22μF(226)         | ±20%(M)   |                   |                    |                    | GRM31CR61C226ME15L |

| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM319R61A106KE19L |                    |                    |
| 22μF(226)         | ±20%(M)   | GRM31CR61A226ME19L | GRM31CR60J226ME19L |                    |
| 47μF(476)         | ±20%(M)   |                    | GRM31CR60J476ME19L |                    |
| 100μF(107)        | ±20%(M)   |                    | GRM31CR60J107ME39L | GRM31CR60G107ME39L |

| LxW [mm]          |           | 3.2x2.5(32)<1210> |        |                    |                    |
|-------------------|-----------|-------------------|--------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)           | 50(1H) | 35(YA)             | 25(1E)             |
| Capacitance       | Tolerance | Part Number       |        |                    |                    |
| 0.68μF(684)       | ±10%(K)   |                   |        |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                   |        |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                   |        |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                   |        |                    |                    |
| 10μF(106)         | ±10%(K)   |                   |        | GRM32ER6YA106KA12L | GRM32DR61E106KA12L |
| 22μF(226)         | ±20%(M)   |                   |        |                    | GRM32ER61E226ME15L |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |                    |         |
|-------------------|-----------|--------------------|--------------------|---------|
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J) |
| Capacitance       | Tolerance | Part Number        |                    |         |
| 22μF(226)         | ±20%(M)   |                    |                    |         |
| 47μF(476)         | ±20%(M)   | GRM32ER61C476ME15L | GRM32ER61A476ME20L |         |

The part number code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code

[ ] : Please refer to X7R(R7) etc Characteristics.

● High Dielectric Constant Type X5R(R6) Characteristics Low Profile

| LxW [mm]          |           | 1.0x0.5(15)<0402> |        |        |
|-------------------|-----------|-------------------|--------|--------|
| Rated Volt. [Vdc] |           | 16(1C)            | 25(1E) | 16(1C) |
| Capacitance       | Tolerance | Part Number       |        |        |
| 220pF(221)        | ±10%(K)   |                   |        |        |
| 330pF(331)        | ±10%(K)   |                   |        |        |
| 470pF(471)        | ±10%(K)   |                   |        |        |
| 680pF(681)        | ±10%(K)   |                   |        |        |
| 1000pF(102)       | ±10%(K)   |                   |        |        |
| 1500pF(152)       | ±10%(K)   |                   |        |        |
| 2200pF(222)       | ±10%(K)   |                   |        |        |
| 3300pF(332)       | ±10%(K)   |                   |        |        |
| 4700pF(472)       | ±10%(K)   |                   |        |        |
| 6800pF(682)       | ±10%(K)   |                   |        |        |
| 10000pF(103)      | ±10%(K)   |                   |        |        |

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 1.0μF(105)        | ±10%(K)   | GRM185R61C105KE44D | GRM185R61A105KE36D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |        |                    |                    |
|-------------------|-----------|--------------------|--------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H) | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |        |                    |                    |
| 6800pF(682)       | ±10%(K)   |                    |        |                    |                    |
| 33000pF(333)      | ±10%(K)   |                    |        |                    |                    |
| 68000pF(683)      | ±10%(K)   |                    |        |                    |                    |
| 0.22μF(224)       | ±10%(K)   |                    |        |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                    |        |                    |                    |
| 0.47μF(474)       | ±10%(K)   |                    |        |                    |                    |
| 0.68μF(684)       | ±10%(K)   |                    |        |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    |        | GRM216R61E105KA12D |                    |
| 2.2μF(225)        | ±10%(K)   |                    |        | GRM219R61E225KA12D | GRM219R61C225KA88D |
| 4.7μF(475)        | ±10%(K)   |                    |        |                    | GRM219R61C475KE15D |

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 4.7μF(475)        | ±10%(K)   | GRM219R61A475KE34D |                    |                    |
| 10μF(106)         | ±10%(K)   | GRM219R61A106KE44D | GRM219R60J106KE19D |                    |
| 22μF(226)         | ±20%(M)   |                    |                    | GRM219R60G226ME66D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

□ : Please refer to X7R(R7) etc Characteristics.

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● High Dielectric Constant Type X5R(R6) Characteristics Low Profile

|                   |           |                   |        |                    |                    |
|-------------------|-----------|-------------------|--------|--------------------|--------------------|
| LxW [mm]          |           | 3.2x1.6(31)<1206> |        |                    |                    |
| Rated Volt. [Vdc] |           | 100(2A)           | 50(1H) | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number       |        |                    |                    |
| 15000pF(153)      | ±10%(K)   |                   |        |                    |                    |
| 22000pF(223)      | ±10%(K)   |                   |        |                    |                    |
| 33000pF(333)      | ±10%(K)   |                   |        |                    |                    |
| 47000pF(473)      | ±10%(K)   |                   |        |                    |                    |
| 68000pF(683)      | ±10%(K)   |                   |        |                    |                    |
| 0.10μF(104)       | ±10%(K)   |                   |        |                    |                    |
| 0.15μF(154)       | ±10%(K)   |                   |        |                    |                    |
| 0.22μF(224)       | ±10%(K)   |                   |        |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                   |        |                    |                    |
| 0.47μF(474)       | ±10%(K)   |                   |        |                    |                    |
| 0.68μF(684)       | ±10%(K)   |                   |        |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                   |        |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                   |        | GRM316R61E225KA12D |                    |
| 4.7μF(475)        | ±10%(K)   |                   |        | GRM319R61E475KA12D | GRM319R61C475KA88D |
| 10μF(106)         | ±10%(K)   |                   |        |                    | GRM319R61C106KE15D |

|                   |           |                    |
|-------------------|-----------|--------------------|
| LxW [mm]          |           | 3.2x1.6(31)<1206>  |
| Rated Volt. [Vdc] |           | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |
| 10μF(106)         | ±10%(K)   | GRM319R61A106KE19D |

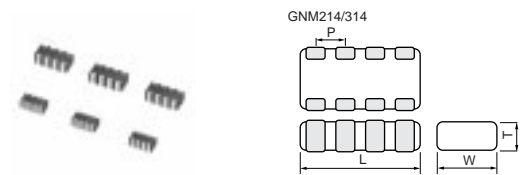
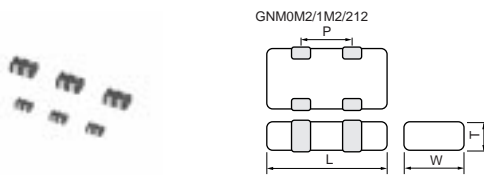
|                   |           |                   |        |                    |
|-------------------|-----------|-------------------|--------|--------------------|
| LxW [mm]          |           | 3.2x2.5(32)<1210> |        |                    |
| Rated Volt. [Vdc] |           | 100(2A)           | 50(1H) | 25(1E)             |
| Capacitance       | Tolerance | Part Number       |        |                    |
| 0.68μF(684)       | ±10%(K)   |                   |        |                    |
| 1.0μF(105)        | ±10%(K)   |                   |        |                    |
| 10μF(106)         | ±10%(K)   |                   |        | GRM32DR61E106KA12L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

□ : Please refer to X7R(R7) etc Characteristics.

# Monolithic Ceramic Capacitors

## Capacitor Array GNM Series



| Part Number | Dimensions (mm) |            |                 |            |
|-------------|-----------------|------------|-----------------|------------|
|             | L               | W          | T               | P          |
| GNM0M2      | 0.9 ±0.05       | 0.6 ±0.05  | 0.45 ±0.05      | 0.45 ±0.05 |
|             |                 |            | 0.5 +0.05/-0.10 |            |
| GNM1M2      | 1.37 ±0.15      | 1.0 ±0.15  | 0.6 ±0.1        | 0.64 ±0.05 |
|             |                 |            | 0.8 +0/-0.15    |            |
| GNM212      | 2.0 ±0.15       | 1.25 ±0.15 | 0.6 ±0.1        | 1.0 ±0.1   |
|             |                 |            | 0.85 ±0.1       |            |

| Part Number | Dimensions (mm) |            |                |           |
|-------------|-----------------|------------|----------------|-----------|
|             | L               | W          | T              | P         |
| GNM214      | 2.0 ±0.15       | 1.25 ±0.15 | 0.5 +0.05/-0.1 | 0.5 ±0.05 |
|             |                 |            | 0.6 ±0.1       |           |
|             |                 |            | 0.85 ±0.1      |           |
| GNM314      | 3.2 ±0.15       | 1.6 ±0.15  | 0.8 ±0.1       | 0.8 ±0.1  |
|             |                 |            | 0.85 ±0.1      |           |
|             |                 |            | 1.0 ±0.1       |           |
|             |                 |            | 1.15 ±0.1      |           |

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 1.37x1.0(1M)<0504> |                    | 2.0x1.25(21)<0805> |                    | 3.2x1.6(31)<1206> |  |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|-------------------|--|
| Rated Volt. [Vdc] |           | 50(1H)             |                    | 50(1H)             |                    | 100(2A)           |  |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |                   |  |
| 10pF(100)         | ±10%(K)   | GNM1M25C1H100KD01D | GNM2145C1H100KD01D | GNM3145C2A100KD01D | GNM3145C1H100KD01D |                   |  |
| 15pF(150)         | ±10%(K)   | GNM1M25C1H150KD01D | GNM2145C1H150KD01D | GNM3145C2A150KD01D | GNM3145C1H150KD01D |                   |  |
| 22pF(220)         | ±10%(K)   | GNM1M25C1H220KD01D | GNM2145C1H220KD01D | GNM3145C2A220KD01D | GNM3145C1H220KD01D |                   |  |
| 33pF(330)         | ±10%(K)   | GNM1M25C1H330KD01D | GNM2145C1H330KD01D | GNM3145C2A330KD01D | GNM3145C1H330KD01D |                   |  |
| 47pF(470)         | ±10%(K)   | GNM1M25C1H470KD01D | GNM2145C1H470KD01D | GNM3145C2A470KD01D | GNM3145C1H470KD01D |                   |  |
| 68pF(680)         | ±10%(K)   | GNM1M25C1H680KD01D | GNM2145C1H680KD01D | GNM3145C2A680KD01D | GNM3145C1H680KD01D |                   |  |
| 100pF(101)        | ±10%(K)   | GNM1M25C1H101KD01D | GNM2145C1H101KD01D | GNM3145C2A101KD01D | GNM3145C1H101KD01D |                   |  |
| 150pF(151)        | ±10%(K)   | GNM1M25C1H151KD01D | GNM2145C1H151KD01D | GNM3145C2A151KD01D | GNM3145C1H151KD01D |                   |  |
| 220pF(221)        | ±10%(K)   | GNM1M25C1H221KD01D | GNM2145C1H221KD01D |                    | GNM3145C1H221KD01D |                   |  |
| 330pF(331)        | ±10%(K)   |                    |                    |                    | GNM3145C1H331KD01D |                   |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● High Dielectric Constant Type X7R(R7)/X7S(C7) Characteristics

| LxW [mm]           |           | 1.37x1.0(1M)<0504> |  |                    |                    |
|--------------------|-----------|--------------------|--|--------------------|--------------------|
| Number of Elements |           | 2(2)               |  |                    |                    |
| Rated Volt. [Vdc]  |           | 50(1H)             |  | 16(1C)             |                    |
| Capacitance        | Tolerance | Part Number        |  |                    |                    |
| 1000pF(102)        | ±20%(M)   | GNM1M2R71H102MA01D |  |                    |                    |
| 2200pF(222)        | ±20%(M)   |                    |  | GNM1M2R71E222MA01D |                    |
| 4700pF(472)        | ±20%(M)   |                    |  | GNM1M2R71E472MA01D |                    |
| 10000pF(103)       | ±20%(M)   |                    |  | GNM1M2R71E103MA01D |                    |
| 22000pF(223)       | ±20%(M)   |                    |  | GNM1M2R71C223MA01D | GNM1M2R71A223MA01D |
| 47000pF(473)       | ±20%(M)   |                    |  | GNM1M2R71C473MA01D | GNM1M2R71A473MA01D |
| 0.10μF(104)        | ±20%(M)   |                    |  | GNM1M2R71C104MA01D | GNM1M2C71A104MA01D |

| LxW [mm]           |           | 2.0x1.25(21)<0805> |  |        |
|--------------------|-----------|--------------------|--|--------|
| Number of Elements |           | 4(4)               |  |        |
| Rated Volt. [Vdc]  |           | 50(1H)             |  | 16(1C) |
| Capacitance        | Tolerance | Part Number        |  |        |
| 470pF(471)         | ±20%(M)   | GNM214R71H471MA01D |  |        |
| 1000pF(102)        | ±20%(M)   | GNM214R71H102MA01D |  |        |
| 2200pF(222)        | ±20%(M)   | GNM214R71E222MA01D |  |        |
| 4700pF(472)        | ±20%(M)   | GNM214R71E472MA01D |  |        |
| 10000pF(103)       | ±20%(M)   | GNM214R71E103MA01D |  |        |
| 22000pF(223)       | ±20%(M)   | GNM214R71C223MA01D |  |        |
| 47000pF(473)       | ±20%(M)   | GNM214R71C473MA01D |  |        |
| 0.10μF(104)        | ±20%(M)   | GNM214R71C104MA01D |  |        |

| LxW [mm]           |           | 3.2x1.6(31)<1206>  |                    |                    |  |
|--------------------|-----------|--------------------|--------------------|--------------------|--|
| Number of Elements |           | 4(4)               |                    |                    |  |
| Rated Volt. [Vdc]  |           | 50(1H)             |                    | 6.3(0J)            |  |
| Capacitance        | Tolerance | Part Number        |                    |                    |  |
| 47000pF(473)       | ±20%(M)   | GNM314R71H473MA11D |                    | GNM314R71C473MA01L |  |
| 0.10μF(104)        | ±20%(M)   | GNM314R71H104MA11D | GNM314R71E104MA11D | GNM314R71C104MA01L |  |
| 1.0μF(105)         | ±20%(M)   |                    |                    | GNM314R70J105MA01L |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● High Dielectric Constant Type X5R(R6) Characteristics

|                    |           |                    |                    |                    |                    |
|--------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| LxW [mm]           |           | 0.9x0.6(0M)<0302>  |                    |                    |                    |
| Number of Elements |           | 2(2)               |                    |                    |                    |
| Rated Volt. [Vdc]  |           | 16(1C)             | 10(1A)             | 6.3(0J)            | 4(0G)              |
| Capacitance        | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)       | ±20%(M)   | GNM0M2R61C103ME18D | GNM0M2R61A103ME17D | GNM0M2R60J103ME17D |                    |
| 22000pF(223)       | ±20%(M)   | GNM0M2R61C223ME18D | GNM0M2R61A223ME17D | GNM0M2R60J223ME17D |                    |
| 47000pF(473)       | ±20%(M)   | GNM0M2R61C473ME18D | GNM0M2R61A473ME17D | GNM0M2R60J473ME17D |                    |
| 0.10μF(104)        | ±20%(M)   | GNM0M2R61C104ME18D | GNM0M2R61A104ME17D | GNM0M2R60J104ME17D |                    |
| 1.0μF(105)         | ±20%(M)   |                    |                    |                    | GNM0M2R60G105ME17D |

|                    |           |                    |                    |                    |
|--------------------|-----------|--------------------|--------------------|--------------------|
| LxW [mm]           |           | 1.37x1.0(1M)<0504> |                    |                    |
| Number of Elements |           | 2(2)               |                    |                    |
| Rated Volt. [Vdc]  |           | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance        | Tolerance | Part Number        |                    |                    |
| 1000pF(102)        | ±20%(M)   | GNM1M2R61H102MA01D |                    |                    |
| 2200pF(222)        | ±20%(M)   |                    | GNM1M2R61E222MA01D |                    |
| 4700pF(472)        | ±20%(M)   |                    | GNM1M2R61E472MA01D |                    |
| 10000pF(103)       | ±20%(M)   |                    | GNM1M2R61E103MA01D |                    |
| 22000pF(223)       | ±20%(M)   |                    |                    | GNM1M2R61C223MA01D |
| 47000pF(473)       | ±20%(M)   |                    |                    | GNM1M2R61C473MA01D |
| 0.22μF(224)        | ±20%(M)   |                    |                    | GNM1M2R61C224ME18D |
| 1.0μF(105)         | ±20%(M)   |                    |                    | GNM1M2R61C105ME18D |

|                    |           |                    |                    |
|--------------------|-----------|--------------------|--------------------|
| LxW [mm]           |           | 1.37x1.0(1M)<0504> |                    |
| Number of Elements |           | 2(2)               |                    |
| Rated Volt. [Vdc]  |           | 10(1A)             | 6.3(0J)            |
| Capacitance        | Tolerance | Part Number        |                    |
| 22000pF(223)       | ±20%(M)   | GNM1M2R61A223MA01D |                    |
| 47000pF(473)       | ±20%(M)   | GNM1M2R61A473MA01D |                    |
| 0.10μF(104)        | ±20%(M)   | GNM1M2R61A104MA01D |                    |
| 1.0μF(105)         | ±20%(M)   | GNM1M2R61A105ME17D | GNM1M2R60J105ME12D |
| 2.2μF(225)         | ±20%(M)   | GNM1M2R61A225ME18D | GNM1M2R60J225ME18D |

|                    |           |                    |                    |                    |
|--------------------|-----------|--------------------|--------------------|--------------------|
| LxW [mm]           |           | 2.0x1.25(21)<0805> |                    |                    |
| Number of Elements |           | 2(2)               |                    |                    |
| Rated Volt. [Vdc]  |           | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance        | Tolerance | Part Number        |                    |                    |
| 0.47μF(474)        | ±20%(M)   | GNM212R61C474MA16D |                    |                    |
| 1.0μF(105)         | ±20%(M)   | GNM212R61C105MA16D | GNM212R61A105MA13D |                    |
| 2.2μF(225)         | ±20%(M)   |                    | GNM212R61A225ME16D | GNM212R60J225ME16D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● High Dielectric Constant Type X5R(R6) Characteristics

|                    |           |                    |                    |
|--------------------|-----------|--------------------|--------------------|
| LxW [mm]           |           | 2.0x1.25(21)<0805> |                    |
| Number of Elements |           | 4(4)               |                    |
| Rated Volt. [Vdc]  |           | 10(1A)             | 6.3(0J)            |
| Capacitance        | Tolerance | Part Number        |                    |
| 1.0μF(105)         | ±20%(M)   | GNM214R61A105ME17D | GNM214R60J105ME17D |
| 2.2μF(225)         | ±20%(M)   |                    | GNM214R60J225ME18D |

|                    |           |                    |                    |
|--------------------|-----------|--------------------|--------------------|
| LxW [mm]           |           | 3.2x1.6(31)<1206>  |                    |
| Number of Elements |           | 4(4)               |                    |
| Rated Volt. [Vdc]  |           | 16(1C)             | 10(1A)             |
| Capacitance        | Tolerance | Part Number        |                    |
| 1.0μF(105)         | ±20%(M)   | GNM314R61C105MA15D | GNM314R61A105MA13D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● High Dielectric Constant Type X7R(R7) Characteristics Low Profile

|                    |           |                    |                    |
|--------------------|-----------|--------------------|--------------------|
| LxW [mm]           |           | 1.37x1.0(1M)<0504> | 2.0x1.25(21)<0805> |
| Number of Elements |           | 2(2)               | 4(4)               |
| Rated Volt. [Vdc]  |           | 16(1C)             | 16(1C)             |
| Capacitance        | Tolerance | Part Number        |                    |
| 0.10μF(104)        | ±20%(M)   | GNM1M2R71C104MAA1D | GNM214R71C104MAA1D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

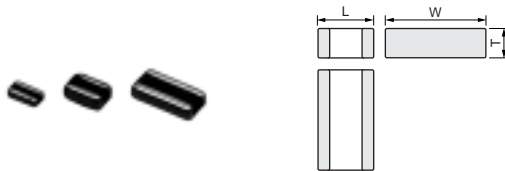
## ● High Dielectric Constant Type X5R(R6) Characteristics Low Profile

|                    |           |                    |                    |
|--------------------|-----------|--------------------|--------------------|
| LxW [mm]           |           | 1.37x1.0(1M)<0504> |                    |
| Number of Elements |           | 2(2)               |                    |
| Rated Volt. [Vdc]  |           | 16(1C)             | 10(1A)             |
| Capacitance        | Tolerance | Part Number        |                    |
| 1.0μF(105)         | ±20%(M)   | GNM1M2R61C105MEA2D | GNM1M2R61A105MEA4D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## Monolithic Ceramic Capacitors

### Low ESL LLL Series



| Part Number | Dimensions (mm) |           |              |
|-------------|-----------------|-----------|--------------|
|             | L               | W         | T            |
| LLL153      | 0.5 ±0.05       | 1.0 ±0.05 | 0.3 ±0.05    |
| LLL185      | 0.8 ±0.1        | 1.6 ±0.1  | 0.6 max.     |
| LLL215      | 1.25 ±0.1       | 2.0 ±0.1  | 0.5 +0/-0.15 |
| LLL216      |                 |           | 0.6 ±0.1     |
| LLL219      |                 |           | 0.85 ±0.1    |
| LLL315      |                 |           | 0.5 +0/-0.15 |
| LLL317      | 1.6 ±0.15       | 3.2 ±0.15 | 0.7 ±0.1     |
| LLL31M      |                 |           | 1.15 ±0.1    |

## ● Reversed Geometry Low ESL Type X7R(R7)/X7S(C7)/X6S(C8) Characteristics

| LxW [mm]          |           | 0.5x1.0(15)<0204>  |       |
|-------------------|-----------|--------------------|-------|
| Rated Volt. [Vdc] |           | 6.3(0J)            | 4(0G) |
| Capacitance       | Tolerance | Part Number        |       |
| 0.10μF(104)       | ±20%(M)   | LLL153C80J104ME01E |       |
| 0.22μF(224)       | ±20%(M)   | LLL153C80J224ME14E |       |
| 0.47μF(474)       | ±20%(M)   | LLL153C70G474ME17E |       |

LLL153 Series 4V/0.47μF(L: 0.5+0.07/-0.03mm)

| LxW [mm]          |           | 0.8x1.6(18)<0306>  |                    |        |                    |
|-------------------|-----------|--------------------|--------------------|--------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C) | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |        |                    |
| 2200pF(222)       | ±20%(M)   | LLL185R71H222MA01L |                    |        |                    |
| 4700pF(472)       | ±20%(M)   | LLL185R71H472MA01L |                    |        |                    |
| 10000pF(103)      | ±20%(M)   |                    | LLL185R71E103MA01L |        |                    |
| 22000pF(223)      | ±20%(M)   |                    | LLL185R71E223MA01L |        |                    |
| 47000pF(473)      | ±20%(M)   |                    | LLL185R71C473MA01L |        |                    |
| 0.10μF(104)       | ±20%(M)   |                    |                    |        | LLL185R71A104MA01L |
| 0.22μF(224)       | ±20%(M)   |                    |                    |        | LLL185R71A224MA01L |

| LxW [mm]          |           | 0.8x1.6(18)<0306>  |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 4(0G)              |  |
| Capacitance       | Tolerance | Part Number        |  |
| 0.47μF(474)       | ±20%(M)   | LLL185C70G474MA01L |  |
| 1.0μF(105)        | ±20%(M)   | LLL185C70G105ME02L |  |
| 2.2μF(225)        | ±20%(M)   | LLL185C70G225ME01L |  |

| LxW [mm]          |           | 1.25x2.0(21)<0508> |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLL216R71H103MA01L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   | LLL216R71H223MA01L |                    |                    |                    |
| 47000pF(473)      | ±20%(M)   |                    | LLL216R71E473MA01L |                    |                    |
| 0.10μF(104)       | ±20%(M)   |                    | LLL216R71E104MA01L |                    |                    |
| 0.22μF(224)       | ±20%(M)   |                    |                    | LLL219R71C224MA01L | LLL216R71A224MA01L |
| 0.47μF(474)       | ±20%(M)   |                    |                    |                    | LLL219R71A474MA01L |
| 1.0μF(105)        | ±20%(M)   |                    |                    |                    | LLL219R71A105MA01L |

| LxW [mm]          |           | 1.25x2.0(21)<0508> |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 4(0G)              |  |
| Capacitance       | Tolerance | Part Number        |  |
| 2.2μF(225)        | ±20%(M)   | LLL219C70G225MA01L |  |

The part number code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code



● Reversed Geometry Low ESL Type X7R(R7)/X5R(R6) Characteristics

| LxW [mm]          |           | 1.6x3.2(31)<0612>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLL317R71H103MA01L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   | LLL317R71H223MA01L |                    |                    |                    |
| 47000pF(473)      | ±20%(M)   | LLL317R71H473MA01L |                    |                    |                    |
| 0.10μF(104)       | ±20%(M)   | LLL31MR71H104MA01L | LLL317R71E104MA01L |                    |                    |
| 0.22μF(224)       | ±20%(M)   |                    | LLL31MR71E224MA01L | LLL317R71C224MA01L |                    |
| 0.47μF(474)       | ±20%(M)   |                    | LLL31MR71E474MA01L | LLL317R71C474MA01L |                    |
| 1.0μF(105)        | ±20%(M)   |                    |                    | LLL31MR71C105MA01L | LLL317R71A105MA01L |
| 2.2μF(225)        | ±20%(M)   |                    |                    |                    | LLL31MR71A225MA01L |

| LxW [mm]          |           | 1.6x3.2(31)<0612>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |
| 2.2μF(225)        | ±20%(M)   | LLL317R70J225MA01L |
| 4.7μF(475)        | ±20%(M)   | LLL31MR70J475MA01L |
| 10μF(106)         | ±20%(M)   | LLL31MR60J106ME01L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● Reversed Geometry Low ESL Type X7R(R7)/X7S(C7) Characteristics Low Profile

| LxW [mm]          |           | 0.8x1.6(18)<0306>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 10(1A)             | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLL185R71E103MA11L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   |                    | LLL185R71C223MA11L |                    |                    |
| 47000pF(473)      | ±20%(M)   |                    | LLL185R71C473MA11L |                    |                    |
| 0.10μF(104)       | ±20%(M)   |                    |                    | LLL185R71A104MA11L |                    |
| 0.22μF(224)       | ±20%(M)   |                    |                    |                    | LLL185C70G224MA11L |

| LxW [mm]          |           | 1.25x2.0(21)<0508> |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLL215R71H103MA11L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   |                    | LLL215R71E223MA11L |                    |                    |
| 47000pF(473)      | ±20%(M)   |                    |                    | LLL215R71C473MA11L |                    |
| 0.10μF(104)       | ±20%(M)   |                    |                    | LLL215R71C104MA11L |                    |
| 0.22μF(224)       | ±20%(M)   |                    |                    |                    | LLL215R71A224MA11L |

| LxW [mm]          |           | 1.25x2.0(21)<0508> |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |
| 0.47μF(474)       | ±20%(M)   | LLL215R70J474MA11L |                    |
| 1.0μF(105)        | ±20%(M)   |                    | LLL215C70G105MA11L |

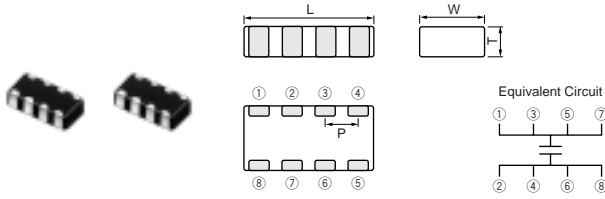
| LxW [mm]          |           | 1.6x3.2(31)<0612>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C)             | 10(1A)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLL315R71H103MA11L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   | LLL315R71H223MA11L |                    |                    |                    |
| 47000pF(473)      | ±20%(M)   |                    | LLL315R71E473MA11L |                    |                    |
| 0.10μF(104)       | ±20%(M)   |                    | LLL315R71E104MA11L |                    |                    |
| 0.22μF(224)       | ±20%(M)   |                    |                    | LLL315R71C224MA11L |                    |
| 0.47μF(474)       | ±20%(M)   |                    |                    |                    | LLL315R71A474MA11L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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# Monolithic Ceramic Capacitors

## Low ESL LLA Series



| Part Number   | Dimensions (mm) |           |                |           |
|---------------|-----------------|-----------|----------------|-----------|
|               | L               | W         | T              | P         |
| <b>LLA185</b> | 1.6 ±0.1        | 0.8 ±0.1  | 0.5 +0.05/-0.1 | 0.4 ±0.1  |
| <b>LLA215</b> | 2.0 ±0.1        | 1.25 ±0.1 | 0.5 +0.05/-0.1 | 0.5 ±0.05 |
| <b>LLA219</b> | 2.0 ±0.1        | 1.25 ±0.1 | 0.85 ±0.1      | 0.5 ±0.05 |
| <b>LLA315</b> | 3.2 ±0.15       | 1.6 ±0.15 | 0.5 +0.05/-0.1 | 0.8 ±0.1  |
| <b>LLA319</b> | 3.2 ±0.15       | 1.6 ±0.15 | 0.85 ±0.1      | 0.8 ±0.1  |
| <b>LLA31M</b> | 3.2 ±0.15       | 1.6 ±0.15 | 1.15 ±0.1      | 0.8 ±0.1  |

● Eight Terminals Low ESL Type X7R(R7)/X7S(C7) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603>         |
|-------------------|-----------|---------------------------|
| Rated Volt. [Vdc] |           | 4(0G)                     |
| Capacitance       | Tolerance | Part Number               |
| 0.10μF(104)       | ±20%(M)   | <b>LLA185C70G104MA01L</b> |
| 0.22μF(224)       | ±20%(M)   | <b>LLA185C70G224MA01L</b> |
| 0.47μF(474)       | ±20%(M)   | <b>LLA185C70G474MA01L</b> |
| 1.0μF(105)        | ±20%(M)   | <b>LLA185C70G105ME01L</b> |
| 2.2μF(225)        | ±20%(M)   | <b>LLA185C70G225ME16L</b> |

| LxW [mm]          |           | 2.0x1.25(21)<0805>        |                           |                           |                           |
|-------------------|-----------|---------------------------|---------------------------|---------------------------|---------------------------|
| Rated Volt. [Vdc] |           | 25(1E)                    | 16(1C)                    | 10(1A)                    | 6.3(0J)                   |
| Capacitance       | Tolerance | Part Number               |                           |                           |                           |
| 10000pF(103)      | ±20%(M)   | <b>LLA219R71E103MA01L</b> |                           |                           |                           |
| 22000pF(223)      | ±20%(M)   | <b>LLA219R71E223MA01L</b> |                           |                           |                           |
| 47000pF(473)      | ±20%(M)   | <b>LLA219R71E473MA01L</b> |                           |                           |                           |
| 0.10μF(104)       | ±20%(M)   |                           | <b>LLA219R71C104MA01L</b> |                           |                           |
| 0.22μF(224)       | ±20%(M)   |                           | <b>LLA219R71C224MA01L</b> |                           |                           |
| 0.47μF(474)       | ±20%(M)   |                           |                           | <b>LLA219R71A474MA01L</b> |                           |
| 1.0μF(105)        | ±20%(M)   |                           |                           |                           | <b>LLA219R70J105MA01L</b> |

| LxW [mm]          |           | 2.0x1.25(21)<0805>        |
|-------------------|-----------|---------------------------|
| Rated Volt. [Vdc] |           | 4(0G)                     |
| Capacitance       | Tolerance | Part Number               |
| 2.2μF(225)        | ±20%(M)   | <b>LLA219C70G225MA01L</b> |
| 4.7μF(475)        | ±20%(M)   | <b>LLA219C70G475ME01L</b> |

| LxW [mm]          |           | 3.2x1.6(31)<1206>         |                           |                           |
|-------------------|-----------|---------------------------|---------------------------|---------------------------|
| Rated Volt. [Vdc] |           | 16(1C)                    | 10(1A)                    | 4(0G)                     |
| Capacitance       | Tolerance | Part Number               |                           |                           |
| 0.10μF(104)       | ±20%(M)   | <b>LLA319R71C104MA01L</b> |                           |                           |
| 0.22μF(224)       | ±20%(M)   | <b>LLA319R71C224MA01L</b> |                           |                           |
| 0.47μF(474)       | ±20%(M)   | <b>LLA319R71C474MA01L</b> |                           |                           |
| 1.0μF(105)        | ±20%(M)   | <b>LLA31MR71C105MA01L</b> | <b>LLA319R71A105MA01L</b> |                           |
| 2.2μF(225)        | ±20%(M)   |                           | <b>LLA31MR71A225MA01L</b> | <b>LLA319R70G225MA01L</b> |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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● Eight Terminals Low ESL Type X7R(R7)/X7S(C7) Characteristics Low Profile

|                   |           |                    |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |                    |
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLA215R71E103MA14L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   | LLA215R71E223MA14L |                    |                    |                    |
| 47000pF(473)      | ±20%(M)   |                    | LLA215R71C473MA14L |                    |                    |
| 0.10μF(104)       | ±20%(M)   |                    | LLA215R71C104MA14L |                    |                    |
| 0.22μF(224)       | ±20%(M)   |                    |                    | LLA215R71A224MA14L |                    |
| 0.47μF(474)       | ±20%(M)   |                    |                    |                    | LLA215R70J474MA14L |

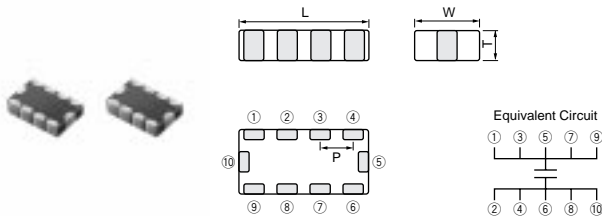
|                   |           |                    |  |
|-------------------|-----------|--------------------|--|
| LxW [mm]          |           | 2.0x1.25(21)<0805> |  |
| Rated Volt. [Vdc] |           | 4(0G)              |  |
| Capacitance       | Tolerance | Part Number        |  |
| 1.0μF(105)        | ±20%(M)   | LLA215C70G105MA14L |  |
| 2.2μF(225)        | ±20%(M)   | LLA215C70G225ME11L |  |
| 4.7μF(475)        | ±20%(M)   | LLA215C70G475ME19L |  |

|                   |           |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 0.22μF(224)       | ±20%(M)   | LLA315R71C224MA14L |                    |                    |
| 0.47μF(474)       | ±20%(M)   |                    | LLA315R71A474MA14L |                    |
| 1.0μF(105)        | ±20%(M)   |                    |                    | LLA315R70J105MA14L |
| 2.2μF(225)        | ±20%(M)   |                    |                    | LLA315R70J225MA14L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## Monolithic Ceramic Capacitors

### Low ESL LLM Series



| Part Number | Dimensions (mm) |           |                |           |
|-------------|-----------------|-----------|----------------|-----------|
|             | L               | W         | T              | P         |
| LLM215      | 2.0 ±0.1        | 1.25 ±0.1 | 0.5 +0.05/-0.1 | 0.5 ±0.05 |
| LLM315      | 3.2 ±0.15       | 1.6 ±0.15 | 0.5 +0.05/-0.1 | 0.8 ±0.1  |

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● Ten Terminals Low ESL Type X7R(R7)/X7S(C7) Characteristics Low Profile

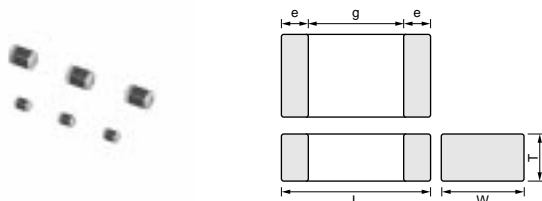
|                   |           |                    |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |                    |                    |
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 6.3(0J)            | 4(0G)              |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 10000pF(103)      | ±20%(M)   | LLM215R71E103MA11L |                    |                    |                    |
| 22000pF(223)      | ±20%(M)   | LLM215R71E223MA11L |                    |                    |                    |
| 47000pF(473)      | ±20%(M)   |                    | LLM215R71C473MA11L |                    |                    |
| 0.10μF(104)       | ±20%(M)   |                    | LLM215R71C104MA11L |                    |                    |
| 0.22μF(224)       | ±20%(M)   |                    |                    | LLM215R70J224MA11L |                    |
| 0.47μF(474)       | ±20%(M)   |                    |                    | LLM215R70J474MA11L |                    |
| 1.0μF(105)        | ±20%(M)   |                    |                    |                    | LLM215C70G105MA11L |
| 2.2μF(225)        | ±20%(M)   |                    |                    |                    | LLM215C70G225ME11L |

|                   |           |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| LxW [mm]          |           | 3.2x1.6(31)<1206>  |                    |                    |
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 0.10μF(104)       | ±20%(M)   | LLM315R71C104MA11L |                    |                    |
| 0.22μF(224)       | ±20%(M)   | LLM315R71C224MA11L |                    |                    |
| 0.47μF(474)       | ±20%(M)   |                    | LLM315R71A474MA11L |                    |
| 2.2μF(225)        | ±20%(M)   |                    |                    | LLM315R70J225MA11L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## Monolithic Ceramic Capacitors

### Low Dissipation Type GJM Series



| Part Number  | Dimensions (mm) |           |           |             |        |
|--------------|-----------------|-----------|-----------|-------------|--------|
|              | L               | W         | T         | e           | g min. |
| <b>GJM03</b> | 0.6 ±0.03       | 0.3 ±0.03 | 0.3 ±0.03 | 0.1 to 0.2  | 0.2    |
| <b>GJM15</b> | 1.0 ±0.05       | 0.5 ±0.05 | 0.5 ±0.05 | 0.15 to 0.3 | 0.4    |

● Temperature Compensating Type C0G(5C)/C0H(6C) Characteristics

|                   |            |                    |                    |
|-------------------|------------|--------------------|--------------------|
| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 0.1pF(R10)        | ±0.05pF(W) |                    | GJM1555C1HR10WB01D |
|                   | ±0.1pF(B)  |                    | GJM1555C1HR10BB01D |
| 0.2pF(R20)        | ±0.05pF(W) | GJM0335C1ER20WB01D | GJM1555C1HR20WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER20BB01D | GJM1555C1HR20BB01D |
| 0.3pF(R30)        | ±0.05pF(W) | GJM0335C1ER30WB01D | GJM1555C1HR30WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER30BB01D | GJM1555C1HR30BB01D |
| 0.4pF(R40)        | ±0.05pF(W) | GJM0335C1ER40WB01D | GJM1555C1HR40WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER40BB01D | GJM1555C1HR40BB01D |
| 0.5pF(R50)        | ±0.05pF(W) | GJM0335C1ER50WB01D | GJM1555C1HR50WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER50BB01D | GJM1555C1HR50BB01D |
| 0.6pF(R60)        | ±0.05pF(W) | GJM0335C1ER60WB01D | GJM1555C1HR60WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER60BB01D | GJM1555C1HR60BB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 0.7pF(R70)        | ±0.05pF(W) | GJM0335C1ER70WB01D | GJM1555C1HR70WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER70BB01D | GJM1555C1HR70BB01D |
| 0.8pF(R80)        | ±0.05pF(W) | GJM0335C1ER80WB01D | GJM1555C1HR80WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER80BB01D | GJM1555C1HR80BB01D |
| 0.9pF(R90)        | ±0.05pF(W) | GJM0335C1ER90WB01D | GJM1555C1HR90WB01D |
|                   | ±0.1pF(B)  | GJM0335C1ER90BB01D | GJM1555C1HR90BB01D |
| 1.0pF(1R0)        | ±0.05pF(W) | GJM0335C1E1R0WB01D | GJM1555C1H1R0WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R0BB01D | GJM1555C1H1R0BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R0CB01D | GJM1555C1H1R0CB01D |
| 1.1pF(1R1)        | ±0.05pF(W) | GJM0335C1E1R1WB01D | GJM1555C1H1R1WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R1BB01D | GJM1555C1H1R1BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R1CB01D | GJM1555C1H1R1CB01D |
| 1.2pF(1R2)        | ±0.05pF(W) | GJM0335C1E1R2WB01D | GJM1555C1H1R2WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R2BB01D | GJM1555C1H1R2BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R2CB01D | GJM1555C1H1R2CB01D |
| 1.3pF(1R3)        | ±0.05pF(W) | GJM0335C1E1R3WB01D | GJM1555C1H1R3WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R3BB01D | GJM1555C1H1R3BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R3CB01D | GJM1555C1H1R3CB01D |
| 1.4pF(1R4)        | ±0.05pF(W) | GJM0335C1E1R4WB01D | GJM1555C1H1R4WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R4BB01D | GJM1555C1H1R4BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R4CB01D | GJM1555C1H1R4CB01D |
| 1.5pF(1R5)        | ±0.05pF(W) | GJM0335C1E1R5WB01D | GJM1555C1H1R5WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R5BB01D | GJM1555C1H1R5BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R5CB01D | GJM1555C1H1R5CB01D |
| 1.6pF(1R6)        | ±0.05pF(W) | GJM0335C1E1R6WB01D | GJM1555C1H1R6WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R6BB01D | GJM1555C1H1R6BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R6CB01D | GJM1555C1H1R6CB01D |
| 1.7pF(1R7)        | ±0.05pF(W) | GJM0335C1E1R7WB01D | GJM1555C1H1R7WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R7BB01D | GJM1555C1H1R7BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R7CB01D | GJM1555C1H1R7CB01D |
| 1.8pF(1R8)        | ±0.05pF(W) | GJM0335C1E1R8WB01D | GJM1555C1H1R8WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R8BB01D | GJM1555C1H1R8BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R8CB01D | GJM1555C1H1R8CB01D |
| 1.9pF(1R9)        | ±0.05pF(W) | GJM0335C1E1R9WB01D | GJM1555C1H1R9WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E1R9BB01D | GJM1555C1H1R9BB01D |
|                   | ±0.25pF(C) | GJM0335C1E1R9CB01D | GJM1555C1H1R9CB01D |
| 2.0pF(2R0)        | ±0.05pF(W) | GJM0335C1E2R0WB01D | GJM1555C1H2R0WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R0BB01D | GJM1555C1H2R0BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R0CB01D | GJM1555C1H2R0CB01D |
| 2.1pF(2R1)        | ±0.05pF(W) | GJM0335C1E2R1WB01D | GJM1555C1H2R1WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R1BB01D | GJM1555C1H2R1BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R1CB01D | GJM1555C1H2R1CB01D |
| 2.2pF(2R2)        | ±0.05pF(W) | GJM0335C1E2R2WB01D | GJM1555C1H2R2WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R2BB01D | GJM1555C1H2R2BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R2CB01D | GJM1555C1H2R2CB01D |
| 2.3pF(2R3)        | ±0.05pF(W) | GJM0335C1E2R3WB01D | GJM1555C1H2R3WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R3BB01D | GJM1555C1H2R3BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R3CB01D | GJM1555C1H2R3CB01D |
| 2.4pF(2R4)        | ±0.05pF(W) | GJM0335C1E2R4WB01D | GJM1555C1H2R4WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R4BB01D | GJM1555C1H2R4BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R4CB01D | GJM1555C1H2R4CB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 2.5pF(2R5)        | ±0.05pF(W) | GJM0335C1E2R5WB01D | GJM1555C1H2R5WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R5BB01D | GJM1555C1H2R5BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R5CB01D | GJM1555C1H2R5CB01D |
| 2.6pF(2R6)        | ±0.05pF(W) | GJM0335C1E2R6WB01D | GJM1555C1H2R6WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R6BB01D | GJM1555C1H2R6BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R6CB01D | GJM1555C1H2R6CB01D |
| 2.7pF(2R7)        | ±0.05pF(W) | GJM0335C1E2R7WB01D | GJM1555C1H2R7WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R7BB01D | GJM1555C1H2R7BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R7CB01D | GJM1555C1H2R7CB01D |
| 2.8pF(2R8)        | ±0.05pF(W) | GJM0335C1E2R8WB01D | GJM1555C1H2R8WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R8BB01D | GJM1555C1H2R8BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R8CB01D | GJM1555C1H2R8CB01D |
| 2.9pF(2R9)        | ±0.05pF(W) | GJM0335C1E2R9WB01D | GJM1555C1H2R9WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E2R9BB01D | GJM1555C1H2R9BB01D |
|                   | ±0.25pF(C) | GJM0335C1E2R9CB01D | GJM1555C1H2R9CB01D |
| 3.0pF(3R0)        | ±0.05pF(W) | GJM0335C1E3R0WB01D | GJM1555C1H3R0WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R0BB01D | GJM1555C1H3R0BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R0CB01D | GJM1555C1H3R0CB01D |
| 3.1pF(3R1)        | ±0.05pF(W) | GJM0335C1E3R1WB01D | GJM1555C1H3R1WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R1BB01D | GJM1555C1H3R1BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R1CB01D | GJM1555C1H3R1CB01D |
| 3.2pF(3R2)        | ±0.05pF(W) | GJM0335C1E3R2WB01D | GJM1555C1H3R2WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R2BB01D | GJM1555C1H3R2BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R2CB01D | GJM1555C1H3R2CB01D |
| 3.3pF(3R3)        | ±0.05pF(W) | GJM0335C1E3R3WB01D | GJM1555C1H3R3WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R3BB01D | GJM1555C1H3R3BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R3CB01D | GJM1555C1H3R3CB01D |
| 3.4pF(3R4)        | ±0.05pF(W) | GJM0335C1E3R4WB01D | GJM1555C1H3R4WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R4BB01D | GJM1555C1H3R4BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R4CB01D | GJM1555C1H3R4CB01D |
| 3.5pF(3R5)        | ±0.05pF(W) | GJM0335C1E3R5WB01D | GJM1555C1H3R5WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R5BB01D | GJM1555C1H3R5BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R5CB01D | GJM1555C1H3R5CB01D |
| 3.6pF(3R6)        | ±0.05pF(W) | GJM0335C1E3R6WB01D | GJM1555C1H3R6WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R6BB01D | GJM1555C1H3R6BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R6CB01D | GJM1555C1H3R6CB01D |
| 3.7pF(3R7)        | ±0.05pF(W) | GJM0335C1E3R7WB01D | GJM1555C1H3R7WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R7BB01D | GJM1555C1H3R7BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R7CB01D | GJM1555C1H3R7CB01D |
| 3.8pF(3R8)        | ±0.05pF(W) | GJM0335C1E3R8WB01D | GJM1555C1H3R8WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R8BB01D | GJM1555C1H3R8BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R8CB01D | GJM1555C1H3R8CB01D |
| 3.9pF(3R9)        | ±0.05pF(W) | GJM0335C1E3R9WB01D | GJM1555C1H3R9WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E3R9BB01D | GJM1555C1H3R9BB01D |
|                   | ±0.25pF(C) | GJM0335C1E3R9CB01D | GJM1555C1H3R9CB01D |
| 4.0pF(4R0)        | ±0.05pF(W) | GJM0335C1E4R0WB01D | GJM1555C1H4R0WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R0BB01D | GJM1555C1H4R0BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R0CB01D | GJM1555C1H4R0CB01D |
| 4.1pF(4R1)        | ±0.05pF(W) | GJM0335C1E4R1WB01D | GJM1555C1H4R1WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R1BB01D | GJM1555C1H4R1BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R1CB01D | GJM1555C1H4R1CB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 4.2pF(4R2)        | ±0.05pF(W) | GJM0335C1E4R2WB01D | GJM1555C1H4R2WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R2BB01D | GJM1555C1H4R2BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R2CB01D | GJM1555C1H4R2CB01D |
| 4.3pF(4R3)        | ±0.05pF(W) | GJM0335C1E4R3WB01D | GJM1555C1H4R3WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R3BB01D | GJM1555C1H4R3BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R3CB01D | GJM1555C1H4R3CB01D |
| 4.4pF(4R4)        | ±0.05pF(W) | GJM0335C1E4R4WB01D | GJM1555C1H4R4WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R4BB01D | GJM1555C1H4R4BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R4CB01D | GJM1555C1H4R4CB01D |
| 4.5pF(4R5)        | ±0.05pF(W) | GJM0335C1E4R5WB01D | GJM1555C1H4R5WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R5BB01D | GJM1555C1H4R5BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R5CB01D | GJM1555C1H4R5CB01D |
| 4.6pF(4R6)        | ±0.05pF(W) | GJM0335C1E4R6WB01D | GJM1555C1H4R6WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R6BB01D | GJM1555C1H4R6BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R6CB01D | GJM1555C1H4R6CB01D |
| 4.7pF(4R7)        | ±0.05pF(W) | GJM0335C1E4R7WB01D | GJM1555C1H4R7WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R7BB01D | GJM1555C1H4R7BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R7CB01D | GJM1555C1H4R7CB01D |
| 4.8pF(4R8)        | ±0.05pF(W) | GJM0335C1E4R8WB01D | GJM1555C1H4R8WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R8BB01D | GJM1555C1H4R8BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R8CB01D | GJM1555C1H4R8CB01D |
| 4.9pF(4R9)        | ±0.05pF(W) | GJM0335C1E4R9WB01D | GJM1555C1H4R9WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E4R9BB01D | GJM1555C1H4R9BB01D |
|                   | ±0.25pF(C) | GJM0335C1E4R9CB01D | GJM1555C1H4R9CB01D |
| 5.0pF(5R0)        | ±0.05pF(W) | GJM0335C1E5R0WB01D | GJM1555C1H5R0WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R0BB01D | GJM1555C1H5R0BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R0CB01D | GJM1555C1H5R0CB01D |
| 5.1pF(5R1)        | ±0.05pF(W) | GJM0335C1E5R1WB01D | GJM1555C1H5R1WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R1BB01D | GJM1555C1H5R1BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R1CB01D | GJM1555C1H5R1CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R1DB01D | GJM1555C1H5R1DB01D |
| 5.2pF(5R2)        | ±0.05pF(W) | GJM0335C1E5R2WB01D | GJM1555C1H5R2WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R2BB01D | GJM1555C1H5R2BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R2CB01D | GJM1555C1H5R2CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R2DB01D | GJM1555C1H5R2DB01D |
| 5.3pF(5R3)        | ±0.05pF(W) | GJM0335C1E5R3WB01D | GJM1555C1H5R3WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R3BB01D | GJM1555C1H5R3BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R3CB01D | GJM1555C1H5R3CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R3DB01D | GJM1555C1H5R3DB01D |
| 5.4pF(5R4)        | ±0.05pF(W) | GJM0335C1E5R4WB01D | GJM1555C1H5R4WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R4BB01D | GJM1555C1H5R4BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R4CB01D | GJM1555C1H5R4CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R4DB01D | GJM1555C1H5R4DB01D |
| 5.5pF(5R5)        | ±0.05pF(W) | GJM0335C1E5R5WB01D | GJM1555C1H5R5WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R5BB01D | GJM1555C1H5R5BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R5CB01D | GJM1555C1H5R5CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R5DB01D | GJM1555C1H5R5DB01D |
| 5.6pF(5R6)        | ±0.05pF(W) | GJM0335C1E5R6WB01D | GJM1555C1H5R6WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R6BB01D | GJM1555C1H5R6BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R6CB01D | GJM1555C1H5R6CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R6DB01D | GJM1555C1H5R6DB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

● Temperature Compensating Type C0G(5C)/C0H(6C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 5.7pF(5R7)        | ±0.05pF(W) | GJM0335C1E5R7WB01D | GJM1555C1H5R7WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R7BB01D | GJM1555C1H5R7BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R7CB01D | GJM1555C1H5R7CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R7DB01D | GJM1555C1H5R7DB01D |
| 5.8pF(5R8)        | ±0.05pF(W) | GJM0335C1E5R8WB01D | GJM1555C1H5R8WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R8BB01D | GJM1555C1H5R8BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R8CB01D | GJM1555C1H5R8CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R8DB01D | GJM1555C1H5R8DB01D |
| 5.9pF(5R9)        | ±0.05pF(W) | GJM0335C1E5R9WB01D | GJM1555C1H5R9WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E5R9BB01D | GJM1555C1H5R9BB01D |
|                   | ±0.25pF(C) | GJM0335C1E5R9CB01D | GJM1555C1H5R9CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E5R9DB01D | GJM1555C1H5R9DB01D |
| 6.0pF(6R0)        | ±0.05pF(W) | GJM0335C1E6R0WB01D | GJM1555C1H6R0WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R0BB01D | GJM1555C1H6R0BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R0CB01D | GJM1555C1H6R0CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R0DB01D | GJM1555C1H6R0DB01D |
| 6.1pF(6R1)        | ±0.05pF(W) | GJM0335C1E6R1WB01D | GJM1555C1H6R1WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R1BB01D | GJM1555C1H6R1BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R1CB01D | GJM1555C1H6R1CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R1DB01D | GJM1555C1H6R1DB01D |
| 6.2pF(6R2)        | ±0.05pF(W) | GJM0335C1E6R2WB01D | GJM1555C1H6R2WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R2BB01D | GJM1555C1H6R2BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R2CB01D | GJM1555C1H6R2CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R2DB01D | GJM1555C1H6R2DB01D |
| 6.3pF(6R3)        | ±0.05pF(W) | GJM0335C1E6R3WB01D | GJM1555C1H6R3WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R3BB01D | GJM1555C1H6R3BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R3CB01D | GJM1555C1H6R3CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R3DB01D | GJM1555C1H6R3DB01D |
| 6.4pF(6R4)        | ±0.05pF(W) | GJM0335C1E6R4WB01D | GJM1555C1H6R4WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R4BB01D | GJM1555C1H6R4BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R4CB01D | GJM1555C1H6R4CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R4DB01D | GJM1555C1H6R4DB01D |
| 6.5pF(6R5)        | ±0.05pF(W) | GJM0335C1E6R5WB01D | GJM1555C1H6R5WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R5BB01D | GJM1555C1H6R5BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R5CB01D | GJM1555C1H6R5CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R5DB01D | GJM1555C1H6R5DB01D |
| 6.6pF(6R6)        | ±0.05pF(W) | GJM0335C1E6R6WB01D | GJM1555C1H6R6WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R6BB01D | GJM1555C1H6R6BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R6CB01D | GJM1555C1H6R6CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R6DB01D | GJM1555C1H6R6DB01D |
| 6.7pF(6R7)        | ±0.05pF(W) | GJM0335C1E6R7WB01D | GJM1555C1H6R7WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R7BB01D | GJM1555C1H6R7BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R7CB01D | GJM1555C1H6R7CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R7DB01D | GJM1555C1H6R7DB01D |
| 6.8pF(6R8)        | ±0.05pF(W) | GJM0335C1E6R8WB01D | GJM1555C1H6R8WB01D |
|                   | ±0.1pF(B)  | GJM0335C1E6R8BB01D | GJM1555C1H6R8BB01D |
|                   | ±0.25pF(C) | GJM0335C1E6R8CB01D | GJM1555C1H6R8CB01D |
|                   | ±0.5pF(D)  | GJM0335C1E6R8DB01D | GJM1555C1H6R8DB01D |
| 6.9pF(6R9)        | ±0.05pF(W) | GJM0336C1E6R9WB01D | GJM1555C1H6R9WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E6R9BB01D | GJM1555C1H6R9BB01D |
|                   | ±0.25pF(C) | GJM0336C1E6R9CB01D | GJM1555C1H6R9CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E6R9DB01D | GJM1555C1H6R9DB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. <>: EIA [inch] Code

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● Temperature Compensating Type C0G(5C)/C0H(6C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 7.0pF(7R0)        | ±0.05pF(W) | GJM0336C1E7R0WB01D | GJM1555C1H7R0WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R0BB01D | GJM1555C1H7R0BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R0CB01D | GJM1555C1H7R0CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R0DB01D | GJM1555C1H7R0DB01D |
| 7.1pF(7R1)        | ±0.05pF(W) | GJM0336C1E7R1WB01D | GJM1555C1H7R1WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R1BB01D | GJM1555C1H7R1BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R1CB01D | GJM1555C1H7R1CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R1DB01D | GJM1555C1H7R1DB01D |
| 7.2pF(7R2)        | ±0.05pF(W) | GJM0336C1E7R2WB01D | GJM1555C1H7R2WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R2BB01D | GJM1555C1H7R2BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R2CB01D | GJM1555C1H7R2CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R2DB01D | GJM1555C1H7R2DB01D |
| 7.3pF(7R3)        | ±0.05pF(W) | GJM0336C1E7R3WB01D | GJM1555C1H7R3WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R3BB01D | GJM1555C1H7R3BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R3CB01D | GJM1555C1H7R3CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R3DB01D | GJM1555C1H7R3DB01D |
| 7.4pF(7R4)        | ±0.05pF(W) | GJM0336C1E7R4WB01D | GJM1555C1H7R4WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R4BB01D | GJM1555C1H7R4BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R4CB01D | GJM1555C1H7R4CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R4DB01D | GJM1555C1H7R4DB01D |
| 7.5pF(7R5)        | ±0.05pF(W) | GJM0336C1E7R5WB01D | GJM1555C1H7R5WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R5BB01D | GJM1555C1H7R5BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R5CB01D | GJM1555C1H7R5CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R5DB01D | GJM1555C1H7R5DB01D |
| 7.6pF(7R6)        | ±0.05pF(W) | GJM0336C1E7R6WB01D | GJM1555C1H7R6WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R6BB01D | GJM1555C1H7R6BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R6CB01D | GJM1555C1H7R6CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R6DB01D | GJM1555C1H7R6DB01D |
| 7.7pF(7R7)        | ±0.05pF(W) | GJM0336C1E7R7WB01D | GJM1555C1H7R7WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R7BB01D | GJM1555C1H7R7BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R7CB01D | GJM1555C1H7R7CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R7DB01D | GJM1555C1H7R7DB01D |
| 7.8pF(7R8)        | ±0.05pF(W) | GJM0336C1E7R8WB01D | GJM1555C1H7R8WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R8BB01D | GJM1555C1H7R8BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R8CB01D | GJM1555C1H7R8CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R8DB01D | GJM1555C1H7R8DB01D |
| 7.9pF(7R9)        | ±0.05pF(W) | GJM0336C1E7R9WB01D | GJM1555C1H7R9WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E7R9BB01D | GJM1555C1H7R9BB01D |
|                   | ±0.25pF(C) | GJM0336C1E7R9CB01D | GJM1555C1H7R9CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E7R9DB01D | GJM1555C1H7R9DB01D |
| 8.0pF(8R0)        | ±0.05pF(W) | GJM0336C1E8R0WB01D | GJM1555C1H8R0WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R0BB01D | GJM1555C1H8R0BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R0CB01D | GJM1555C1H8R0CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R0DB01D | GJM1555C1H8R0DB01D |
| 8.1pF(8R1)        | ±0.05pF(W) | GJM0336C1E8R1WB01D | GJM1555C1H8R1WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R1BB01D | GJM1555C1H8R1BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R1CB01D | GJM1555C1H8R1CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R1DB01D | GJM1555C1H8R1DB01D |
| 8.2pF(8R2)        | ±0.05pF(W) | GJM0336C1E8R2WB01D | GJM1555C1H8R2WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R2BB01D | GJM1555C1H8R2BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R2CB01D | GJM1555C1H8R2CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R2DB01D | GJM1555C1H8R2DB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. <>: EIA [inch] Code

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● Temperature Compensating Type C0G(5C)/C0H(6C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |
| 8.3pF(8R3)        | ±0.05pF(W) | GJM0336C1E8R3WB01D | GJM1555C1H8R3WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R3BB01D | GJM1555C1H8R3BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R3CB01D | GJM1555C1H8R3CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R3DB01D | GJM1555C1H8R3DB01D |
| 8.4pF(8R4)        | ±0.05pF(W) | GJM0336C1E8R4WB01D | GJM1555C1H8R4WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R4BB01D | GJM1555C1H8R4BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R4CB01D | GJM1555C1H8R4CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R4DB01D | GJM1555C1H8R4DB01D |
| 8.5pF(8R5)        | ±0.05pF(W) | GJM0336C1E8R5WB01D | GJM1555C1H8R5WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R5BB01D | GJM1555C1H8R5BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R5CB01D | GJM1555C1H8R5CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R5DB01D | GJM1555C1H8R5DB01D |
| 8.6pF(8R6)        | ±0.05pF(W) | GJM0336C1E8R6WB01D | GJM1555C1H8R6WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R6BB01D | GJM1555C1H8R6BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R6CB01D | GJM1555C1H8R6CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R6DB01D | GJM1555C1H8R6DB01D |
| 8.7pF(8R7)        | ±0.05pF(W) | GJM0336C1E8R7WB01D | GJM1555C1H8R7WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R7BB01D | GJM1555C1H8R7BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R7CB01D | GJM1555C1H8R7CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R7DB01D | GJM1555C1H8R7DB01D |
| 8.8pF(8R8)        | ±0.05pF(W) | GJM0336C1E8R8WB01D | GJM1555C1H8R8WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R8BB01D | GJM1555C1H8R8BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R8CB01D | GJM1555C1H8R8CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R8DB01D | GJM1555C1H8R8DB01D |
| 8.9pF(8R9)        | ±0.05pF(W) | GJM0336C1E8R9WB01D | GJM1555C1H8R9WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E8R9BB01D | GJM1555C1H8R9BB01D |
|                   | ±0.25pF(C) | GJM0336C1E8R9CB01D | GJM1555C1H8R9CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E8R9DB01D | GJM1555C1H8R9DB01D |
| 9.0pF(9R0)        | ±0.05pF(W) | GJM0336C1E9R0WB01D | GJM1555C1H9R0WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E9R0BB01D | GJM1555C1H9R0BB01D |
|                   | ±0.25pF(C) | GJM0336C1E9R0CB01D | GJM1555C1H9R0CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E9R0DB01D | GJM1555C1H9R0DB01D |
| 9.1pF(9R1)        | ±0.05pF(W) | GJM0336C1E9R1WB01D | GJM1555C1H9R1WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E9R1BB01D | GJM1555C1H9R1BB01D |
|                   | ±0.25pF(C) | GJM0336C1E9R1CB01D | GJM1555C1H9R1CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E9R1DB01D | GJM1555C1H9R1DB01D |
| 9.2pF(9R2)        | ±0.05pF(W) | GJM0336C1E9R2WB01D | GJM1555C1H9R2WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E9R2BB01D | GJM1555C1H9R2BB01D |
|                   | ±0.25pF(C) | GJM0336C1E9R2CB01D | GJM1555C1H9R2CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E9R2DB01D | GJM1555C1H9R2DB01D |
| 9.3pF(9R3)        | ±0.05pF(W) | GJM0336C1E9R3WB01D | GJM1555C1H9R3WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E9R3BB01D | GJM1555C1H9R3BB01D |
|                   | ±0.25pF(C) | GJM0336C1E9R3CB01D | GJM1555C1H9R3CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E9R3DB01D | GJM1555C1H9R3DB01D |
| 9.4pF(9R4)        | ±0.05pF(W) | GJM0336C1E9R4WB01D | GJM1555C1H9R4WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E9R4BB01D | GJM1555C1H9R4BB01D |
|                   | ±0.25pF(C) | GJM0336C1E9R4CB01D | GJM1555C1H9R4CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E9R4DB01D | GJM1555C1H9R4DB01D |
| 9.5pF(9R5)        | ±0.05pF(W) | GJM0336C1E9R5WB01D | GJM1555C1H9R5WB01D |
|                   | ±0.1pF(B)  | GJM0336C1E9R5BB01D | GJM1555C1H9R5BB01D |
|                   | ±0.25pF(C) | GJM0336C1E9R5CB01D | GJM1555C1H9R5CB01D |
|                   | ±0.5pF(D)  | GJM0336C1E9R5DB01D | GJM1555C1H9R5DB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● Temperature Compensating Type C0G(5C)/C0H(6C) Characteristics

| LxW [mm]          |            | 0.6x0.3(03)<0201>  |                    | 1.0x0.5(15)<0402> |  |
|-------------------|------------|--------------------|--------------------|-------------------|--|
| Rated Volt. [Vdc] |            | 25(1E)             |                    | 50(1H)            |  |
| Capacitance       | Tolerance  | Part Number        |                    |                   |  |
| 9.6pF(9R6)        | ±0.05pF(W) | GJM0336C1E9R6WB01D | GJM1555C1H9R6WB01D |                   |  |
|                   | ±0.1pF(B)  | GJM0336C1E9R6BB01D | GJM1555C1H9R6BB01D |                   |  |
|                   | ±0.25pF(C) | GJM0336C1E9R6CB01D | GJM1555C1H9R6CB01D |                   |  |
|                   | ±0.5pF(D)  | GJM0336C1E9R6DB01D | GJM1555C1H9R6DB01D |                   |  |
| 9.7pF(9R7)        | ±0.05pF(W) | GJM0336C1E9R7WB01D | GJM1555C1H9R7WB01D |                   |  |
|                   | ±0.1pF(B)  | GJM0336C1E9R7BB01D | GJM1555C1H9R7BB01D |                   |  |
|                   | ±0.25pF(C) | GJM0336C1E9R7CB01D | GJM1555C1H9R7CB01D |                   |  |
|                   | ±0.5pF(D)  | GJM0336C1E9R7DB01D | GJM1555C1H9R7DB01D |                   |  |
| 9.8pF(9R8)        | ±0.05pF(W) | GJM0336C1E9R8WB01D | GJM1555C1H9R8WB01D |                   |  |
|                   | ±0.1pF(B)  | GJM0336C1E9R8BB01D | GJM1555C1H9R8BB01D |                   |  |
|                   | ±0.25pF(C) | GJM0336C1E9R8CB01D | GJM1555C1H9R8CB01D |                   |  |
|                   | ±0.5pF(D)  | GJM0336C1E9R8DB01D | GJM1555C1H9R8DB01D |                   |  |
| 9.9pF(9R9)        | ±0.05pF(W) | GJM0336C1E9R9WB01D | GJM1555C1H9R9WB01D |                   |  |
|                   | ±0.1pF(B)  | GJM0336C1E9R9BB01D | GJM1555C1H9R9BB01D |                   |  |
|                   | ±0.25pF(C) | GJM0336C1E9R9CB01D | GJM1555C1H9R9CB01D |                   |  |
|                   | ±0.5pF(D)  | GJM0336C1E9R9DB01D | GJM1555C1H9R9DB01D |                   |  |

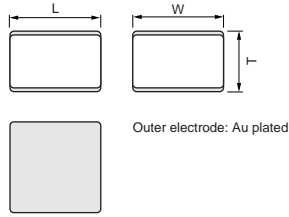
| LxW [mm]          |           | 0.6x0.3(03)<0201>  |                    | 1.0x0.5(15)<0402> |  |
|-------------------|-----------|--------------------|--------------------|-------------------|--|
| Rated Volt. [Vdc] |           | 25(1E)             |                    | 6.3(0J)<br>50(1H) |  |
| Capacitance       | Tolerance | Part Number        |                    |                   |  |
| 10pF(100)         | ±2%(G)    | GJM0336C1E100GB01D | GJM1555C1H100GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E100JB01D | GJM1555C1H100JB01D |                   |  |
| 11pF(110)         | ±2%(G)    | GJM0336C1E110GB01D | GJM1555C1H110GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E110JB01D | GJM1555C1H110JB01D |                   |  |
| 12pF(120)         | ±2%(G)    | GJM0336C1E120GB01D | GJM1555C1H120GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E120JB01D | GJM1555C1H120JB01D |                   |  |
| 13pF(130)         | ±2%(G)    | GJM0336C1E130GB01D | GJM1555C1H130GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E130JB01D | GJM1555C1H130JB01D |                   |  |
| 15pF(150)         | ±2%(G)    | GJM0336C1E150GB01D | GJM1555C1H150GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E150JB01D | GJM1555C1H150JB01D |                   |  |
| 16pF(160)         | ±2%(G)    | GJM0336C1E160GB01D | GJM1555C1H160GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E160JB01D | GJM1555C1H160JB01D |                   |  |
| 18pF(180)         | ±2%(G)    | GJM0336C1E180GB01D | GJM1555C1H180GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E180JB01D | GJM1555C1H180JB01D |                   |  |
| 20pF(200)         | ±2%(G)    | GJM0336C1E200GB01D | GJM1555C1H200GB01D |                   |  |
|                   | ±5%(J)    | GJM0336C1E200JB01D | GJM1555C1H200JB01D |                   |  |
| 22pF(220)         | ±2%(G)    |                    | GJM0335C0J220GB01D |                   |  |
|                   | ±5%(J)    |                    | GJM0335C0J220JB01D |                   |  |
| 24pF(240)         | ±2%(G)    |                    | GJM0335C0J240GB01D |                   |  |
|                   | ±5%(J)    |                    | GJM0335C0J240JB01D |                   |  |
| 27pF(270)         | ±2%(G)    |                    | GJM0335C0J270GB01D |                   |  |
|                   | ±5%(J)    |                    | GJM0335C0J270JB01D |                   |  |
| 30pF(300)         | ±2%(G)    |                    | GJM0335C0J300GB01D |                   |  |
|                   | ±5%(J)    |                    | GJM0335C0J300JB01D |                   |  |
| 33pF(330)         | ±2%(G)    |                    | GJM0335C0J330GB01D |                   |  |
|                   | ±5%(J)    |                    | GJM0335C0J330JB01D |                   |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Monolithic Ceramic Capacitors

## Monolithic Microchip GMA Series



| Part Number   | Dimensions (mm) |            |            |
|---------------|-----------------|------------|------------|
|               | L               | W          | T          |
| <b>GMA0D3</b> | 0.38 ±0.05      | 0.38 ±0.05 | 0.3 ±0.05  |
| <b>GMA05X</b> | 0.5 ±0.05       | 0.5 ±0.05  | 0.35 ±0.05 |
| <b>GMA085</b> | 0.8 ±0.05       | 0.8 ±0.05  | 0.5 ±0.1   |

### ● High Dielectric Constant Type X7R(R7)/X5R(R6) Characteristics

|                   |                       |                           |  |
|-------------------|-----------------------|---------------------------|--|
| LxW [mm]          | 0.38x0.38(0D)<015015> |                           |  |
| Rated Volt. [Vdc] | 10(1A)                |                           |  |
| Capacitance       | Tolerance             | Part Number               |  |
| 10000pF(103)      | ±20%(M)               | <b>GMA0D3R71A103MA01T</b> |  |

| LxW [mm]          |           | 0.5x0.5(05)<0202>         |                           |                           |                           |
|-------------------|-----------|---------------------------|---------------------------|---------------------------|---------------------------|
| Rated Volt. [Vdc] |           | 100(2A)                   | 25(1E)                    | 10(1A)                    | 6.3(0J)                   |
| Capacitance       | Tolerance | Part Number               |                           |                           |                           |
| 100pF(101)        | ±20%(M)   | <b>GMA05XR72A101MA01T</b> |                           |                           |                           |
| 150pF(151)        | ±20%(M)   | <b>GMA05XR72A151MA01T</b> |                           |                           |                           |
| 220pF(221)        | ±20%(M)   | <b>GMA05XR72A221MA01T</b> |                           |                           |                           |
| 330pF(331)        | ±20%(M)   | <b>GMA05XR72A331MA01T</b> |                           |                           |                           |
| 470pF(471)        | ±20%(M)   | <b>GMA05XR72A471MA01T</b> |                           |                           |                           |
| 680pF(681)        | ±20%(M)   | <b>GMA05XR72A681MA01T</b> |                           |                           |                           |
| 1000pF(102)       | ±20%(M)   | <b>GMA05XR72A102MA01T</b> |                           |                           |                           |
| 1500pF(152)       | ±20%(M)   |                           | <b>GMA05XR71E152MA11T</b> |                           |                           |
| 2200pF(222)       | ±20%(M)   |                           | <b>GMA05XR71E222MA11T</b> |                           |                           |
| 3300pF(332)       | ±20%(M)   |                           | <b>GMA05XR71E332MA11T</b> |                           |                           |
| 4700pF(472)       | ±20%(M)   |                           | <b>GMA05XR71E472MA11T</b> |                           |                           |
| 6800pF(682)       | ±20%(M)   |                           |                           | <b>GMA05XR71A682MA01T</b> |                           |
| 10000pF(103)      | ±20%(M)   |                           |                           | <b>GMA05XR71A103MA01T</b> |                           |
| 15000pF(153)      | ±20%(M)   |                           |                           | <b>GMA05XR71A153MA01T</b> |                           |
| 22000pF(223)      | ±20%(M)   |                           |                           | <b>GMA05XR71A223MA01T</b> |                           |
| 33000pF(333)      | ±20%(M)   |                           |                           |                           |                           |
| 47000pF(473)      | ±20%(M)   |                           |                           |                           |                           |
| 68000pF(683)      | ±20%(M)   |                           |                           |                           |                           |
| 0.10μF(104)       | ±20%(M)   |                           |                           |                           | <b>GMA05XR60J104ME12T</b> |

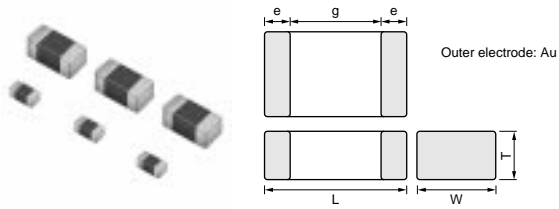
| LxW [mm]          |           | 0.8x0.8(08)<0303>         |                           |                           |                           |
|-------------------|-----------|---------------------------|---------------------------|---------------------------|---------------------------|
| Rated Volt. [Vdc] |           | 100(2A)                   | 25(1E)                    | 10(1A)                    | 6.3(0J)                   |
| Capacitance       | Tolerance | Part Number               |                           |                           |                           |
| 1500pF(152)       | ±20%(M)   | <b>GMA085R72A152MA01T</b> |                           |                           |                           |
| 2200pF(222)       | ±20%(M)   | <b>GMA085R72A222MA01T</b> |                           |                           |                           |
| 3300pF(332)       | ±20%(M)   | <b>GMA085R72A332MA01T</b> |                           |                           |                           |
| 4700pF(472)       | ±20%(M)   | <b>GMA085R72A472MA01T</b> |                           |                           |                           |
| 6800pF(682)       | ±20%(M)   | <b>GMA085R72A682MA01T</b> |                           |                           |                           |
| 10000pF(103)      | ±20%(M)   |                           | <b>GMA085R71E103MA11T</b> |                           |                           |
| 15000pF(153)      | ±20%(M)   |                           | <b>GMA085R71E153MA11T</b> |                           |                           |
| 22000pF(223)      | ±20%(M)   |                           | <b>GMA085R71E223MA11T</b> |                           |                           |
| 33000pF(333)      | ±20%(M)   |                           |                           | <b>GMA085R71A333MA01T</b> |                           |
| 47000pF(473)      | ±20%(M)   |                           |                           | <b>GMA085R71A473MA01T</b> |                           |
| 68000pF(683)      | ±20%(M)   |                           |                           | <b>GMA085R71A683MA01T</b> |                           |
| 0.10μF(104)       | ±20%(M)   |                           |                           | <b>GMA085R71A104MA01T</b> |                           |
| 0.47μF(474)       | ±20%(M)   |                           |                           |                           | <b>GMA085R60J474ME12T</b> |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Monolithic Ceramic Capacitors

for Bonding GMD Series



| Part Number   | Dimensions (mm) |          |          |              |        |
|---------------|-----------------|----------|----------|--------------|--------|
|               | L               | W        | T        | e            | g min. |
| <b>GMD033</b> | 0.6±0.03        | 0.3±0.03 | 0.3±0.03 | 0.12 to 0.22 | 0.16   |
| <b>GMD155</b> | 1.0±0.05        | 0.5±0.05 | 0.5±0.05 | 0.15 to 0.35 | 0.3    |

## ● High Dielectric Constant Type X7R(R7) Characteristics

| LxW [mm]          |           | 0.6x0.3(03)<0201>         |                           |                           |
|-------------------|-----------|---------------------------|---------------------------|---------------------------|
| Rated Volt. [Vdc] |           | 25(1E)                    | 16(1C)                    | 10(1A)                    |
| Capacitance       | Tolerance | Part Number               |                           |                           |
| 100pF(101)        | ±10%(K)   | <b>GMD033R71E101KA01D</b> |                           |                           |
| 120pF(121)        | ±10%(K)   | <b>GMD033R71E121KA01D</b> |                           |                           |
| 150pF(151)        | ±10%(K)   | <b>GMD033R71E151KA01D</b> |                           |                           |
| 180pF(181)        | ±10%(K)   | <b>GMD033R71E181KA01D</b> |                           |                           |
| 220pF(221)        | ±10%(K)   | <b>GMD033R71E221KA01D</b> |                           |                           |
| 270pF(271)        | ±10%(K)   | <b>GMD033R71E271KA01D</b> |                           |                           |
| 330pF(331)        | ±10%(K)   | <b>GMD033R71E331KA01D</b> |                           |                           |
| 390pF(391)        | ±10%(K)   | <b>GMD033R71E391KA01D</b> |                           |                           |
| 470pF(471)        | ±10%(K)   | <b>GMD033R71E471KA01D</b> |                           |                           |
| 560pF(561)        | ±10%(K)   | <b>GMD033R71E561KA01D</b> |                           |                           |
| 680pF(681)        | ±10%(K)   | <b>GMD033R71E681KA01D</b> |                           |                           |
| 820pF(821)        | ±10%(K)   | <b>GMD033R71E821KA01D</b> |                           |                           |
| 1000pF(102)       | ±10%(K)   | <b>GMD033R71E102KA01D</b> |                           |                           |
| 1200pF(122)       | ±10%(K)   | <b>GMD033R71E122KA01D</b> |                           |                           |
| 1500pF(152)       | ±10%(K)   | <b>GMD033R71E152KA01D</b> |                           |                           |
| 1800pF(182)       | ±10%(K)   |                           | <b>GMD033R71C182KA11D</b> |                           |
| 2200pF(222)       | ±10%(K)   |                           | <b>GMD033R71C222KA11D</b> |                           |
| 2700pF(272)       | ±10%(K)   |                           | <b>GMD033R71C272KA11D</b> |                           |
| 3300pF(332)       | ±10%(K)   |                           | <b>GMD033R71C332KA11D</b> |                           |
| 3900pF(392)       | ±10%(K)   |                           |                           | <b>GMD033R71A392KA01D</b> |
| 4700pF(472)       | ±10%(K)   |                           |                           | <b>GMD033R71A472KA01D</b> |
| 5600pF(562)       | ±10%(K)   |                           |                           | <b>GMD033R71A562KA01D</b> |
| 6800pF(682)       | ±10%(K)   |                           |                           | <b>GMD033R71A682KA01D</b> |
| 8200pF(822)       | ±10%(K)   |                           |                           | <b>GMD033R71A822KA01D</b> |
| 10000pF(103)      | ±10%(K)   |                           |                           | <b>GMD033R71A103KA01D</b> |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

### ● High Dielectric Constant Type X7R(R7) Characteristics

| LxW [mm]          |           | 1.0x0.5(15)<0402>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             | 25(1E)             | 16(1C)             |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 220pF(221)        | ±10%(K)   | GMD155R71H221KA01D |                    |                    |
| 270pF(271)        | ±10%(K)   | GMD155R71H271KA01D |                    |                    |
| 330pF(331)        | ±10%(K)   | GMD155R71H331KA01D |                    |                    |
| 390pF(391)        | ±10%(K)   | GMD155R71H391KA01D |                    |                    |
| 470pF(471)        | ±10%(K)   | GMD155R71H471KA01D |                    |                    |
| 560pF(561)        | ±10%(K)   | GMD155R71H561KA01D |                    |                    |
| 680pF(681)        | ±10%(K)   | GMD155R71H681KA01D |                    |                    |
| 820pF(821)        | ±10%(K)   | GMD155R71H821KA01D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GMD155R71H102KA01D |                    |                    |
| 1200pF(122)       | ±10%(K)   | GMD155R71H122KA01D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GMD155R71H152KA01D |                    |                    |
| 1800pF(182)       | ±10%(K)   | GMD155R71H182KA01D |                    |                    |
| 2200pF(222)       | ±10%(K)   | GMD155R71H222KA01D |                    |                    |
| 2700pF(272)       | ±10%(K)   | GMD155R71H272KA01D |                    |                    |
| 3300pF(332)       | ±10%(K)   | GMD155R71H332KA01D |                    |                    |
| 3900pF(392)       | ±10%(K)   | GMD155R71H392KA01D |                    |                    |
| 4700pF(472)       | ±10%(K)   | GMD155R71H472KA01D |                    |                    |
| 5600pF(562)       | ±10%(K)   |                    | GMD155R71E562KA01D |                    |
| 6800pF(682)       | ±10%(K)   |                    | GMD155R71E682KA01D |                    |
| 8200pF(822)       | ±10%(K)   |                    | GMD155R71E822KA01D |                    |
| 10000pF(103)      | ±10%(K)   |                    | GMD155R71E103KA01D |                    |
| 12000pF(123)      | ±10%(K)   |                    | GMD155R71E123KA01D |                    |
| 15000pF(153)      | ±10%(K)   |                    | GMD155R71E153KA01D |                    |
| 18000pF(183)      | ±10%(K)   |                    | GMD155R71E183KA01D |                    |
| 22000pF(223)      | ±10%(K)   |                    | GMD155R71E223KA01D |                    |
| 27000pF(273)      | ±10%(K)   |                    | GMD155R71E273KA11D |                    |
| 33000pF(333)      | ±10%(K)   |                    | GMD155R71E333KA11D |                    |
| 39000pF(393)      | ±10%(K)   |                    | GMD155R71E393KA11D |                    |
| 47000pF(473)      | ±10%(K)   |                    | GMD155R71E473KA11D |                    |
| 56000pF(563)      | ±10%(K)   |                    |                    | GMD155R71C563KA11D |
| 68000pF(683)      | ±10%(K)   |                    |                    | GMD155R71C683KA11D |
| 82000pF(823)      | ±10%(K)   |                    |                    | GMD155R71C823KA11D |
| 0.10μF(104)       | ±10%(K)   |                    |                    | GMD155R71C104KA11D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

### ● High Dielectric Constant Type X5R(R6) Characteristics

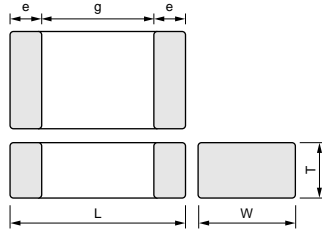
| LxW [mm]          |           | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 6.3(0J)            | 10(1A)             | 6.3(0J)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 56000pF(563)      | ±10%(K)   | GMD033R60J563KE11D |                    |                    |
| 68000pF(683)      | ±10%(K)   | GMD033R60J683KE11D |                    |                    |
| 82000pF(823)      | ±10%(K)   | GMD033R60J823KE11D |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GMD033R60J104KE11D |                    |                    |
| 0.12μF(124)       | ±10%(K)   |                    | GMD155R61A124KE12D |                    |
| 0.15μF(154)       | ±10%(K)   |                    | GMD155R61A154KE12D |                    |
| 0.18μF(184)       | ±10%(K)   |                    | GMD155R61A184KE12D |                    |
| 0.22μF(224)       | ±10%(K)   |                    | GMD155R61A224KE12D |                    |
| 0.27μF(274)       | ±10%(K)   |                    | GMD155R61A274KE11D |                    |
| 0.33μF(334)       | ±10%(K)   |                    | GMD155R61A334KE11D |                    |
| 0.39μF(394)       | ±10%(K)   |                    | GMD155R61A394KE11D |                    |
| 0.47μF(474)       | ±10%(K)   |                    | GMD155R61A474KE11D |                    |
| 1.0μF(105)        | ±10%(K)   |                    |                    | GMD155R60J105KE11D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Monolithic Ceramic Capacitors

for Automotive GCM Series (Power Train, Safety Equipment)



| Part Number | Dimensions (mm) |            |            |              |        |
|-------------|-----------------|------------|------------|--------------|--------|
|             | L               | W          | T          | e            | g min. |
| GCM033      | 0.6 ±0.03       | 0.3 ±0.03  | 0.3 ±0.03  | 0.1 to 0.2   | 0.2    |
| GCM155      | 1.0 ±0.05       | 0.5 ±0.05  | 0.5 ±0.05  | 0.15 to 0.35 | 0.3    |
| GCM188*     | 1.6 ±0.1        | 0.8 ±0.1   | 0.8 ±0.1   | 0.2 to 0.5   | 0.5    |
| GCM216      | 2.0 ±0.15       | 1.25 ±0.15 | 0.6 ±0.1   | 0.2 to 0.7   | 0.7    |
| GCM219      |                 |            | 0.85 ±0.1  |              |        |
| GCM21B      |                 |            | 1.25 ±0.15 |              |        |
| GCM319      | 3.2 ±0.15       | 1.6 ±0.15  | 0.85 ±0.1  | 0.3 to 0.8   | 1.5    |
| GCM31M      |                 |            | 1.15 ±0.1  |              |        |
| GCM31C      | 3.2 ±0.2        | 1.6 ±0.2   | 1.6 ±0.2   | 0.3 min.     | 1.0    |
| GCM32N      |                 |            | 1.35 ±0.15 |              |        |
| GCM32R      |                 |            | 1.8 ±0.2   |              |        |
| GCM32D      | 3.2 ±0.3        | 2.5 ±0.2   | 2.0 ±0.2   | 0.3 min.     | 1.0    |
| GCM32E      |                 |            | 2.5 ±0.2   |              |        |

\* Bulk Case: 1.6 ±0.07(L) × 0.8 ±0.07(W) × 0.8 ±0.07(T)

● Temperature Compensating Type

| L x W [mm]        |            | 0.6x0.3(03)<0201>  | 1.0x0.5(15)<0402>  | 1.6x0.8(18)<0603>  |                    |
|-------------------|------------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 25(1E)             | 50(1H)             | 100(2A)            | 50(1H)             |
| TC                |            | COG(5C)            |                    |                    |                    |
| Capacitance       | Tolerance  | Part Number        |                    |                    |                    |
| 1.0pF(1R0)        | ±0.25pF(C) | GCM0335C1E1R0CD03D | GCM1555C1H1R0CZ13D | GCM1885C2A1R0CZ13D | GCM1885C1H1R0CZ13D |
| 2.0pF(2R0)        | ±0.25pF(C) | GCM0335C1E2R0CD03D | GCM1555C1H2R0CZ13D | GCM1885C2A2R0CZ13D | GCM1885C1H2R0CZ13D |
| 3.0pF(3R0)        | ±0.25pF(C) | GCM0335C1E3R0CD03D | GCM1555C1H3R0CZ13D | GCM1885C2A3R0CZ13D | GCM1885C1H3R0CZ13D |
| 4.0pF(4R0)        | ±0.25pF(C) | GCM0335C1E4R0CD03D | GCM1555C1H4R0CZ13D | GCM1885C2A4R0CZ13D | GCM1885C1H4R0CZ13D |
| 5.0pF(5R0)        | ±0.25pF(C) | GCM0335C1E5R0CD03D | GCM1555C1H5R0CZ13D | GCM1885C2A5R0CZ13D | GCM1885C1H5R0CZ13D |
| 6.0pF(6R0)        | ±0.5pF(D)  | GCM0335C1E6R0DD03D | GCM1555C1H6R0DZ13D | GCM1885C2A6R0DZ13D | GCM1885C1H6R0DZ13D |
| 7.0pF(7R0)        | ±0.5pF(D)  | GCM0335C1E7R0DD03D | GCM1555C1H7R0DZ13D | GCM1885C2A7R0DZ13D | GCM1885C1H7R0DZ13D |
| 8.0pF(8R0)        | ±0.5pF(D)  | GCM0335C1E8R0DD03D | GCM1555C1H8R0DZ13D | GCM1885C2A8R0DZ13D | GCM1885C1H8R0DZ13D |
| 9.0pF(9R0)        | ±0.5pF(D)  | GCM0335C1E9R0DD03D | GCM1555C1H9R0DZ13D | GCM1885C2A9R0DZ13D | GCM1885C1H9R0DZ13D |
| 10pF(100)         | ±5%(J)     | GCM0335C1E100JD03D | GCM1555C1H100JZ13D | GCM1885C2A100JA16D | GCM1885C1H100JA16D |
| 12pF(120)         | ±5%(J)     | GCM0335C1E120JD03D | GCM1555C1H120JZ13D | GCM1885C2A120JA16D | GCM1885C1H120JA16D |
| 15pF(150)         | ±5%(J)     | GCM0335C1E150JD03D | GCM1555C1H150JZ13D | GCM1885C2A150JA16D | GCM1885C1H150JA16D |
| 18pF(180)         | ±5%(J)     | GCM0335C1E180JD03D | GCM1555C1H180JZ13D | GCM1885C2A180JA16D | GCM1885C1H180JA16D |
| 22pF(220)         | ±5%(J)     | GCM0335C1E220JD03D | GCM1555C1H220JZ13D | GCM1885C2A220JA16D | GCM1885C1H220JA16D |
| 27pF(270)         | ±5%(J)     | GCM0335C1E270JD03D | GCM1555C1H270JZ13D | GCM1885C2A270JA16D | GCM1885C1H270JA16D |
| 33pF(330)         | ±5%(J)     | GCM0335C1E330JD03D | GCM1555C1H330JZ13D | GCM1885C2A330JA16D | GCM1885C1H330JA16D |
| 39pF(390)         | ±5%(J)     | GCM0335C1E390JD03D | GCM1555C1H390JZ13D | GCM1885C2A390JA16D | GCM1885C1H390JA16D |
| 47pF(470)         | ±5%(J)     | GCM0335C1E470JD03D | GCM1555C1H470JZ13D | GCM1885C2A470JA16D | GCM1885C1H470JA16D |
| 56pF(560)         | ±5%(J)     | GCM0335C1E560JD03D | GCM1555C1H560JZ13D | GCM1885C2A560JA16D | GCM1885C1H560JA16D |
| 68pF(680)         | ±5%(J)     | GCM0335C1E680JD03D | GCM1555C1H680JZ13D | GCM1885C2A680JA16D | GCM1885C1H680JA16D |
| 82pF(820)         | ±5%(J)     | GCM0335C1E820JD03D | GCM1555C1H820JZ13D | GCM1885C2A820JA16D | GCM1885C1H820JA16D |
| 100pF(101)        | ±5%(J)     | GCM0335C1E101JD03D | GCM1555C1H101JZ13D | GCM1885C2A101JA16D | GCM1885C1H101JA16D |
| 120pF(121)        | ±5%(J)     |                    | GCM1555C1H121JA16D | GCM1885C2A121JA16D | GCM1885C1H121JA16D |
| 150pF(151)        | ±5%(J)     |                    | GCM1555C1H151JA16D | GCM1885C2A151JA16D | GCM1885C1H151JA16D |
| 180pF(181)        | ±5%(J)     |                    | GCM1555C1H181JA16D | GCM1885C2A181JA16D | GCM1885C1H181JA16D |
| 220pF(221)        | ±5%(J)     |                    | GCM1555C1H221JA16D | GCM1885C2A221JA16D | GCM1885C1H221JA16D |
| 270pF(271)        | ±5%(J)     |                    | GCM1555C1H271JA16D | GCM1885C2A271JA16D | GCM1885C1H271JA16D |
| 330pF(331)        | ±5%(J)     |                    | GCM1555C1H331JA16D | GCM1885C2A331JA16D | GCM1885C1H331JA16D |
| 390pF(391)        | ±5%(J)     |                    | GCM1555C1H391JA16D | GCM1885C2A391JA16D | GCM1885C1H391JA16D |
| 470pF(471)        | ±5%(J)     |                    | GCM1555C1H471JA16D | GCM1885C2A471JA16D | GCM1885C1H471JA16D |
| 560pF(561)        | ±5%(J)     |                    |                    | GCM1885C2A561JA16D | GCM1885C1H561JA16D |
| 680pF(681)        | ±5%(J)     |                    |                    | GCM1885C2A681JA16D | GCM1885C1H681JA16D |
| 820pF(821)        | ±5%(J)     |                    |                    | GCM1885C2A821JA16D | GCM1885C1H821JA16D |
| 1000pF(102)       | ±5%(J)     |                    |                    | GCM1885C2A102JA16D | GCM1885C1H102JA16D |
| 1200pF(122)       | ±5%(J)     |                    |                    | GCM1885C2A122JA16D | GCM1885C1H122JA16D |
| 1500pF(152)       | ±5%(J)     |                    |                    | GCM1885C2A152JA16D | GCM1885C1H152JA16D |
| 1800pF(182)       | ±5%(J)     |                    |                    |                    | GCM1885C1H182JA16D |
| 2200pF(222)       | ±5%(J)     |                    |                    |                    | GCM1885C1H222JA16D |
| 2700pF(272)       | ±5%(J)     |                    |                    |                    | GCM1885C1H272JA16D |
| 3300pF(332)       | ±5%(J)     |                    |                    |                    | GCM1885C1H332JA16D |
| 3900pF(392)       | ±5%(J)     |                    |                    |                    | GCM1885C1H392JA16D |

The part numbering code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## ● Temperature Compensating Type

| L x W [mm]        |           | 2.0x1.25(21)<0805> |                    | 3.2x1.6(31)<1206>  |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 100(2A)            | 50(1H)             |
| TC                |           | COG(5C)            |                    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 100pF(101)        | ±5%(J)    | GCM2165C2A101JA16D |                    |                    |                    |
| 120pF(121)        | ±5%(J)    | GCM2165C2A121JA16D |                    |                    |                    |
| 150pF(151)        | ±5%(J)    | GCM2165C2A151JA16D |                    |                    |                    |
| 180pF(181)        | ±5%(J)    | GCM2165C2A181JA16D |                    |                    |                    |
| 220pF(221)        | ±5%(J)    | GCM2165C2A221JA16D |                    |                    |                    |
| 270pF(271)        | ±5%(J)    | GCM2165C2A271JA16D |                    |                    |                    |
| 330pF(331)        | ±5%(J)    | GCM2165C2A331JA16D |                    |                    |                    |
| 390pF(391)        | ±5%(J)    | GCM2165C2A391JA16D |                    |                    |                    |
| 470pF(471)        | ±5%(J)    | GCM2165C2A471JA16D |                    |                    |                    |
| 560pF(561)        | ±5%(J)    | GCM2165C2A561JA16D | GCM2165C1H561JA16D |                    |                    |
| 680pF(681)        | ±5%(J)    | GCM2165C2A681JA16D | GCM2165C1H681JA16D |                    |                    |
| 820pF(821)        | ±5%(J)    | GCM2165C2A821JA16D | GCM2165C1H821JA16D |                    |                    |
| 1000pF(102)       | ±5%(J)    | GCM2165C2A102JA16D | GCM2165C1H102JA16D |                    |                    |
| 1200pF(122)       | ±5%(J)    | GCM2165C2A122JA16D | GCM2165C1H122JA16D |                    |                    |
| 1500pF(152)       | ±5%(J)    | GCM2165C2A152JA16D | GCM2165C1H152JA16D |                    |                    |
| 1800pF(182)       | ±5%(J)    | GCM2165C2A182JA16D | GCM2165C1H182JA16D | GCM3195C2A182JA16D |                    |
| 2200pF(222)       | ±5%(J)    | GCM2165C2A222JA16D | GCM2165C1H222JA16D | GCM3195C2A222JA16D |                    |
| 2700pF(272)       | ±5%(J)    | GCM2165C2A272JA16D | GCM2165C1H272JA16D | GCM3195C2A272JA16D |                    |
| 3300pF(332)       | ±5%(J)    | GCM2165C2A332JA16D | GCM2165C1H332JA16D | GCM3195C2A332JA16D |                    |
| 3900pF(392)       | ±5%(J)    |                    | GCM2165C1H392JA16D | GCM3195C2A392JA16D |                    |
| 4700pF(472)       | ±5%(J)    |                    | GCM2165C1H472JA16D | GCM3195C2A472JA16D | GCM3195C1H472JA16D |
| 5600pF(562)       | ±5%(J)    |                    | GCM2195C1H562JA16D | GCM3195C2A562JA16D | GCM3195C1H562JA16D |
| 6800pF(682)       | ±5%(J)    |                    | GCM2195C1H682JA16D | GCM3195C2A682JA16D | GCM3195C1H682JA16D |
| 8200pF(822)       | ±5%(J)    |                    | GCM2195C1H822JA16D | GCM3195C2A822JA16D | GCM3195C1H822JA16D |
| 10000pF(103)      | ±5%(J)    |                    | GCM2195C1H103JA16D | GCM3195C2A103JA16D | GCM3195C1H103JA16D |
| 12000pF(123)      | ±5%(J)    |                    | GCM2195C1H123JA16D |                    | GCM3195C1H123JA16D |
| 15000pF(153)      | ±5%(J)    |                    | GCM2195C1H153JA16D |                    | GCM3195C1H153JA16D |
| 18000pF(183)      | ±5%(J)    |                    | GCM21B5C1H183JA16L |                    | GCM3195C1H183JA16D |
| 22000pF(223)      | ±5%(J)    |                    | GCM21B5C1H223JA16L |                    | GCM3195C1H223JA16D |
| 27000pF(273)      | ±5%(J)    |                    |                    |                    | GCM3195C1H273JA16D |
| 33000pF(333)      | ±5%(J)    |                    |                    |                    | GCM3195C1H333JA16D |
| 39000pF(393)      | ±5%(J)    |                    |                    |                    | GCM3195C1H393JA16D |
| 47000pF(473)      | ±5%(J)    |                    |                    |                    | GCM31M5C1H473JA16L |
| 56000pF(563)      | ±5%(J)    |                    |                    |                    | GCM31M5C1H563JA16L |

The part numbering code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code



● High Dielectric Constant Type

| L x W [mm]        |           | 0.6x0.3(03)<0201>  |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 25(1E)             | 16(1C)             | 10(1A)             |
| TC                |           | X7R(R7)            |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 100pF(101)        | ±10%(K)   | GCM033R71E101KA03D |                    |                    |
| 150pF(151)        | ±10%(K)   | GCM033R71E151KA03D |                    |                    |
| 220pF(221)        | ±10%(K)   | GCM033R71E221KA03D |                    |                    |
| 330pF(331)        | ±10%(K)   | GCM033R71E331KA03D |                    |                    |
| 470pF(471)        | ±10%(K)   | GCM033R71E471KA03D |                    |                    |
| 680pF(681)        | ±10%(K)   | GCM033R71E681KA03D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GCM033R71E102KA03D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GCM033R71E152KA03D |                    |                    |
| 2200pF(222)       | ±10%(K)   |                    | GCM033R71C222KA55D |                    |
| 3300pF(332)       | ±10%(K)   |                    | GCM033R71C332KA55D |                    |
| 4700pF(472)       | ±10%(K)   |                    |                    | GCM033R71A472KA03D |
| 6800pF(682)       | ±10%(K)   |                    |                    | GCM033R71A682KA03D |
| 10000pF(103)      | ±10%(K)   |                    |                    | GCM033R71A103KA03D |

| L x W [mm]        |           | 1.0x0.5(15)<0402>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| TC                |           | X7R(R7)            |                    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 220pF(221)        | ±10%(K)   | GCM155R72A221KA37D | GCM155R71H221KA37D |                    |                    |
| 330pF(331)        | ±10%(K)   | GCM155R72A331KA37D | GCM155R71H331KA37D |                    |                    |
| 470pF(471)        | ±10%(K)   | GCM155R72A471KA37D | GCM155R71H471KA37D |                    |                    |
| 680pF(681)        | ±10%(K)   | GCM155R72A681KA37D | GCM155R71H681KA37D |                    |                    |
| 1000pF(102)       | ±10%(K)   | GCM155R72A102KA37D | GCM155R71H102KA37D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GCM155R72A152KA37D | GCM155R71H152KA37D |                    |                    |
| 2200pF(222)       | ±10%(K)   | GCM155R72A222KA37D | GCM155R71H222KA37D |                    |                    |
| 3300pF(332)       | ±10%(K)   | GCM155R72A332KA37D | GCM155R71H332KA37D |                    |                    |
| 4700pF(472)       | ±10%(K)   | GCM155R72A472KA37D | GCM155R71H472KA37D |                    |                    |
| 6800pF(682)       | ±10%(K)   |                    | GCM155R71H682KA55D |                    |                    |
| 10000pF(103)      | ±10%(K)   |                    | GCM155R71H103KA55D | GCM155R71E103KA37D |                    |
| 15000pF(153)      | ±10%(K)   |                    | GCM155R71H153KA55D | GCM155R71E153KA55D |                    |
| 22000pF(223)      | ±10%(K)   |                    | GCM155R71H223KA55D | GCM155R71E223KA55D |                    |
| 33000pF(333)      | ±10%(K)   |                    |                    | GCM155R71E333KA55D | GCM155R71C333KA37D |
| 47000pF(473)      | ±10%(K)   |                    |                    | GCM155R71E473KA55D | GCM155R71C473KA37D |
| 68000pF(683)      | ±10%(K)   |                    |                    |                    | GCM155R71C683KA55D |
| 0.10μF(104)       | ±10%(K)   |                    |                    |                    | GCM155R71C104KA55D |

The part numbering code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## ● High Dielectric Constant Type

| L x W [mm]        |           | 1.6x0.8(18)<0603>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| TC                |           | X7R(R7)/X7S(C7)    |                    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 1000pF(102)       | ±10%(K)   | GCM188R72A102KA37D | GCM188R71H102KA37D |                    |                    |
| 1500pF(152)       | ±10%(K)   | GCM188R72A152KA37D | GCM188R71H152KA37D |                    |                    |
| 2200pF(222)       | ±10%(K)   | GCM188R72A222KA37D | GCM188R71H222KA37D |                    |                    |
| 3300pF(332)       | ±10%(K)   | GCM188R72A332KA37D | GCM188R71H332KA37D |                    |                    |
| 4700pF(472)       | ±10%(K)   | GCM188R72A472KA37D | GCM188R71H472KA37D |                    |                    |
| 6800pF(682)       | ±10%(K)   | GCM188R72A682KA37D | GCM188R71H682KA37D |                    |                    |
| 10000pF(103)      | ±10%(K)   | GCM188R72A103KA37D | GCM188R71H103KA37D |                    |                    |
| 15000pF(153)      | ±10%(K)   | GCM188R72A153KA37D | GCM188R71H153KA37D |                    |                    |
| 22000pF(223)      | ±10%(K)   | GCM188R72A223KA37D | GCM188R71H223KA37D |                    |                    |
| 33000pF(333)      | ±10%(K)   |                    | GCM188R71H333KA55D | GCM188R71E333KA37D |                    |
| 47000pF(473)      | ±10%(K)   |                    | GCM188R71H473KA55D | GCM188R71E473KA37D |                    |
| 68000pF(683)      | ±10%(K)   |                    | GCM188R71H683KA57D | GCM188R71E683KA57D |                    |
| 0.10μF(104)       | ±10%(K)   | GCM188R72A104KA64D | GCM188R71H104KA57D | GCM188R71E104KA57D | GCM188R71C104KA37D |
| 0.15μF(154)       | ±10%(K)   |                    | GCM188R71H154KA64D | GCM188R71E154KA37D |                    |
| 0.22μF(224)       | ±10%(K)   |                    | GCM188R71H224KA64D | GCM188R71E224KA55D |                    |
| 0.33μF(334)       | ±10%(K)   |                    |                    |                    | GCM188R71C334KA37D |
| 0.47μF(474)       | ±10%(K)   |                    |                    | GCM188R71E474KA64D | GCM188R71C474KA55D |
| 0.68μF(684)       | ±10%(K)   |                    |                    |                    | GCM188C71C684KA64D |
| 1.0μF(105)        | ±10%(K)   |                    |                    | GCM188R71E105KA64D | GCM188R71C105KA64D |

| L x W [mm]        |           | 1.6x0.8(18)<0603>  |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 6.3(0J)            |  |
| TC                |           | X7R(R7)            |  |
| Capacitance       | Tolerance | Part Number        |  |
| 2.2μF(225)        | ±10%(K)   | GCM188R70J225KE22D |  |

| L x W [mm]        |           | 2.0x1.25(21)<0805> |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 35(YA)             | 25(1E)             |
| TC                |           | X7R(R7)            |                    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 6800pF(682)       | ±10%(K)   | GCM216R72A682KA37D |                    |                    |                    |
| 10000pF(103)      | ±10%(K)   | GCM216R72A103KA37D |                    |                    |                    |
| 15000pF(153)      | ±10%(K)   | GCM216R72A153KA37D |                    |                    |                    |
| 22000pF(223)      | ±10%(K)   | GCM216R72A223KA37D |                    |                    |                    |
| 33000pF(333)      | ±10%(K)   | GCM219R72A333KA37D | GCM219R71H333KA37D |                    |                    |
| 47000pF(473)      | ±10%(K)   | GCM21BR72A473KA37L | GCM21BR71H473KA37L |                    |                    |
| 68000pF(683)      | ±10%(K)   | GCM21BR72A683KA37L | GCM21BR71H683KA37L |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GCM21BR72A104KA37L | GCM21BR71H104KA37L |                    |                    |
| 0.15μF(154)       | ±10%(K)   |                    | GCM21BR71H154KA37L |                    | GCM21BR71E154KA37L |
| 0.22μF(224)       | ±10%(K)   |                    | GCM21BR71H224KA37L |                    | GCM21BR71E224KA37L |
| 0.33μF(334)       | ±10%(K)   |                    | GCM219R71H334KA55D |                    | GCM21BR71E334KA37L |
| 0.47μF(474)       | ±10%(K)   |                    | GCM21BR71H474KA55L |                    | GCM219R71E474KA55D |
| 0.68μF(684)       | ±10%(K)   |                    |                    | GCM21BR7YA684KA55L | GCM21BR71E684KA55L |
| 1.0μF(105)        | ±10%(K)   |                    |                    | GCM21BR7YA105KA55L | GCM21BR71E105KA56L |
| 2.2μF(225)        | ±10%(K)   |                    |                    |                    | GCM21BR71E225KA73L |

The part numbering code is shown in ( ) and Unit is shown in [ ]. &lt; &gt;: EIA [inch] Code

● High Dielectric Constant Type

|                   |           |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|
| L x W [mm]        |           | 2.0x1.25(21)<0805> |                    |                    |
| Rated Volt. [Vdc] |           | 16(1C)             | 10(1A)             | 6.3(0J)            |
| TC                |           | X7R(R7)/X7S(C7)    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |
| 0.68μF(684)       | ±10%(K)   | GCM219R71C684KA37D |                    |                    |
| 1.0μF(105)        | ±10%(K)   | GCM219R71C105KA37D |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GCM21BR71C225KA64L | GCM21BR71A225KA37L |                    |
| 4.7μF(475)        | ±10%(K)   | GCM21BR71C475KA73L | GCM21BC71A475KA73L |                    |
| 10μF(106)         | ±10%(K)   |                    |                    | GCM21BR70J106KE22L |

|                   |           |                    |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| L x W [mm]        |           | 3.2x1.6(31)<1206>  |                    |                    |                    |
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| TC                |           | X7R(R7)            |                    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 0.10μF(104)       | ±10%(K)   | GCM319R72A104KA37D |                    |                    |                    |
| 0.15μF(154)       | ±10%(K)   | GCM31MR72A154KA37L |                    |                    |                    |
| 0.22μF(224)       | ±10%(K)   | GCM31MR72A224KA37L |                    |                    |                    |
| 0.33μF(334)       | ±10%(K)   |                    | GCM31MR71H334KA37L |                    |                    |
| 0.47μF(474)       | ±10%(K)   |                    | GCM31MR71H474KA37L |                    |                    |
| 0.68μF(684)       | ±10%(K)   |                    | GCM31MR71H684KA55L |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    | GCM31MR71H105KA55L |                    |                    |
| 2.2μF(225)        | ±10%(K)   |                    | GCM31CR71H225KA55L | GCM31MR71E225KA57L |                    |
| 4.7μF(475)        | ±10%(K)   |                    |                    | GCM31CR71E475KA55L | GCM31CR71C475KA37L |
| 10μF(106)         | ±10%(K)   |                    |                    |                    | GCM31CR71C106KA64L |

|                   |           |                    |                    |
|-------------------|-----------|--------------------|--------------------|
| L x W [mm]        |           | 3.2x1.6(31)<1206>  |                    |
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            |
| TC                |           | X7R(R7)            |                    |
| Capacitance       | Tolerance | Part Number        |                    |
| 10μF(106)         | ±10%(K)   | GCM31CR71A106KA64L |                    |
| 22μF(226)         | ±20%(M)   |                    | GCM31CR70J226ME23L |

|                   |           |                    |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| L x W [mm]        |           | 3.2x2.5(32)<1210>  |                    |                    |                    |
| Rated Volt. [Vdc] |           | 100(2A)            | 50(1H)             | 25(1E)             | 16(1C)             |
| TC                |           | X7R(R7)            |                    |                    |                    |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 1.0μF(105)        | ±10%(K)   |                    | GCM32ER71H105KA37L |                    |                    |
| 2.2μF(225)        | ±10%(K)   | GCM32DR72A225KA64L |                    |                    |                    |
| 4.7μF(475)        | ±10%(K)   |                    | GCM32ER71H475KA55L | GCM32DR71E475KA55L |                    |
| 10μF(106)         | ±10%(K)   |                    |                    | GCM32ER71E106KA57L | GCM32DR71C106KA37L |
| 22μF(226)         | ±20%(M)   |                    |                    |                    | GCM32ER71C226ME19L |

|                   |           |                    |                    |
|-------------------|-----------|--------------------|--------------------|
| L x W [mm]        |           | 3.2x2.5(32)<1210>  |                    |
| Rated Volt. [Vdc] |           | 10(1A)             | 6.3(0J)            |
| TC                |           | X7R(R7)            |                    |
| Capacitance       | Tolerance | Part Number        |                    |
| 22μF(226)         | ±20%(M)   | GCM32ER71A226ME12L |                    |
| 47μF(476)         | ±20%(M)   |                    | GCM32ER70J476ME19L |

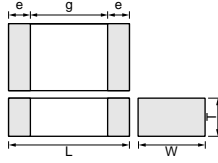
The part numbering code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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# Monolithic Ceramic Capacitors for Medium Voltage

Low Dissipation Factor

1  
Capacitors



| Part Number | Dimensions (mm) |           |              |        |        |
|-------------|-----------------|-----------|--------------|--------|--------|
|             | L               | W         | T            | e min. | g min. |
| GRM21A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0,-0.3  | 0.3    | 0.7    |
| GRM31A      | 3.2 ±0.2        | 1.6 ±0.2  | 1.25 +0,-0.3 |        | 1.5*   |
| GRM31B      |                 |           | 1.0 +0,-0.3  |        |        |
| GRM32A      | 3.2 ±0.2        | 2.5 ±0.2  | 1.25 +0,-0.3 |        |        |
| GRM32B      |                 |           | 1.0 +0,-0.3  |        |        |
| GRM42A      | 4.5 ±0.3        | 2.0 ±0.2  | 1.0 +0,-0.3  |        | 2.9    |

\* GRM31A7U3D, GRM32A7U3D, GRM32B7U3D : 1.8mm min.

## ● COG Characteristics

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GRM31A5C2J101JW01D | DC630             | COG (EIA)          | 100 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J121JW01D | DC630             | COG (EIA)          | 120 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J151JW01D | DC630             | COG (EIA)          | 150 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J181JW01D | DC630             | COG (EIA)          | 180 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J221JW01D | DC630             | COG (EIA)          | 220 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J271JW01D | DC630             | COG (EIA)          | 270 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J331JW01D | DC630             | COG (EIA)          | 330 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J391JW01D | DC630             | COG (EIA)          | 390 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J471JW01D | DC630             | COG (EIA)          | 470 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A5C2J561JW01D | DC630             | COG (EIA)          | 560 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31B5C2J681JW01L | DC630             | COG (EIA)          | 680 ±5%          | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31B5C2J821JW01L | DC630             | COG (EIA)          | 820 ±5%          | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31B5C2J102JW01L | DC630             | COG (EIA)          | 1000 ±5%         | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.  
Only tape packaging is available.

## ● U2J Characteristics

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GRM21A7U2E101JW31D | DC250             | U2J (EIA)          | 100 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E121JW31D | DC250             | U2J (EIA)          | 120 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E151JW31D | DC250             | U2J (EIA)          | 150 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E181JW31D | DC250             | U2J (EIA)          | 180 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E221JW31D | DC250             | U2J (EIA)          | 220 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E271JW31D | DC250             | U2J (EIA)          | 270 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E331JW31D | DC250             | U2J (EIA)          | 330 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E391JW31D | DC250             | U2J (EIA)          | 390 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E471JW31D | DC250             | U2J (EIA)          | 470 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E561JW31D | DC250             | U2J (EIA)          | 560 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E681JW31D | DC250             | U2J (EIA)          | 680 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E821JW31D | DC250             | U2J (EIA)          | 820 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E102JW31D | DC250             | U2J (EIA)          | 1000 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E122JW31D | DC250             | U2J (EIA)          | 1200 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E152JW31D | DC250             | U2J (EIA)          | 1500 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E182JW31D | DC250             | U2J (EIA)          | 1800 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21A7U2E222JW31D | DC250             | U2J (EIA)          | 2200 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM31A7U2E272JW31D | DC250             | U2J (EIA)          | 2700 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |

Continued on the following page.

Continued from the preceding page.

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GRM31A7U2E332JW31D | DC250             | U2J (EIA)          | 3300 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2E392JW31D | DC250             | U2J (EIA)          | 3900 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2E472JW31D | DC250             | U2J (EIA)          | 4700 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2E562JW31D | DC250             | U2J (EIA)          | 5600 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31B7U2E682JW31L | DC250             | U2J (EIA)          | 6800 ±5%         | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31B7U2E822JW31L | DC250             | U2J (EIA)          | 8200 ±5%         | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31B7U2E103JW31L | DC250             | U2J (EIA)          | 10000 ±5%        | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31A7U2J100JW31D | DC630             | U2J (EIA)          | 10 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J120JW31D | DC630             | U2J (EIA)          | 12 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J150JW31D | DC630             | U2J (EIA)          | 15 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J180JW31D | DC630             | U2J (EIA)          | 18 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J220JW31D | DC630             | U2J (EIA)          | 22 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J270JW31D | DC630             | U2J (EIA)          | 27 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J330JW31D | DC630             | U2J (EIA)          | 33 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J390JW31D | DC630             | U2J (EIA)          | 39 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J470JW31D | DC630             | U2J (EIA)          | 47 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J560JW31D | DC630             | U2J (EIA)          | 56 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J680JW31D | DC630             | U2J (EIA)          | 68 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J820JW31D | DC630             | U2J (EIA)          | 82 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J101JW31D | DC630             | U2J (EIA)          | 100 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J121JW31D | DC630             | U2J (EIA)          | 120 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J151JW31D | DC630             | U2J (EIA)          | 150 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J181JW31D | DC630             | U2J (EIA)          | 180 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J221JW31D | DC630             | U2J (EIA)          | 220 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J271JW31D | DC630             | U2J (EIA)          | 270 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J331JW31D | DC630             | U2J (EIA)          | 330 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J391JW31D | DC630             | U2J (EIA)          | 390 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J471JW31D | DC630             | U2J (EIA)          | 470 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J561JW31D | DC630             | U2J (EIA)          | 560 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J681JW31D | DC630             | U2J (EIA)          | 680 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J821JW31D | DC630             | U2J (EIA)          | 820 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U2J102JW31D | DC630             | U2J (EIA)          | 1000 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM32A7U2J122JW31D | DC630             | U2J (EIA)          | 1200 ±5%         | 3.2           | 2.5          | 1.0              | 1.5                     | 0.3 min.         |
| GRM32A7U2J152JW31D | DC630             | U2J (EIA)          | 1500 ±5%         | 3.2           | 2.5          | 1.0              | 1.5                     | 0.3 min.         |
| GRM32A7U2J182JW31D | DC630             | U2J (EIA)          | 1800 ±5%         | 3.2           | 2.5          | 1.0              | 1.5                     | 0.3 min.         |
| GRM32A7U2J222JW31D | DC630             | U2J (EIA)          | 2200 ±5%         | 3.2           | 2.5          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A100JW31D | DC1000            | U2J (EIA)          | 10 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A120JW31D | DC1000            | U2J (EIA)          | 12 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A150JW31D | DC1000            | U2J (EIA)          | 15 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A180JW31D | DC1000            | U2J (EIA)          | 18 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A220JW31D | DC1000            | U2J (EIA)          | 22 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A270JW31D | DC1000            | U2J (EIA)          | 27 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A330JW31D | DC1000            | U2J (EIA)          | 33 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A390JW31D | DC1000            | U2J (EIA)          | 39 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A470JW31D | DC1000            | U2J (EIA)          | 47 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A560JW31D | DC1000            | U2J (EIA)          | 56 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A680JW31D | DC1000            | U2J (EIA)          | 68 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A820JW31D | DC1000            | U2J (EIA)          | 82 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A101JW31D | DC1000            | U2J (EIA)          | 100 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A121JW31D | DC1000            | U2J (EIA)          | 120 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A151JW31D | DC1000            | U2J (EIA)          | 150 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A181JW31D | DC1000            | U2J (EIA)          | 180 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A221JW31D | DC1000            | U2J (EIA)          | 220 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A271JW31D | DC1000            | U2J (EIA)          | 270 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GRM31A7U3A331JW31D | DC1000            | U2J (EIA)          | 330 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

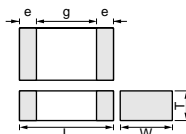
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| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GRM31B7U3A391JW31L | DC1000            | U2J (EIA)          | 390 ±5%          | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31B7U3A471JW31L | DC1000            | U2J (EIA)          | 470 ±5%          | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GRM31A7U3D100JW31D | DC2000            | U2J (EIA)          | 10 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D120JW31D | DC2000            | U2J (EIA)          | 12 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D150JW31D | DC2000            | U2J (EIA)          | 15 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D180JW31D | DC2000            | U2J (EIA)          | 18 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D220JW31D | DC2000            | U2J (EIA)          | 22 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D270JW31D | DC2000            | U2J (EIA)          | 27 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D330JW31D | DC2000            | U2J (EIA)          | 33 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D390JW31D | DC2000            | U2J (EIA)          | 39 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D470JW31D | DC2000            | U2J (EIA)          | 47 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D560JW31D | DC2000            | U2J (EIA)          | 56 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM31A7U3D680JW31D | DC2000            | U2J (EIA)          | 68 ±5%           | 3.2           | 1.6          | 1.0              | 1.8                     | 0.3 min.         |
| GRM32A7U3D820JW31D | DC2000            | U2J (EIA)          | 82 ±5%           | 3.2           | 2.5          | 1.0              | 1.8                     | 0.3 min.         |
| GRM32A7U3D101JW31D | DC2000            | U2J (EIA)          | 100 ±5%          | 3.2           | 2.5          | 1.0              | 1.8                     | 0.3 min.         |
| GRM32A7U3D121JW31D | DC2000            | U2J (EIA)          | 120 ±5%          | 3.2           | 2.5          | 1.0              | 1.8                     | 0.3 min.         |
| GRM32A7U3D151JW31D | DC2000            | U2J (EIA)          | 150 ±5%          | 3.2           | 2.5          | 1.0              | 1.8                     | 0.3 min.         |
| GRM32B7U3D181JW31L | DC2000            | U2J (EIA)          | 180 ±5%          | 3.2           | 2.5          | 1.25             | 1.8                     | 0.3 min.         |
| GRM32B7U3D221JW31L | DC2000            | U2J (EIA)          | 220 ±5%          | 3.2           | 2.5          | 1.25             | 1.8                     | 0.3 min.         |
| GRM42A7U3F270JW31L | DC3150            | U2J (EIA)          | 27 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F330JW31L | DC3150            | U2J (EIA)          | 33 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F390JW31L | DC3150            | U2J (EIA)          | 39 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F470JW31L | DC3150            | U2J (EIA)          | 47 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F560JW31L | DC3150            | U2J (EIA)          | 56 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F680JW31L | DC3150            | U2J (EIA)          | 68 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F820JW31L | DC3150            | U2J (EIA)          | 82 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| GRM42A7U3F101JW31L | DC3150            | U2J (EIA)          | 100 ±5%          | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.  
Only tape packaging is available.

## Monolithic Ceramic Capacitors for Medium Voltage

High Capacitance for General Use



| Part Number | Dimensions (mm) |           |               |            |          |     |
|-------------|-----------------|-----------|---------------|------------|----------|-----|
|             | L               | W         | T             | e          | g min.   |     |
| GRM188      | 1.6 ±0.1        | 0.8 ±0.1  | 0.8 ±0.1      | 0.2 to 0.5 | 0.4      |     |
| GRM21A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0, -0.3  |            | 0.3 min. | 0.7 |
| GRM21B      |                 |           | 1.25 ±0.2     |            |          |     |
| GRM31B      | 3.2 ±0.2        | 1.6 ±0.2  | 1.25 +0, -0.3 | 1.2        |          |     |
| GRM31C      |                 |           | 1.6 ±0.2      |            |          |     |
| GRM32Q      | 3.2 ±0.3        | 2.5 ±0.2  | 1.5 +0, -0.3  | 2.2        |          |     |
| GRM32D      |                 |           | 2.0 +0, -0.3  |            |          |     |
| GRM43Q      | 4.5 ±0.4        | 3.2 ±0.3  | 1.5 +0, -0.3  | 3.2        |          |     |
| GRM43D      |                 |           | 2.0 +0, -0.3  |            |          |     |
| GRM55D      | 5.7 ±0.4        | 5.0 ±0.4  | 2.0 +0, -0.3  |            |          |     |

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|-------------|---------------|--------------|------------------|-------------------------|------------------|
| GRM188R72E221KW07D | DC250             | X7R (EIA)          | 220pF ±10%  | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |
| GRM188R72E331KW07D | DC250             | X7R (EIA)          | 330pF ±10%  | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |
| GRM188R72E471KW07D | DC250             | X7R (EIA)          | 470pF ±10%  | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |
| GRM188R72E681KW07D | DC250             | X7R (EIA)          | 680pF ±10%  | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |
| GRM188R72E102KW07D | DC250             | X7R (EIA)          | 1000pF ±10% | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |

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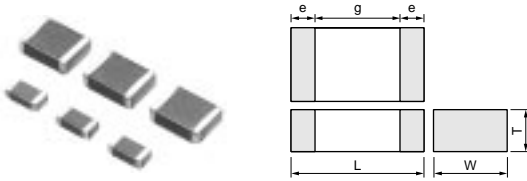
| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance  | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|--------------|---------------|--------------|------------------|-------------------------|------------------|
| GRM21AR72E102KW01D | DC250             | X7R (EIA)          | 1000pF ±10%  | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM188R72E152KW07D | DC250             | X7R (EIA)          | 1500pF ±10%  | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |
| GRM21AR72E152KW01D | DC250             | X7R (EIA)          | 1500pF ±10%  | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM188R72E222KW07D | DC250             | X7R (EIA)          | 2200pF ±10%  | 1.6           | 0.8          | 0.8              | 0.4                     | 0.2 to 0.5       |
| GRM21AR72E222KW01D | DC250             | X7R (EIA)          | 2200pF ±10%  | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21AR72E332KW01D | DC250             | X7R (EIA)          | 3300pF ±10%  | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21AR72E472KW01D | DC250             | X7R (EIA)          | 4700pF ±10%  | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21AR72E682KW01D | DC250             | X7R (EIA)          | 6800pF ±10%  | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GRM21BR72E103KW03L | DC250             | X7R (EIA)          | 10000pF ±10% | 2.0           | 1.25         | 1.25             | 0.7                     | 0.3 min.         |
| GRM31BR72E153KW01L | DC250             | X7R (EIA)          | 15000pF ±10% | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72E223KW01L | DC250             | X7R (EIA)          | 22000pF ±10% | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31CR72E333KW03L | DC250             | X7R (EIA)          | 33000pF ±10% | 3.2           | 1.6          | 1.6              | 1.2                     | 0.3 min.         |
| GRM31CR72E473KW03L | DC250             | X7R (EIA)          | 47000pF ±10% | 3.2           | 1.6          | 1.6              | 1.2                     | 0.3 min.         |
| GRM31BR72E683KW01L | DC250             | X7R (EIA)          | 68000pF ±10% | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM32QR72E683KW01L | DC250             | X7R (EIA)          | 68000pF ±10% | 3.2           | 2.5          | 1.5              | 1.2                     | 0.3 min.         |
| GRM31CR72E104KW03L | DC250             | X7R (EIA)          | 0.10μF ±10%  | 3.2           | 1.6          | 1.6              | 1.2                     | 0.3 min.         |
| GRM32DR72E104KW01L | DC250             | X7R (EIA)          | 0.10μF ±10%  | 3.2           | 2.5          | 2.0              | 1.2                     | 0.3 min.         |
| GRM32QR72E154KW01L | DC250             | X7R (EIA)          | 0.15μF ±10%  | 3.2           | 2.5          | 1.5              | 1.2                     | 0.3 min.         |
| GRM43QR72E154KW01L | DC250             | X7R (EIA)          | 0.15μF ±10%  | 4.5           | 3.2          | 1.5              | 2.2                     | 0.3 min.         |
| GRM32DR72E224KW01L | DC250             | X7R (EIA)          | 0.22μF ±10%  | 3.2           | 2.5          | 2.0              | 1.2                     | 0.3 min.         |
| GRM43DR72E224KW01L | DC250             | X7R (EIA)          | 0.22μF ±10%  | 4.5           | 3.2          | 2.0              | 2.2                     | 0.3 min.         |
| GRM43DR72E334KW01L | DC250             | X7R (EIA)          | 0.33μF ±10%  | 4.5           | 3.2          | 2.0              | 2.2                     | 0.3 min.         |
| GRM55DR72E334KW01L | DC250             | X7R (EIA)          | 0.33μF ±10%  | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |
| GRM43DR72E474KW01L | DC250             | X7R (EIA)          | 0.47μF ±10%  | 4.5           | 3.2          | 2.0              | 2.2                     | 0.3 min.         |
| GRM55DR72E474KW01L | DC250             | X7R (EIA)          | 0.47μF ±10%  | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |
| GRM55DR72E105KW01L | DC250             | X7R (EIA)          | 1.0μF ±10%   | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |
| GRM31BR72J102KW01L | DC630             | X7R (EIA)          | 1000pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72J152KW01L | DC630             | X7R (EIA)          | 1500pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72J222KW01L | DC630             | X7R (EIA)          | 2200pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72J332KW01L | DC630             | X7R (EIA)          | 3300pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72J472KW01L | DC630             | X7R (EIA)          | 4700pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72J682KW01L | DC630             | X7R (EIA)          | 6800pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR72J103KW01L | DC630             | X7R (EIA)          | 10000pF ±10% | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31CR72J153KW03L | DC630             | X7R (EIA)          | 15000pF ±10% | 3.2           | 1.6          | 1.6              | 1.2                     | 0.3 min.         |
| GRM32QR72J223KW01L | DC630             | X7R (EIA)          | 22000pF ±10% | 3.2           | 2.5          | 1.5              | 1.2                     | 0.3 min.         |
| GRM32DR72J333KW01L | DC630             | X7R (EIA)          | 33000pF ±10% | 3.2           | 2.5          | 2.0              | 1.2                     | 0.3 min.         |
| GRM32DR72J473KW01L | DC630             | X7R (EIA)          | 47000pF ±10% | 3.2           | 2.5          | 2.0              | 1.2                     | 0.3 min.         |
| GRM43QR72J683KW01L | DC630             | X7R (EIA)          | 68000pF ±10% | 4.5           | 3.2          | 1.5              | 2.2                     | 0.3 min.         |
| GRM43DR72J104KW01L | DC630             | X7R (EIA)          | 0.10μF ±10%  | 4.5           | 3.2          | 2.0              | 2.2                     | 0.3 min.         |
| GRM55DR72J154KW01L | DC630             | X7R (EIA)          | 0.15μF ±10%  | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |
| GRM55DR72J224KW01L | DC630             | X7R (EIA)          | 0.22μF ±10%  | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |
| GRM31BR73A471KW01L | DC1000            | X7R (EIA)          | 470pF ±10%   | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR73A102KW01L | DC1000            | X7R (EIA)          | 1000pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR73A152KW01L | DC1000            | X7R (EIA)          | 1500pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR73A222KW01L | DC1000            | X7R (EIA)          | 2200pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR73A332KW01L | DC1000            | X7R (EIA)          | 3300pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM31BR73A472KW01L | DC1000            | X7R (EIA)          | 4700pF ±10%  | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GRM32QR73A682KW01L | DC1000            | X7R (EIA)          | 6800pF ±10%  | 3.2           | 2.5          | 1.5              | 1.2                     | 0.3 min.         |
| GRM32QR73A103KW01L | DC1000            | X7R (EIA)          | 10000pF ±10% | 3.2           | 2.5          | 1.5              | 1.2                     | 0.3 min.         |
| GRM32DR73A153KW01L | DC1000            | X7R (EIA)          | 15000pF ±10% | 3.2           | 2.5          | 2.0              | 1.2                     | 0.3 min.         |
| GRM32DR73A223KW01L | DC1000            | X7R (EIA)          | 22000pF ±10% | 3.2           | 2.5          | 2.0              | 1.2                     | 0.3 min.         |
| GRM43DR73A333KW01L | DC1000            | X7R (EIA)          | 33000pF ±10% | 4.5           | 3.2          | 2.0              | 2.2                     | 0.3 min.         |
| GRM43DR73A473KW01L | DC1000            | X7R (EIA)          | 47000pF ±10% | 4.5           | 3.2          | 2.0              | 2.2                     | 0.3 min.         |
| GRM55DR73A104KW01L | DC1000            | X7R (EIA)          | 0.10μF ±10%  | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.  
Only tape packaging is available.

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Monolithic Ceramic Capacitors for Medium Voltage

Only for LCD Backlight Inverter Circuit



| Part Number   | Dimensions (mm) |          |              |        |        |
|---------------|-----------------|----------|--------------|--------|--------|
|               | L               | W        | T            | e min. | g min. |
| <b>GRM42A</b> | 4.5 ±0.3        | 2.0 ±0.2 | 1.0 +0, -0.3 | 0.3    | 2.9    |

| Part Number               | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|---------------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| <b>GRM42A5C3F050DW01L</b> | DC3150            | C0G (EIA)          | 5.0 ±0.5pF       | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F100JW01L</b> | DC3150            | C0G (EIA)          | 10 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F120JW01L</b> | DC3150            | C0G (EIA)          | 12 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F150JW01L</b> | DC3150            | C0G (EIA)          | 15 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F180JW01L</b> | DC3150            | C0G (EIA)          | 18 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F220JW01L</b> | DC3150            | C0G (EIA)          | 22 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F270JW01L</b> | DC3150            | C0G (EIA)          | 27 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F330JW01L</b> | DC3150            | C0G (EIA)          | 33 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F390JW01L</b> | DC3150            | C0G (EIA)          | 39 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |
| <b>GRM42A5C3F470JW01L</b> | DC3150            | C0G (EIA)          | 47 ±5%           | 4.5           | 2.0          | 1.0              | 2.9                     | 0.3 min.         |

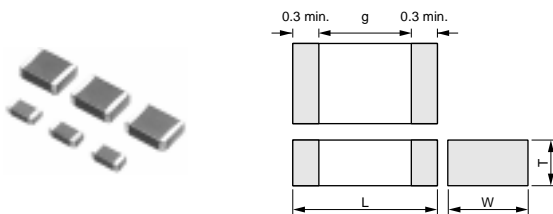
Operating Temperature Range: -55 to +125deg.

These items are designed specifically for LCD backlight inverter circuit.

Only tape packaging is available.

# Monolithic Ceramic Capacitors for Medium Voltage

Only for Information Devices



| Part Number   | Dimensions (mm) |          |              |        |
|---------------|-----------------|----------|--------------|--------|
|               | L               | W        | T            | g min. |
| <b>GR442Q</b> | 4.5 ±0.3        | 2.0 ±0.2 | 1.5 +0, -0.3 | 2.5    |
| <b>GR443D</b> | 4.5 ±0.4        | 3.2 ±0.3 | 2.0 +0, -0.3 |        |
| <b>GR443Q</b> |                 |          | 1.5 +0, -0.3 |        |
| <b>GR455D</b> | 5.7 ±0.4        | 5.0 ±0.4 | 2.0 +0, -0.3 | 3.2    |

| Part Number               | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|---------------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| <b>GR442QR73D101KW01L</b> | DC2000            | X7R (EIA)          | 100 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GR442QR73D121KW01L</b> | DC2000            | X7R (EIA)          | 120 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GR442QR73D151KW01L</b> | DC2000            | X7R (EIA)          | 150 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GR442QR73D181KW01L</b> | DC2000            | X7R (EIA)          | 180 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GR442QR73D221KW01L</b> | DC2000            | X7R (EIA)          | 220 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GR442QR73D271KW01L</b> | DC2000            | X7R (EIA)          | 270 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |

Continued on the following page.

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.



Continued from the preceding page.

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GR442QR73D331KW01L | DC2000            | X7R (EIA)          | 330 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D391KW01L | DC2000            | X7R (EIA)          | 390 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D471KW01L | DC2000            | X7R (EIA)          | 470 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D561KW01L | DC2000            | X7R (EIA)          | 560 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D681KW01L | DC2000            | X7R (EIA)          | 680 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D821KW01L | DC2000            | X7R (EIA)          | 820 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D102KW01L | DC2000            | X7R (EIA)          | 1000 ±10%        | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D122KW01L | DC2000            | X7R (EIA)          | 1200 ±10%        | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR442QR73D152KW01L | DC2000            | X7R (EIA)          | 1500 ±10%        | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GR443QR73D182KW01L | DC2000            | X7R (EIA)          | 1800 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GR443QR73D222KW01L | DC2000            | X7R (EIA)          | 2200 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GR443QR73D272KW01L | DC2000            | X7R (EIA)          | 2700 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GR443QR73D332KW01L | DC2000            | X7R (EIA)          | 3300 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GR443QR73D392KW01L | DC2000            | X7R (EIA)          | 3900 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GR443DR73D472KW01L | DC2000            | X7R (EIA)          | 4700 ±10%        | 4.5           | 3.2          | 2.0              | 2.5                     | 0.3 min.         |
| GR455DR73D103KW01L | DC2000            | X7R (EIA)          | 10000 ±10%       | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |

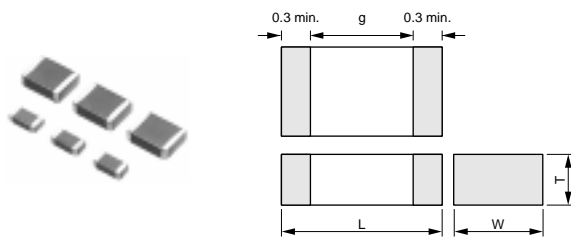
Operating Temperature Range: -55 to +125deg.

These items are designed specifically for telecommunication devices (IEEE802.3) in Ethernet LAN and primary-secondary coupling for DC-DC converter.

Only tape packaging is available.

## Monolithic Ceramic Capacitors for Medium Voltage

Only for Camera Flash Circuit



| Part Number | Dimensions (mm) |          |               |        |
|-------------|-----------------|----------|---------------|--------|
|             | L               | W        | T             | g min. |
| GR731A      | 3.2 ±0.2        | 1.6 ±0.2 | 1.0 +0, -0.3  | 1.2    |
| GR731B      |                 |          | 1.25 +0, -0.3 |        |
| GR731C      |                 |          | 1.6 ±0.2      |        |

| Part Number        | Rated Voltage (V) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GR731AW0BB103KW01D | DC350             | 10000 ±10%       | 3.2           | 1.6          | 1.0              | 1.2                     | 0.3 min.         |
| GR731AW0BB153KW01D | DC350             | 15000 ±10%       | 3.2           | 1.6          | 1.0              | 1.2                     | 0.3 min.         |
| GR731BW0BB223KW01L | DC350             | 22000 ±10%       | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GR731BW0BB333KW01L | DC350             | 33000 ±10%       | 3.2           | 1.6          | 1.25             | 1.2                     | 0.3 min.         |
| GR731CW0BB473KW03L | DC350             | 47000 ±10%       | 3.2           | 1.6          | 1.6              | 1.2                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.

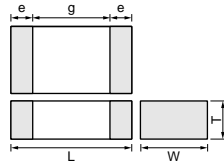
These items are designed specifically for camera flash circuit.

Only tape packaging is available.

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## Monolithic Ceramic Capacitors for Medium Voltage

for Automotive Low Dissipation Factor GCM Series (Power Train, Safety Equipment)



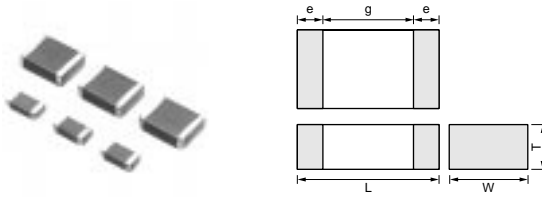
| Part Number | Dimensions (mm) |           |               |        |        |
|-------------|-----------------|-----------|---------------|--------|--------|
|             | L               | W         | T             | e min. | g min. |
| GCM21A      | 2.0 ±0.2        | 1.25 ±0.2 | 1.0 +0, -0.3  | 0.3    | 0.7    |
| GCM31A      | 3.2 ±0.2        | 1.6 ±0.2  |               |        | 1.5    |
| GCM31B      |                 |           | 1.25 +0, -0.3 |        |        |
| GCM32A      | 3.2 ±0.2        | 2.5 ±0.2  | 1.0 +0, -0.3  |        |        |

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GCM21A7U2E101JX01D | DC250             | U2J (EIA)          | 100 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E151JX01D | DC250             | U2J (EIA)          | 150 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E221JX01D | DC250             | U2J (EIA)          | 220 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E331JX01D | DC250             | U2J (EIA)          | 330 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E471JX01D | DC250             | U2J (EIA)          | 470 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E681JX01D | DC250             | U2J (EIA)          | 680 ±5%          | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E102JX01D | DC250             | U2J (EIA)          | 1000 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E152JX01D | DC250             | U2J (EIA)          | 1500 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM21A7U2E222JX01D | DC250             | U2J (EIA)          | 2200 ±5%         | 2.0           | 1.25         | 1.0              | 0.7                     | 0.3 min.         |
| GCM31A7U2E332JX01D | DC250             | U2J (EIA)          | 3300 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2E472JX01D | DC250             | U2J (EIA)          | 4700 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31B7U2E682JX01L | DC250             | U2J (EIA)          | 6800 ±5%         | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GCM31B7U2E103JX01L | DC250             | U2J (EIA)          | 10000 ±5%        | 3.2           | 1.6          | 1.25             | 1.5                     | 0.3 min.         |
| GCM31A7U2J100JX01D | DC630             | U2J (EIA)          | 10 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J150JX01D | DC630             | U2J (EIA)          | 15 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J220JX01D | DC630             | U2J (EIA)          | 22 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J330JX01D | DC630             | U2J (EIA)          | 33 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J470JX01D | DC630             | U2J (EIA)          | 47 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J680JX01D | DC630             | U2J (EIA)          | 68 ±5%           | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J101JX01D | DC630             | U2J (EIA)          | 100 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J151JX01D | DC630             | U2J (EIA)          | 150 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J221JX01D | DC630             | U2J (EIA)          | 220 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J331JX01D | DC630             | U2J (EIA)          | 330 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J471JX01D | DC630             | U2J (EIA)          | 470 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J681JX01D | DC630             | U2J (EIA)          | 680 ±5%          | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM31A7U2J102JX01D | DC630             | U2J (EIA)          | 1000 ±5%         | 3.2           | 1.6          | 1.0              | 1.5                     | 0.3 min.         |
| GCM32A7U2J152JX01D | DC630             | U2J (EIA)          | 1500 ±5%         | 3.2           | 2.5          | 1.0              | 1.5                     | 0.3 min.         |
| GCM32A7U2J222JX01D | DC630             | U2J (EIA)          | 2200 ±5%         | 3.2           | 2.5          | 1.0              | 1.5                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.  
Only tape packaging is available.

# Monolithic Ceramic Capacitors Safety Standard Certified

AC250V Type (Which Meet Japanese Law)



| Part Number | Dimensions (mm) |          |              |        |        |
|-------------|-----------------|----------|--------------|--------|--------|
|             | L               | W        | T            | e min. | g min. |
| GA242Q      | 4.5 ±0.3        | 2.0 ±0.2 | 1.5 +0, -0.3 | 0.3    | 2.5    |
| GA243D      | 4.5 ±0.4        | 3.2 ±0.3 | 2.0 +0, -0.3 |        |        |
| GA243Q      |                 |          | 1.5 +0, -0.3 |        |        |
| GA255D      | 5.7 ±0.4        | 5.0 ±0.4 | 2.0 +0, -0.3 |        |        |

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance  | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|--------------|---------------|--------------|------------------|-------------------------|------------------|
| GA242QR7E2471MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 470pF ±20%   | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GA242QR7E2102MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 1000pF ±20%  | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GA243QR7E2222MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 2200pF ±20%  | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GA243QR7E2332MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 3300pF ±20%  | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GA243DR7E2472MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 4700pF ±20%  | 4.5           | 3.2          | 2.0              | 2.5                     | 0.3 min.         |
| GA243QR7E2103MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 10000pF ±20% | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GA243QR7E2223MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 22000pF ±20% | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| GA243DR7E2473MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 47000pF ±20% | 4.5           | 3.2          | 2.0              | 2.5                     | 0.3 min.         |
| GA255DR7E2104MW01L | AC250 (r.m.s.)    | X7R (EIA)          | 0.10μF ±20%  | 5.7           | 5.0          | 2.0              | 3.2                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.

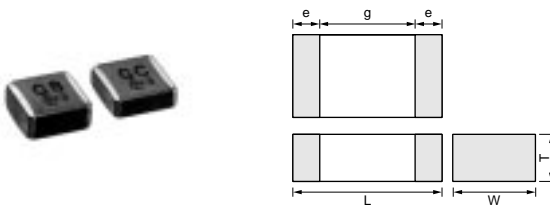
Dielectric Strength: Nominal Capacitance C>=10000pF AC575V (r.m.s), 60±1s. Nominal Capacitance C<10000pF AC1500V (r.m.s.) 60±1s.

Only tape packaging is available.

# Monolithic Ceramic Capacitors Safety Standard Certified

Type GC (UL, IEC60384-14 Class X1/Y2)

Standard Certification



| Part Number | Dimensions (mm) |          |          |        |        |
|-------------|-----------------|----------|----------|--------|--------|
|             | L               | W        | T        | e min. | g min. |
| GA355D      | 5.7 ±0.4        | 5.0 ±0.4 | 2.0 ±0.3 | 0.3    | 4.0    |

|       | Standard No.                                   | Class        | Rated Voltage   |
|-------|--|--------------|-----------------|
| UL    | UL1414   | Line By-pass | AC250V (r.m.s.) |
| VDE   | IEC 60384-14<br>EN 60384-14                    | X1, Y2       |                 |
| BSI   | EN 60065 (14.2)<br>IEC 60384-14<br>EN 60384-14 |              |                 |
| SEMKO | IEC 60384-14<br>EN 60384-14                    |              |                 |
| ESTI  | EN 60065<br>IEC 60384-14                       |              |                 |

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GA355DR7GC101KY02L | AC250 (r.m.s.)    | X7R (EIA)          | 100 ±10%         | 5.7           | 5.0          | 2.0              | 4.0                     | 0.3 min.         |
| GA355DR7GC151KY02L | AC250 (r.m.s.)    | X7R (EIA)          | 150 ±10%         | 5.7           | 5.0          | 2.0              | 4.0                     | 0.3 min.         |
| GA355DR7GC221KY02L | AC250 (r.m.s.)    | X7R (EIA)          | 220 ±10%         | 5.7           | 5.0          | 2.0              | 4.0                     | 0.3 min.         |
| GA355DR7GC331KY02L | AC250 (r.m.s.)    | X7R (EIA)          | 330 ±10%         | 5.7           | 5.0          | 2.0              | 4.0                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg. (UL std.: -55 to +85deg.)

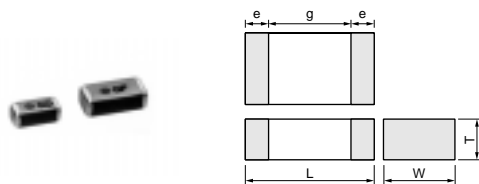
Dielectric Strength: AC1500V(r.m.s.), 60±1s.

Only tape packaging is available.

△Note • This PDF catalog is downloaded from the website of Murata Manufacturing co., ltd. Therefore, it's specifications are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.  
• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## Monolithic Ceramic Capacitors Safety Standard Certified

Type GD (IEC60384-14 Class Y3)



### Standard Certification

|       | Standard No.                | Class | Rated Voltage  |
|-------|-----------------------------|-------|----------------|
| UL    | UL 60950-1                  | Y3    | AC250V(r.m.s.) |
| SEMKO | IEC 60384-14<br>EN 60384-14 |       |                |

### Applications

| Size                | Switching power supplies | Communication network devices such as a modem |
|---------------------|--------------------------|---|
| 4.5×3.2mm and under | —                        | ◎   |

| Part Number   | Dimensions (mm) |          |              |        |        |
|---------------|-----------------|----------|--------------|--------|--------|
|               | L               | W        | T            | e min. | g min. |
| <b>GA342A</b> | 4.5 ±0.3        | 2.0 ±0.2 | 1.0 +0, -0.3 | 0.3    | 2.5    |
| <b>GA342D</b> |                 |          | 2.0 ±0.3     |        |        |
| <b>GA342Q</b> |                 |          | 1.5 +0, -0.3 |        |        |
| <b>GA343D</b> | 4.5 ±0.4        | 3.2 ±0.3 | 2.0 +0, -0.3 |        |        |
| <b>GA343Q</b> |                 |          | 1.5 +0, -0.3 |        |        |

| Part Number               | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|---------------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| <b>GA342D1XGD100JY02L</b> | AC250 (r.m.s.)    | SL (JIS)           | 10 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| <b>GA342D1XGD120JY02L</b> | AC250 (r.m.s.)    | SL (JIS)           | 12 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| <b>GA342D1XGD150JY02L</b> | AC250 (r.m.s.)    | SL (JIS)           | 15 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| <b>GA342D1XGD180JY02L</b> | AC250 (r.m.s.)    | SL (JIS)           | 18 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| <b>GA342D1XGD220JY02L</b> | AC250 (r.m.s.)    | SL (JIS)           | 22 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD270JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 27 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD330JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 33 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD390JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 39 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD470JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 47 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD560JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 56 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD680JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 68 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342A1XGD820JW31L</b> | AC250 (r.m.s.)    | SL (JIS)           | 82 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD101KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 100 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD151KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 150 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD221KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 220 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD331KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 330 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD471KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 470 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD681KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 680 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD102KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 1000 ±10%        | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA342QR7GD152KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 1500 ±10%        | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA343QR7GD182KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 1800 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA343QR7GD222KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 2200 ±10%        | 4.5           | 3.2          | 1.5              | 2.5                     | 0.3 min.         |
| <b>GA343DR7GD472KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 4700 ±10%        | 4.5           | 3.2          | 2.0              | 2.5                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.

Dielectric Strength: AC1500V(r.m.s.), 60±1s.

Only tape packaging is available.

# Monolithic Ceramic Capacitors Safety Standard Certified

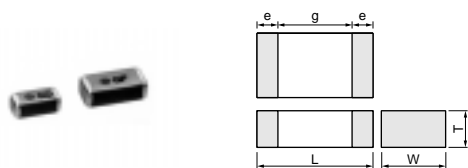
Type GF (IEC60384-14 Class Y2, X1/Y2)

## Standard Certification

|       | Standard No. | Class  | Status of Recognition |                           | Rated Voltage      |
|-------|--------------|--------|-----------------------|---------------------------|--------------------|
|       |              |        | Size : 4.5x2.0mm      | Size : 5.7x2.8mm and over |                    |
| UL    | UL1414       | X1, Y2 | —                     | ⊙                         | AC250V<br>(r.m.s.) |
|       | UL 60950-1   | —      | ⊙                     | —                         |                    |
| VDE   | IEC 60384-14 | X1, Y2 | —                     | ⊙                         |                    |
| SEMKO | EN 60384-14  | Y2     | ⊙                     | ⊙                         |                    |

## Applications

| Size               | Switching power supplies | Communication network devices such as a modem |
|--------------------|--------------------------|---|
| 4.5x2.0mm          | —                        | ⊙   |
| 5.7x2.8mm and over | ⊙                        | ⊙   |



| Part Number | Dimensions (mm) |          |              |        |        |
|-------------|-----------------|----------|--------------|--------|--------|
|             | L               | W        | T            | e min. | g min. |
| GA342A      | 4.5 ±0.3        | 2.0 ±0.2 | 1.0 +0, -0.3 | 0.3    | 2.5    |
| GA342D      |                 |          | 2.0 ±0.2*    |        |        |
| GA342Q      |                 |          | 1.5 +0, -0.3 |        |        |
| GA352Q      | 5.7 ±0.4        | 2.8 ±0.3 | 1.5 +0, -0.3 | 0.3    | 4.0    |
| GA355D      |                 |          | 2.0 +0, -0.3 |        |        |
| GA355Q      |                 |          | 1.5 +0, -0.3 |        |        |

\* GA342D1X : 2.0±0.3

| Part Number        | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|--------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| GA342D1XGF100JY02L | AC250 (r.m.s.)    | SL (JIS)           | 10 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342D1XGF120JY02L | AC250 (r.m.s.)    | SL (JIS)           | 12 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342D1XGF150JY02L | AC250 (r.m.s.)    | SL (JIS)           | 15 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342D1XGF180JY02L | AC250 (r.m.s.)    | SL (JIS)           | 18 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342D1XGF220JY02L | AC250 (r.m.s.)    | SL (JIS)           | 22 ±5%           | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF270JW31L | AC250 (r.m.s.)    | SL (JIS)           | 27 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF330JW31L | AC250 (r.m.s.)    | SL (JIS)           | 33 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF390JW31L | AC250 (r.m.s.)    | SL (JIS)           | 39 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF470JW31L | AC250 (r.m.s.)    | SL (JIS)           | 47 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF560JW31L | AC250 (r.m.s.)    | SL (JIS)           | 56 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF680JW31L | AC250 (r.m.s.)    | SL (JIS)           | 68 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342A1XGF820JW31L | AC250 (r.m.s.)    | SL (JIS)           | 82 ±5%           | 4.5           | 2.0          | 1.0              | 2.5                     | 0.3 min.         |
| GA342QR7GF101KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 100 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GA342QR7GF151KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 150 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GA342DR7GF221KW02L | AC250 (r.m.s.)    | X7R (EIA)          | 220 ±10%         | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342DR7GF331KW02L | AC250 (r.m.s.)    | X7R (EIA)          | 330 ±10%         | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA342QR7GF471KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 470 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GA352QR7GF471KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 470 ±10%         | 5.7           | 2.8          | 1.5              | 4.0                     | 0.3 min.         |
| GA342QR7GF681KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 680 ±10%         | 4.5           | 2.0          | 1.5              | 2.5                     | 0.3 min.         |
| GA352QR7GF681KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 680 ±10%         | 5.7           | 2.8          | 1.5              | 4.0                     | 0.3 min.         |
| GA342DR7GF102KW02L | AC250 (r.m.s.)    | X7R (EIA)          | 1000 ±10%        | 4.5           | 2.0          | 2.0              | 2.5                     | 0.3 min.         |
| GA352QR7GF102KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 1000 ±10%        | 5.7           | 2.8          | 1.5              | 4.0                     | 0.3 min.         |
| GA352QR7GF152KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 1500 ±10%        | 5.7           | 2.8          | 1.5              | 4.0                     | 0.3 min.         |
| GA355QR7GF182KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 1800 ±10%        | 5.7           | 5.0          | 1.5              | 4.0                     | 0.3 min.         |
| GA355QR7GF222KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 2200 ±10%        | 5.7           | 5.0          | 1.5              | 4.0                     | 0.3 min.         |
| GA355QR7GF332KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 3300 ±10%        | 5.7           | 5.0          | 1.5              | 4.0                     | 0.3 min.         |
| GA355DR7GF472KW01L | AC250 (r.m.s.)    | X7R (EIA)          | 4700 ±10%        | 5.7           | 5.0          | 2.0              | 4.0                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.

Dielectric Strength: AC1500V(r.m.s.), 60±1s.

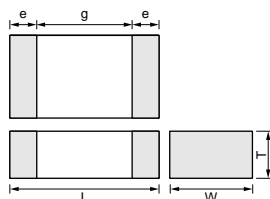
Only tape packaging is available.

△Note • This PDF catalog is downloaded from the website of Murata Manufacturing co., ltd. Therefore, it's specifications are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.  
• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## Monolithic Ceramic Capacitors Safety Standard Certified

Type GB (IEC60384-14 Class X2)

Standard Certification



| Part Number   | Dimensions (mm) |          |             |        |        |
|---------------|-----------------|----------|-------------|--------|--------|
|               | L               | W        | T           | e min. | g min. |
| <b>GA355Q</b> | 5.7 ±0.4        | 5.0 ±0.4 | 1.5 +0,-0.3 | 0.3    | 3.0    |
| <b>GA355D</b> |                 |          | 2.0 +0,-0.3 |        |        |
| <b>GA355E</b> |                 |          | 2.5 +0,-0.3 |        |        |
| <b>GA355X</b> |                 |          | 2.9 +0,-0.4 |        |        |

|       | Standard No.                | Class | Rated Voltage      |
|-------|-----------------------------|-------|--------------------|
| VDE   | IEC 60384-14<br>EN 60384-14 | X2    | AC250V<br>(r.m.s.) |
| SEMKO |                             |       |                    |
| ESTI  |                             |       |                    |

| Part Number               | Rated Voltage (V) | TC Code (Standard) | Capacitance (pF) | Length L (mm) | Width W (mm) | Thickness T (mm) | Electrode g (min.) (mm) | Electrode e (mm) |
|---------------------------|-------------------|--------------------|------------------|---------------|--------------|------------------|-------------------------|------------------|
| <b>GA355QR7GB103KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 10000 ±10%       | 5.7           | 5.0          | 1.5              | 3.0                     | 0.3 min.         |
| <b>GA355QR7GB153KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 15000 ±10%       | 5.7           | 5.0          | 1.5              | 3.0                     | 0.3 min.         |
| <b>GA355DR7GB223KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 22000 ±10%       | 5.7           | 5.0          | 2.0              | 3.0                     | 0.3 min.         |
| <b>GA355ER7GB333KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 33000 ±10%       | 5.7           | 5.0          | 2.5              | 3.0                     | 0.3 min.         |
| <b>GA355ER7GB473KW01L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 47000 ±10%       | 5.7           | 5.0          | 2.5              | 3.0                     | 0.3 min.         |
| <b>GA355XR7GB563KW06L</b> | AC250 (r.m.s.)    | X7R (EIA)          | 56000 ±10%       | 5.7           | 5.0          | 2.9              | 3.0                     | 0.3 min.         |

Operating Temperature Range: -55 to +125deg.

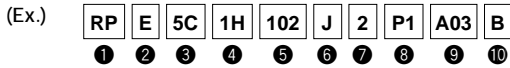
Dielectric Strength: DC1075V, 60±1s.

Only tape packaging is available.

# Monolithic Ceramic Capacitors (Lead Type)

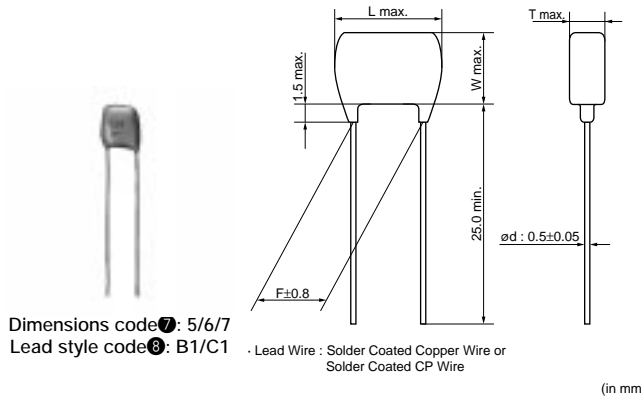
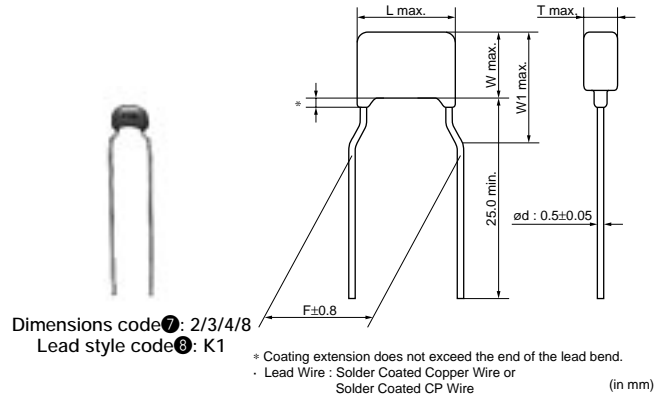
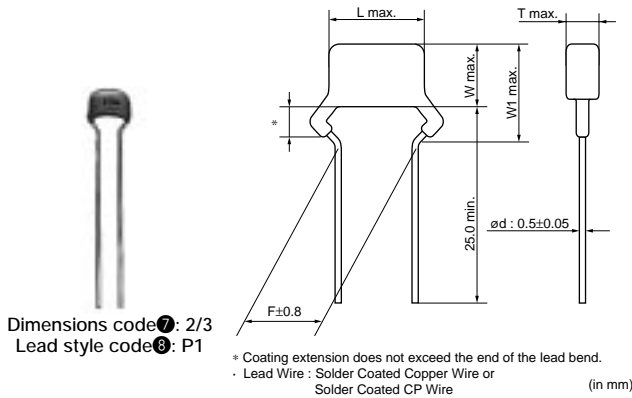
RPE Series (DC25V-DC100V)

● Part number configuration (Please see page 22 for details)



● Dimensions

| Dimensions and Lead Style Code | Dimensions (mm) |      |     |   |      |     |
|--------------------------------|-----------------|------|-----|---|------|-----|
|                                | L               | W    | W1  | T   | F    | d   |
| 2P1/2S1/2S2                    | 5.0             | 3.5  | 5.0 | See the individual product specifications | 2.5  | 0.5 |
| 2K1/2M1/2M2                    | 5.0             | 3.5  | 5.0 |   | 5.0  | 0.5 |
| 3P1/3S1/3S2                    | 5.0             | 4.5  | 6.3 |   | 2.5  | 0.5 |
| 3K1/3M1/3M2                    | 5.0             | 4.5  | 6.3 |   | 5.0  | 0.5 |
| 4K1/4M1/4M2                    | 7.5             | 5.0  | 7.0 |   | 5.0  | 0.5 |
| 5B1/5E1/5E2                    | 7.5             | 7.5  | -   |   | 5.0  | 0.5 |
| 6B1/6E1/6E2                    | 10.0            | 10.0 | -   |   | 5.0  | 0.5 |
| 7C1                            | 12.5            | 12.5 | -   |   | 10.0 | 0.5 |
| 8K1/8M1/8M2                    | 7.5             | 5.5  | 8.0 |   | 5.0  | 0.5 |
| TB1/TE1/TE2                    | 10.0            | 8.5  | -   |   | 5.0  | 0.5 |



● Temperature Compensating Type

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance (pF) | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPE5C1H1R0C2□□B03□ | C0G | 50                  | 1.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H1R0C2□□B03□ | C0G | 50                  | 1.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H2R0C2□□B03□ | C0G | 50                  | 2.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H2R0C2□□B03□ | C0G | 50                  | 2.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H3R0C2□□B03□ | C0G | 50                  | 3.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H3R0C2□□B03□ | C0G | 50                  | 3.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H4R0C2□□B03□ | C0G | 50                  | 4.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H4R0C2□□B03□ | C0G | 50                  | 4.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H5R0C2□□B03□ | C0G | 50                  | 5.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H5R0C2□□B03□ | C0G | 50                  | 5.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H6R0D2□□B03□ | C0G | 50                  | 6.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H6R0D2□□B03□ | C0G | 50                  | 6.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |

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Continued from the preceding page.

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance (pF) | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPE5C1H7R0D2□□Z03□ | C0G | 50                  | 7.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H7R0D2□□Z03□ | C0G | 50                  | 7.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H8R0D2□□Z03□ | C0G | 50                  | 8.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H8R0D2□□Z03□ | C0G | 50                  | 8.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H9R0D2□□Z03□ | C0G | 50                  | 9.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H9R0D2□□Z03□ | C0G | 50                  | 9.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H100J2□□Z03□ | C0G | 50                  | 10 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H100J2□□Z03□ | C0G | 50                  | 10 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H120J2□□Z03□ | C0G | 50                  | 12 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H120J2□□Z03□ | C0G | 50                  | 12 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H150J2□□Z03□ | C0G | 50                  | 15 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H150J2□□Z03□ | C0G | 50                  | 15 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H180J2□□Z03□ | C0G | 50                  | 18 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H180J2□□Z03□ | C0G | 50                  | 18 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H220J2□□Z03□ | C0G | 50                  | 22 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H220J2□□Z03□ | C0G | 50                  | 22 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H270J2□□Z03□ | C0G | 50                  | 27 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H270J2□□Z03□ | C0G | 50                  | 27 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H330J2□□Z03□ | C0G | 50                  | 33 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H330J2□□Z03□ | C0G | 50                  | 33 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H390J2□□Z03□ | C0G | 50                  | 39 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H390J2□□Z03□ | C0G | 50                  | 39 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H470J2□□Z03□ | C0G | 50                  | 47 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H470J2□□Z03□ | C0G | 50                  | 47 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H560J2□□Z03□ | C0G | 50                  | 56 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H560J2□□Z03□ | C0G | 50                  | 56 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H680J2□□Z03□ | C0G | 50                  | 68 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H680J2□□Z03□ | C0G | 50                  | 68 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H820J2□□Z03□ | C0G | 50                  | 82 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H820J2□□Z03□ | C0G | 50                  | 82 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H101J2□□A03□ | C0G | 50                  | 100 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H101J2□□A03□ | C0G | 50                  | 100 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H121J2□□A03□ | C0G | 50                  | 120 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H121J2□□A03□ | C0G | 50                  | 120 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H151J2□□A03□ | C0G | 50                  | 150 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H151J2□□A03□ | C0G | 50                  | 150 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H181J2□□A03□ | C0G | 50                  | 180 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H181J2□□A03□ | C0G | 50                  | 180 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H221J2□□A03□ | C0G | 50                  | 220 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H221J2□□A03□ | C0G | 50                  | 220 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H271J2□□A03□ | C0G | 50                  | 270 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H271J2□□A03□ | C0G | 50                  | 270 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H331J2□□A03□ | C0G | 50                  | 330 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H331J2□□A03□ | C0G | 50                  | 330 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H391J2□□A03□ | C0G | 50                  | 390 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H391J2□□A03□ | C0G | 50                  | 390 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H471J2□□A03□ | C0G | 50                  | 470 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H471J2□□A03□ | C0G | 50                  | 470 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H561J2□□A03□ | C0G | 50                  | 560 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H561J2□□A03□ | C0G | 50                  | 560 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H681J2□□A03□ | C0G | 50                  | 680 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H681J2□□A03□ | C0G | 50                  | 680 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H821J2□□A03□ | C0G | 50                  | 820 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H821J2□□A03□ | C0G | 50                  | 820 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H102J2□□A03□ | C0G | 50                  | 1000 ±5%         | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |

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| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance (pF) | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPE5C1H102J2□□A03□ | C0G | 50                  | 1000 ±5%         | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H122J2□□A03□ | C0G | 50                  | 1200 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H122J2□□A03□ | C0G | 50                  | 1200 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H152J2□□A03□ | C0G | 50                  | 1500 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H152J2□□A03□ | C0G | 50                  | 1500 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H182J2□□C03□ | C0G | 50                  | 1800 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H182J2□□A03□ | C0G | 50                  | 1800 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H222J2□□C03□ | C0G | 50                  | 2200 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H222J2□□A03□ | C0G | 50                  | 2200 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H272J2□□C03□ | C0G | 50                  | 2700 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H272J2□□A03□ | C0G | 50                  | 2700 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H332J2□□C03□ | C0G | 50                  | 3300 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H332J2□□A03□ | C0G | 50                  | 3300 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H392J2□□C03□ | C0G | 50                  | 3900 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H392J2□□A03□ | C0G | 50                  | 3900 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H472J2□□C03□ | C0G | 50                  | 4700 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H472J2□□A03□ | C0G | 50                  | 4700 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H562J2□□C03□ | C0G | 50                  | 5600 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C1H562J2□□A03□ | C0G | 50                  | 5600 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H682J2□□C03□ | C0G | 50                  | 6800 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H822J2□□C03□ | C0G | 50                  | 8200 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H103J2□□C03□ | C0G | 50                  | 10000 ±5%        | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H123J4□□F03□ | C0G | 50                  | 12000 ±5%        | 7.5 x 5.0           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H153J4□□F03□ | C0G | 50                  | 15000 ±5%        | 7.5 x 5.0           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C1H183J5□□X03□ | C0G | 50                  | 18000 ±5%        | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C1H223J6□□F12□ | C0G | 50                  | 22000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C1H273J6□□F12□ | C0G | 50                  | 27000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C1H333J6□□F03□ | C0G | 50                  | 33000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C1H393J6□□F03□ | C0G | 50                  | 39000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C1H473J7□□F03□ | C0G | 50                  | 47000 ±5%        | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |
| RPE5C1H563J7□□F03□ | C0G | 50                  | 56000 ±5%        | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |
| RPE5C1H683J7□□F03□ | C0G | 50                  | 68000 ±5%        | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |
| RPE5C2A1R0C2□□B03□ | C0G | 100                 | 1.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A1R0C2□□B03□ | C0G | 100                 | 1.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A2R0C2□□B03□ | C0G | 100                 | 2.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A2R0C2□□B03□ | C0G | 100                 | 2.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A3R0C2□□B03□ | C0G | 100                 | 3.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A3R0C2□□B03□ | C0G | 100                 | 3.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A4R0C2□□B03□ | C0G | 100                 | 4.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A4R0C2□□B03□ | C0G | 100                 | 4.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A5R0C2□□B03□ | C0G | 100                 | 5.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A5R0C2□□B03□ | C0G | 100                 | 5.0 ±0.25pF      | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A6R0D2□□B03□ | C0G | 100                 | 6.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A6R0D2□□B03□ | C0G | 100                 | 6.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A7R0D2□□Z03□ | C0G | 100                 | 7.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A7R0D2□□Z03□ | C0G | 100                 | 7.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A8R0D2□□Z03□ | C0G | 100                 | 8.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A8R0D2□□Z03□ | C0G | 100                 | 8.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A9R0D2□□Z03□ | C0G | 100                 | 9.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A9R0D2□□Z03□ | C0G | 100                 | 9.0 ±0.5pF       | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A100J2□□Z03□ | C0G | 100                 | 10 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A100J2□□Z03□ | C0G | 100                 | 10 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A120J2□□Z03□ | C0G | 100                 | 12 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A120J2□□Z03□ | C0G | 100                 | 12 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A150J2□□Z03□ | C0G | 100                 | 15 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |

Continued on the following page. ↗

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Continued from the preceding page.

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance (pF) | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPE5C2A150J2□□Z03□ | C0G | 100                 | 15 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A180J2□□Z03□ | C0G | 100                 | 18 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A180J2□□Z03□ | C0G | 100                 | 18 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A220J2□□Z03□ | C0G | 100                 | 22 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A220J2□□Z03□ | C0G | 100                 | 22 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A270J2□□Z03□ | C0G | 100                 | 27 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A270J2□□Z03□ | C0G | 100                 | 27 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A330J2□□Z03□ | C0G | 100                 | 33 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A330J2□□Z03□ | C0G | 100                 | 33 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A390J2□□Z03□ | C0G | 100                 | 39 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A390J2□□Z03□ | C0G | 100                 | 39 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A470J2□□Z03□ | C0G | 100                 | 47 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A470J2□□Z03□ | C0G | 100                 | 47 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A560J2□□Z03□ | C0G | 100                 | 56 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A560J2□□Z03□ | C0G | 100                 | 56 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A680J2□□Z03□ | C0G | 100                 | 68 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A680J2□□Z03□ | C0G | 100                 | 68 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A820J2□□Z03□ | C0G | 100                 | 82 ±5%           | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A820J2□□Z03□ | C0G | 100                 | 82 ±5%           | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A101J2□□A03□ | C0G | 100                 | 100 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A101J2□□A03□ | C0G | 100                 | 100 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A121J2□□A03□ | C0G | 100                 | 120 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A121J2□□A03□ | C0G | 100                 | 120 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A151J2□□A03□ | C0G | 100                 | 150 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A151J2□□A03□ | C0G | 100                 | 150 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A181J2□□A03□ | C0G | 100                 | 180 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A181J2□□A03□ | C0G | 100                 | 180 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A221J2□□A03□ | C0G | 100                 | 220 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A221J2□□A03□ | C0G | 100                 | 220 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A271J2□□A03□ | C0G | 100                 | 270 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A271J2□□A03□ | C0G | 100                 | 270 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A331J2□□A03□ | C0G | 100                 | 330 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A331J2□□A03□ | C0G | 100                 | 330 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A391J2□□A03□ | C0G | 100                 | 390 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A391J2□□A03□ | C0G | 100                 | 390 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A471J2□□A03□ | C0G | 100                 | 470 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A471J2□□A03□ | C0G | 100                 | 470 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A561J2□□A03□ | C0G | 100                 | 560 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A561J2□□A03□ | C0G | 100                 | 560 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A681J2□□A03□ | C0G | 100                 | 680 ±5%          | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A681J2□□A03□ | C0G | 100                 | 680 ±5%          | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A821J2□□A03□ | C0G | 100                 | 820 ±5%          | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A821J2□□A03□ | C0G | 100                 | 820 ±5%          | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A102J2□□A03□ | C0G | 100                 | 1000 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A102J2□□A03□ | C0G | 100                 | 1000 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A122J2□□A03□ | C0G | 100                 | 1200 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A122J2□□A03□ | C0G | 100                 | 1200 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A152J2□□A03□ | C0G | 100                 | 1500 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A152J2□□A03□ | C0G | 100                 | 1500 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A182J2□□D03□ | C0G | 100                 | 1800 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A182J2□□D03□ | C0G | 100                 | 1800 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A222J2□□D03□ | C0G | 100                 | 2200 ±5%         | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A222J2□□D03□ | C0G | 100                 | 2200 ±5%         | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A272J3□□D03□ | C0G | 100                 | 2700 ±5%         | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A272J3□□D03□ | C0G | 100                 | 2700 ±5%         | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |

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| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance (pF) | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPE5C2A332J3□□D03□ | C0G | 100                 | 3300 ±5%         | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A332J3□□D03□ | C0G | 100                 | 3300 ±5%         | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A392J3□□D03□ | C0G | 100                 | 3900 ±5%         | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPE5C2A392J3□□D03□ | C0G | 100                 | 3900 ±5%         | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A472J4□□X03□ | C0G | 100                 | 4700 ±5%         | 7.5 x 5.0           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A562J4□□F03□ | C0G | 100                 | 5600 ±5%         | 7.5 x 5.0           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A682J4□□F03□ | C0G | 100                 | 6800 ±5%         | 7.5 x 5.0           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPE5C2A822J5□□X03□ | C0G | 100                 | 8200 ±5%         | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A103J5□□X03□ | C0G | 100                 | 10000 ±5%        | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A123J5□□X03□ | C0G | 100                 | 12000 ±5%        | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A153J6□□X13□ | C0G | 100                 | 15000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A183J6□□X13□ | C0G | 100                 | 18000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A223J6□□X03□ | C0G | 100                 | 22000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A273J6□□X03□ | C0G | 100                 | 27000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A333J6□□F03□ | C0G | 100                 | 33000 ±5%        | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPE5C2A393J7□□X03□ | C0G | 100                 | 39000 ±5%        | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |
| RPE5C2A473J7□□F03□ | C0G | 100                 | 47000 ±5%        | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |
| RPE5C2A563J7□□F03□ | C0G | 100                 | 56000 ±5%        | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)  
 Operating Temperature Range: -55 to +125deg.

● High Dielectric Constant Type, X7R Characteristics

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance  | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|--------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPER71E474K2□□A03□ | X7R | 25                  | 0.47µF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71E684K2□□C03□ | X7R | 25                  | 0.68µF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71E105K2□□C03□ | X7R | 25                  | 1.0µF ±10%   | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71E155K3□□C07□ | X7R | 25                  | 1.5µF ±10%   | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71E225K3□□C07□ | X7R | 25                  | 2.2µF ±10%   | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H221K2□□A03□ | X7R | 50                  | 220pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H221K2□□A03□ | X7R | 50                  | 220pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H331K2□□A03□ | X7R | 50                  | 330pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H331K2□□A03□ | X7R | 50                  | 330pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H471K2□□A03□ | X7R | 50                  | 470pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H471K2□□A03□ | X7R | 50                  | 470pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H681K2□□A03□ | X7R | 50                  | 680pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H681K2□□A03□ | X7R | 50                  | 680pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H102K2□□A03□ | X7R | 50                  | 1000pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H102K2□□A03□ | X7R | 50                  | 1000pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H152K2□□A03□ | X7R | 50                  | 1500pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H152K2□□A03□ | X7R | 50                  | 1500pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H222K2□□A03□ | X7R | 50                  | 2200pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H222K2□□A03□ | X7R | 50                  | 2200pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H332K2□□A03□ | X7R | 50                  | 3300pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H332K2□□A03□ | X7R | 50                  | 3300pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H472K2□□A03□ | X7R | 50                  | 4700pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H472K2□□A03□ | X7R | 50                  | 4700pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H682K2□□A03□ | X7R | 50                  | 6800pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H682K2□□A03□ | X7R | 50                  | 6800pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H103K2□□A03□ | X7R | 50                  | 10000pF ±10% | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H103K2□□A03□ | X7R | 50                  | 10000pF ±10% | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H153K2□□A03□ | X7R | 50                  | 15000pF ±10% | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |

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Continued from the preceding page.

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance  | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|--------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPER71H153K2□□A03□ | X7R | 50                  | 15000pF ±10% | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H223K2□□A03□ | X7R | 50                  | 22000pF ±10% | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H223K2□□A03□ | X7R | 50                  | 22000pF ±10% | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H333K2□□A03□ | X7R | 50                  | 33000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H333K2□□A03□ | X7R | 50                  | 33000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H473K2□□A03□ | X7R | 50                  | 47000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H473K2□□A03□ | X7R | 50                  | 47000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H683K2□□A03□ | X7R | 50                  | 68000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H683K2□□A03□ | X7R | 50                  | 68000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H104K2□□A03□ | X7R | 50                  | 0.10µF ±10%  | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H104K2□□A03□ | X7R | 50                  | 0.10µF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H154K2□□C03□ | X7R | 50                  | 0.15µF ±10%  | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H154K2□□C03□ | X7R | 50                  | 0.15µF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H224K2□□C03□ | X7R | 50                  | 0.22µF ±10%  | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H224K2□□C03□ | X7R | 50                  | 0.22µF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H334K2□□C03□ | X7R | 50                  | 0.33µF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER71H334K2□□C03□ | X7R | 50                  | 0.33µF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H474K2□□C03□ | X7R | 50                  | 0.47µF ±10%  | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H474K2□□C03□ | X7R | 50                  | 0.47µF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H684K3□□C03□ | X7R | 50                  | 0.68µF ±10%  | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H684K3□□C03□ | X7R | 50                  | 0.68µF ±10%  | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H105K3□□C07□ | X7R | 50                  | 1.0µF ±10%   | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER71H105K3□□C07□ | X7R | 50                  | 1.0µF ±10%   | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER71H155K8□□C03□ | X7R | 50                  | 1.5µF ±10%   | 7.5 x 5.5           | 4.0              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H225K8□□C03□ | X7R | 50                  | 2.2µF ±10%   | 7.5 x 5.5           | 4.0              | 5.0               | K1                   | M1                         | M2                         |
| RPER71H335K5□□C03□ | X7R | 50                  | 3.3µF ±10%   | 7.5 x 7.5           | 5.0              | 5.0               | B1                   | E1                         | E2                         |
| RPER71H475K5□□C03□ | X7R | 50                  | 4.7µF ±10%   | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPER72A221K2□□B03□ | X7R | 100                 | 220pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A221K2□□B03□ | X7R | 100                 | 220pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A331K2□□B03□ | X7R | 100                 | 330pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A331K2□□B03□ | X7R | 100                 | 330pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A471K2□□B03□ | X7R | 100                 | 470pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A471K2□□B03□ | X7R | 100                 | 470pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A681K2□□B03□ | X7R | 100                 | 680pF ±10%   | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A681K2□□B03□ | X7R | 100                 | 680pF ±10%   | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A102K2□□A03□ | X7R | 100                 | 1000pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A102K2□□A03□ | X7R | 100                 | 1000pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A152K2□□A03□ | X7R | 100                 | 1500pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A152K2□□A03□ | X7R | 100                 | 1500pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A222K2□□A03□ | X7R | 100                 | 2200pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A222K2□□A03□ | X7R | 100                 | 2200pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A332K2□□A03□ | X7R | 100                 | 3300pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A332K2□□A03□ | X7R | 100                 | 3300pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A472K2□□A03□ | X7R | 100                 | 4700pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A472K2□□A03□ | X7R | 100                 | 4700pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A682K2□□A03□ | X7R | 100                 | 6800pF ±10%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPER72A682K2□□A03□ | X7R | 100                 | 6800pF ±10%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A103K2□□A03□ | X7R | 100                 | 10000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A103K2□□A03□ | X7R | 100                 | 10000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER72A153K2□□A03□ | X7R | 100                 | 15000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A153K2□□A03□ | X7R | 100                 | 15000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER72A223K2□□A03□ | X7R | 100                 | 22000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A223K2□□A03□ | X7R | 100                 | 22000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER72A333K2□□C03□ | X7R | 100                 | 33000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A333K2□□C03□ | X7R | 100                 | 33000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |

Continued on the following page.

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Continued from the preceding page.

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance  | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|--------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPER72A473K2□□C03□ | X7R | 100                 | 47000pF ±10% | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A473K2□□C03□ | X7R | 100                 | 47000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER72A683K3□□C07□ | X7R | 100                 | 68000pF ±10% | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A683K3□□C07□ | X7R | 100                 | 68000pF ±10% | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER72A104K3□□C07□ | X7R | 100                 | 0.10µF ±10%  | 5.0 x 4.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPER72A104K3□□C07□ | X7R | 100                 | 0.10µF ±10%  | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPER72A154K8□□C03□ | X7R | 100                 | 0.15µF ±10%  | 7.5 x 5.5           | 4.0              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A224K8□□C03□ | X7R | 100                 | 0.22µF ±10%  | 7.5 x 5.5           | 4.0              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A334K5□□C03□ | X7R | 100                 | 0.33µF ±10%  | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPER72A474K8□□C03□ | X7R | 100                 | 0.47µF ±10%  | 7.5 x 5.5           | 4.0              | 5.0               | K1                   | M1                         | M2                         |
| RPER72A684K6□□F14□ | X7R | 100                 | 0.68µF ±10%  | 10.0 x 10.0         | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPER72A105K5□□C03□ | X7R | 100                 | 1.0µF ±10%   | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | E2                         |
| RPER72A155K7□□F03□ | X7R | 100                 | 1.5µF ±10%   | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |
| RPER72A225K7□□F03□ | X7R | 100                 | 2.2µF ±10%   | 12.5 x 12.5         | 5.0              | 10.0              | C1                   | -                          | -                          |

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)  
 Operating Temperature Range: -55 to +125deg.

● High Dielectric Constant Type, Y5V Characteristics

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance      | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPEF51E105Z3□□C03□ | Y5V | 25                  | 1.0µF +80/-20%   | 5.0 x 4.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51E105Z3□□C03□ | Y5V | 25                  | 1.0µF +80/-20%   | 5.0 x 4.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H102Z2□□A03□ | Y5V | 50                  | 1000pF +80/-20%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H102Z2□□A03□ | Y5V | 50                  | 1000pF +80/-20%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H222Z2□□A03□ | Y5V | 50                  | 2200pF +80/-20%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H222Z2□□A03□ | Y5V | 50                  | 2200pF +80/-20%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H472Z2□□A03□ | Y5V | 50                  | 4700pF +80/-20%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H472Z2□□A03□ | Y5V | 50                  | 4700pF +80/-20%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H103Z2□□A03□ | Y5V | 50                  | 10000pF +80/-20% | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H103Z2□□A03□ | Y5V | 50                  | 10000pF +80/-20% | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H223Z2□□A03□ | Y5V | 50                  | 22000pF +80/-20% | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H223Z2□□A03□ | Y5V | 50                  | 22000pF +80/-20% | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H473Z2□□A03□ | Y5V | 50                  | 47000pF +80/-20% | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H473Z2□□A03□ | Y5V | 50                  | 47000pF +80/-20% | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H104Z2□□A03□ | Y5V | 50                  | 0.10µF +80/-20%  | 5.0 x 3.5           | 2.5              | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H104Z2□□A03□ | Y5V | 50                  | 0.10µF +80/-20%  | 5.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H224Z2□□A03□ | Y5V | 50                  | 0.22µF +80/-20%  | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H224Z2□□A03□ | Y5V | 50                  | 0.22µF +80/-20%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |
| RPEF51H474Z2□□C03□ | Y5V | 50                  | 0.47µF +80/-20%  | 5.0 x 3.5           | 3.15             | 2.5               | P1                   | S1                         | S2                         |
| RPEF51H474Z2□□C03□ | Y5V | 50                  | 0.47µF +80/-20%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | M2                         |

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
 The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)  
 Operating Temperature Range: -30 to +85deg.

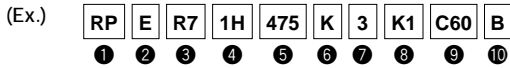
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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Monolithic Ceramic Capacitors (Lead Type)

RPE Series Small Size, Large Capacitance(DC50V)

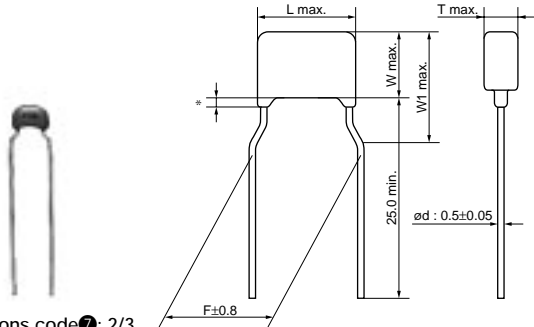
1  
Capacitors

●Part number configuration (Please see page 22 for details)



●Dimensions

| Dimensions and Lead Style Code | Dimensions (mm) |     |     |                             |     |     |
|--------------------------------|-----------------|-----|-----|-----------------------------|-----|-----|
|                                | L               | W   | W1  | T                           | F   | d   |
| 2K1/2M1                        | 5.5             | 4.0 | 6.0 | Depends on Part Number List | 5.0 | 0.5 |
| 3K1/3M1                        | 5.5             | 5.0 | 7.5 |                             | 5.0 | 0.5 |



Dimensions code 7: 2/3  
Lead style code 8: K1

\* Coating extension does not exceed the end of the lead bend.  
· Lead Wire : Solder Coated Copper Wire or Solder Coated CP Wire (in mm)

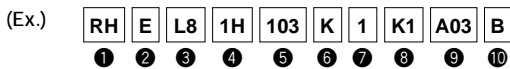
| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance (μF) | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|------------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RPER71H105K2□□C60□ | X7R | 50                  | 1.0 ±10%         | 5.5 x 4.0           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RPER71H155K2□□C60□ | X7R | 50                  | 1.5 ±10%         | 5.5 x 4.0           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RPER71H225K2□□C60□ | X7R | 50                  | 2.2 ±10%         | 5.5 x 4.0           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RPER71H335K3□□C60□ | X7R | 50                  | 3.3 ±10%         | 5.5 x 5.0           | 4.0              | 5.0               | K1                   | M1                         | -                          |
| RPER71H475K3□□C60□ | X7R | 50                  | 4.7 ±10%         | 5.5 x 5.0           | 4.0              | 5.0               | K1                   | M1                         | -                          |

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)  
Operating Temperature Range: -55 to +125deg.

# Monolithic Ceramic Capacitors (Lead Type)

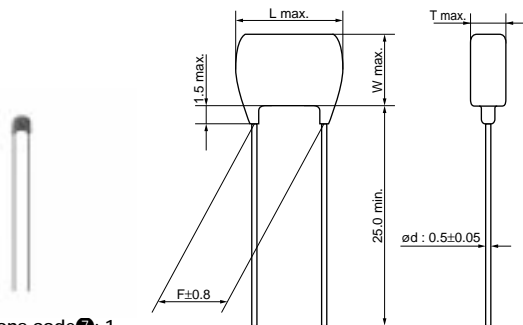
RH Series 150deg.C max.(for Automotive) (DC50V-DC100V)

●Part number configuration (Please see page 22 for details)



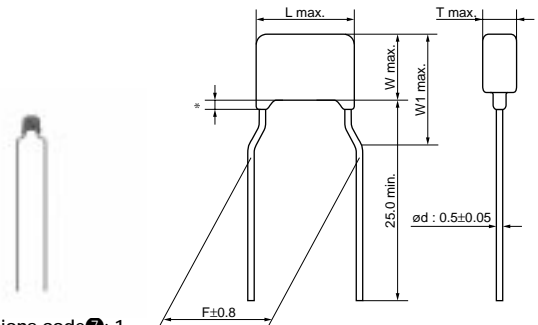
●Dimensions

| Dimensions and Lead Style Code | Dimensions (mm) |     |     |   |     |     |
|--------------------------------|-----------------|-----|-----|---|-----|-----|
|                                | L               | W   | W1  | T   | F   | d   |
| 1A2/1DB                        | 4.0             | 3.5 | -   | See the individual product specifications | 2.5 | 0.5 |
| 1K1/1M1                        | 4.0             | 3.5 | 5.0 |   | 5.0 | 0.5 |
| 2A2/2DB                        | 5.7             | 4.5 | -   |   | 2.5 | 0.5 |
| 2K1/2M1                        | 5.7             | 4.5 | 7.0 |   | 5.0 | 0.5 |



Dimensions code 7: 1  
Lead style code 8: A2

· Lead Wire : Solder Coated Copper Wire or Solder Coated CP Wire (in mm)

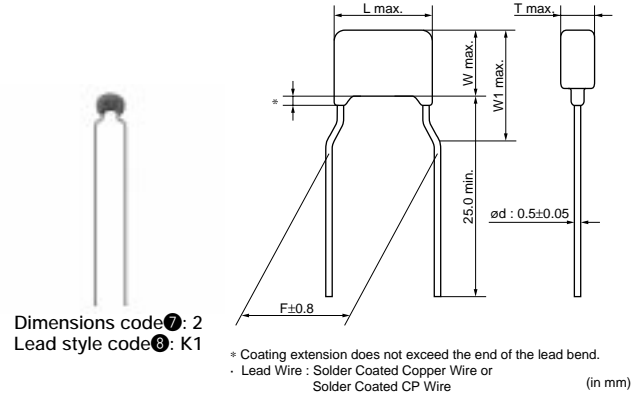
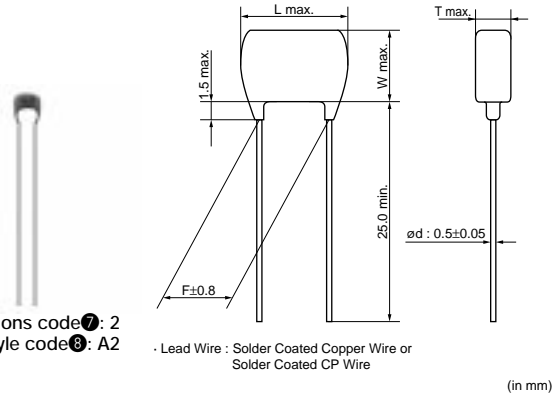


Dimensions code 7: 1  
Lead style code 8: K1

\* Coating extension does not exceed the end of the lead bend.  
· Lead Wire : Solder Coated Copper Wire or Solder Coated CP Wire (in mm)

Continued on the following page. ↗

Continued from the preceding page.



| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance  | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|--------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RHEL81H102K1□□A03□ | X8L | 50                  | 1000pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H102K1□□A03□ | X8L | 50                  | 1000pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H152K1□□A03□ | X8L | 50                  | 1500pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H152K1□□A03□ | X8L | 50                  | 1500pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H222K1□□A03□ | X8L | 50                  | 2200pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H222K1□□A03□ | X8L | 50                  | 2200pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H332K1□□A03□ | X8L | 50                  | 3300pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H332K1□□A03□ | X8L | 50                  | 3300pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H472K1□□A03□ | X8L | 50                  | 4700pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H472K1□□A03□ | X8L | 50                  | 4700pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H682K1□□A03□ | X8L | 50                  | 6800pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H682K1□□A03□ | X8L | 50                  | 6800pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H103K1□□A03□ | X8L | 50                  | 10000pF ±10% | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H103K1□□A03□ | X8L | 50                  | 10000pF ±10% | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H153K1□□A03□ | X8L | 50                  | 15000pF ±10% | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H153K1□□A03□ | X8L | 50                  | 15000pF ±10% | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H223K1□□A03□ | X8L | 50                  | 22000pF ±10% | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL81H223K1□□A03□ | X8L | 50                  | 22000pF ±10% | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL81H333K1□□A03□ | X8L | 50                  | 33000pF ±10% | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL81H333K1□□A03□ | X8L | 50                  | 33000pF ±10% | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHEL81H473K1□□A03□ | X8L | 50                  | 47000pF ±10% | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL81H473K1□□A03□ | X8L | 50                  | 47000pF ±10% | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHEL81H683K1□□A03□ | X8L | 50                  | 68000pF ±10% | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL81H683K1□□A03□ | X8L | 50                  | 68000pF ±10% | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHEL81H104K1□□A03□ | X8L | 50                  | 0.10µF ±10%  | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL81H104K1□□A03□ | X8L | 50                  | 0.10µF ±10%  | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHDL81H154K2□□C03□ | X8L | 50                  | 0.15µF ±10%  | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL81H154K2□□C03□ | X8L | 50                  | 0.15µF ±10%  | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL81H224K2□□C03□ | X8L | 50                  | 0.22µF ±10%  | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL81H224K2□□C03□ | X8L | 50                  | 0.22µF ±10%  | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL81H334K2□□C03□ | X8L | 50                  | 0.33µF ±10%  | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL81H334K2□□C03□ | X8L | 50                  | 0.33µF ±10%  | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL81H474K2□□C03□ | X8L | 50                  | 0.47µF ±10%  | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL81H474K2□□C03□ | X8L | 50                  | 0.47µF ±10%  | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL81H684K2□□C03□ | X8L | 50                  | 0.68µF ±10%  | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL81H684K2□□C03□ | X8L | 50                  | 0.68µF ±10%  | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL81H105K2□□C03□ | X8L | 50                  | 1.0µF ±10%   | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL81H105K2□□C03□ | X8L | 50                  | 1.0µF ±10%   | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A102K1□□A03□ | X8L | 100                 | 1000pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL82A102K1□□A03□ | X8L | 100                 | 1000pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A152K1□□A03□ | X8L | 100                 | 1500pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |

Continued on the following page. ↗

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Continued from the preceding page.

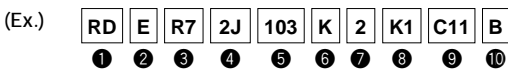
| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance  | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|--------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RHEL82A152K1□□A03□ | X8L | 100                 | 1500pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A222K1□□A03□ | X8L | 100                 | 2200pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL82A222K1□□A03□ | X8L | 100                 | 2200pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A332K1□□A03□ | X8L | 100                 | 3300pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL82A332K1□□A03□ | X8L | 100                 | 3300pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A472K1□□A03□ | X8L | 100                 | 4700pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL82A472K1□□A03□ | X8L | 100                 | 4700pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A682K1□□A03□ | X8L | 100                 | 6800pF ±10%  | 4.0 x 3.5           | 2.5              | 2.5               | A2                   | DB                         | -                          |
| RHEL82A682K1□□A03□ | X8L | 100                 | 6800pF ±10%  | 4.0 x 3.5           | 2.5              | 5.0               | K1                   | M1                         | -                          |
| RHEL82A103K1□□A03□ | X8L | 100                 | 10000pF ±10% | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL82A103K1□□A03□ | X8L | 100                 | 10000pF ±10% | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHEL82A153K1□□A03□ | X8L | 100                 | 15000pF ±10% | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL82A153K1□□A03□ | X8L | 100                 | 15000pF ±10% | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHEL82A223K1□□A03□ | X8L | 100                 | 22000pF ±10% | 4.0 x 3.5           | 3.15             | 2.5               | A2                   | DB                         | -                          |
| RHEL82A223K1□□A03□ | X8L | 100                 | 22000pF ±10% | 4.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RHDL82A333K2□□C03□ | X8L | 100                 | 33000pF ±10% | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL82A333K2□□C03□ | X8L | 100                 | 33000pF ±10% | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL82A473K2□□C03□ | X8L | 100                 | 47000pF ±10% | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL82A473K2□□C03□ | X8L | 100                 | 47000pF ±10% | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL82A683K2□□C03□ | X8L | 100                 | 68000pF ±10% | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL82A683K2□□C03□ | X8L | 100                 | 68000pF ±10% | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |
| RHDL82A104K2□□C03□ | X8L | 100                 | 0.10μF ±10%  | 5.7 x 4.5           | 4.5              | 2.5               | A2                   | DB                         | -                          |
| RHDL82A104K2□□C03□ | X8L | 100                 | 0.10μF ±10%  | 5.7 x 4.5           | 4.5              | 5.0               | K1                   | M1                         | -                          |

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)  
Operating Temperature Range: -55 to +150deg.

## Monolithic Ceramic Capacitors (Lead Type)

RDE Series (Only for Commercial Use) (DC250V-DC630V)

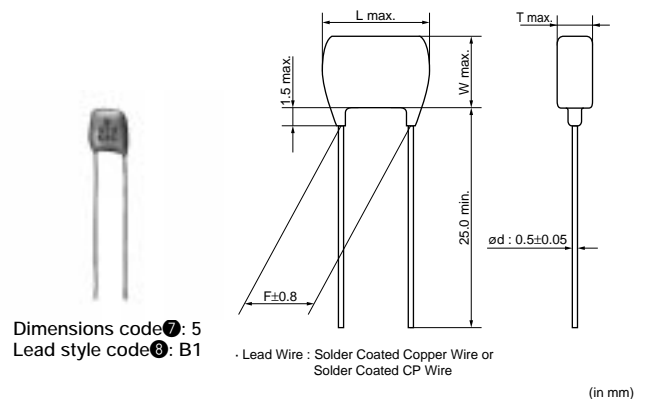
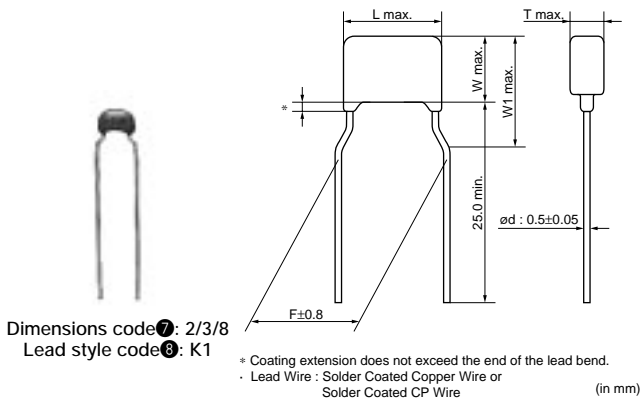
●Part number configuration (Please see page 22 for details)



●Dimensions

| Dimensions and Lead Style Code | Dimensions (mm) |       |     |   |     |     |
|--------------------------------|-----------------|-------|-----|---|-----|-----|
|                                | L               | W     | W1  | T   | F   | d   |
| 2K1/2M1                        | 5.0             | 3.5   | 5.0 | See the individual product specifications | 5.0 | 0.5 |
| 3K1/3M1                        | 5.0             | 4.5   | 6.3 |   | 5.0 | 0.5 |
| 5B1/5E1                        | 7.5             | 7.5*  | -   |   | 5.0 | 0.5 |
| 8K1/8M1                        | 7.5             | 5.5   | 8.0 |   | 5.0 | 0.5 |
| UB1/UE1                        | 7.7             | 12.5* | -   |   | 5.0 | 0.5 |

\*DC630V: W+0.5mm



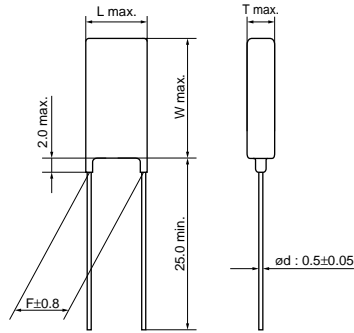
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Dimensions code **7**: U  
Lead style code **6**: B1



Lead Wire : Solder Coated Copper Wire or Solder Coated CP Wire

(in mm)

| Part Number        | TC  | Rated Voltage (Vdc) | Capacitance  | Dimensions LxW (mm) | Dimension T (mm) | Lead Space F (mm) | Lead Style Code Bulk | Lead Style Code Taping (1) | Lead Style Code Taping (2) |
|--------------------|-----|---------------------|--------------|---------------------|------------------|-------------------|----------------------|----------------------------|----------------------------|
| RDER72E102K2□□A11□ | X7R | 250                 | 1000pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E152K2□□A11□ | X7R | 250                 | 1500pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E222K2□□A11□ | X7R | 250                 | 2200pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E332K2□□A11□ | X7R | 250                 | 3300pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E472K2□□A11□ | X7R | 250                 | 4700pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E682K2□□A11□ | X7R | 250                 | 6800pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E103K2□□A11□ | X7R | 250                 | 10000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E153K2□□C11□ | X7R | 250                 | 15000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E223K2□□C11□ | X7R | 250                 | 22000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E333K2□□C11□ | X7R | 250                 | 33000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E473K2□□C11□ | X7R | 250                 | 47000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E683K3□□C11□ | X7R | 250                 | 68000pF ±10% | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E104K3□□C11□ | X7R | 250                 | 0.10µF ±10%  | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | B1                         | -                          |
| RDER72E154K8□□C11□ | X7R | 250                 | 0.15µF ±10%  | 7.5 x 5.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E224K8□□C11□ | X7R | 250                 | 0.22µF ±10%  | 7.5 x 5.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72E334K5□□C13□ | X7R | 250                 | 0.33µF ±10%  | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | -                          |
| RDER72E474K5□□C13□ | X7R | 250                 | 0.47µF ±10%  | 7.5 x 7.5           | 4.0              | 5.0               | B1                   | E1                         | -                          |
| RDER72E105MU□□C13□ | X7R | 250                 | 1.0µF ±20%   | 7.7 x 12.5          | 4.0              | 5.0               | B1                   | E1                         | -                          |
| RDER72J102K2□□C11□ | X7R | 630                 | 1000pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J152K2□□C11□ | X7R | 630                 | 1500pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J222K2□□C11□ | X7R | 630                 | 2200pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J332K2□□C11□ | X7R | 630                 | 3300pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J472K2□□C11□ | X7R | 630                 | 4700pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J682K2□□C11□ | X7R | 630                 | 6800pF ±10%  | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J103K2□□C11□ | X7R | 630                 | 10000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J153K2□□C11□ | X7R | 630                 | 15000pF ±10% | 5.0 x 3.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J223K3□□C11□ | X7R | 630                 | 22000pF ±10% | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J333K3□□C11□ | X7R | 630                 | 33000pF ±10% | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J473K3□□C11□ | X7R | 630                 | 47000pF ±10% | 5.0 x 4.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J683K8□□C11□ | X7R | 630                 | 68000pF ±10% | 7.5 x 5.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J104K8□□C11□ | X7R | 630                 | 0.10µF ±10%  | 7.5 x 5.5           | 3.15             | 5.0               | K1                   | M1                         | -                          |
| RDER72J154K5□□C13□ | X7R | 630                 | 0.15µF ±10%  | 7.5 x 8.0           | 4.0              | 5.0               | B1                   | E1                         | -                          |
| RDER72J224K5□□C13□ | X7R | 630                 | 0.22µF ±10%  | 7.5 x 8.0           | 4.0              | 5.0               | B1                   | E1                         | -                          |
| RDER72J474MU□□C13□ | X7R | 630                 | 0.47µF ±20%  | 7.7 x 13.0          | 4.0              | 5.0               | B1                   | E1                         | -                          |

Two blank columns are filled with the lead style code. Please refer to the 3 columns on the right for the appropriate code.  
The last blank column is filled with the packaging code. (B: bulk, A: ammo pack)  
Operating Temperature Range: -55 to +125deg.

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

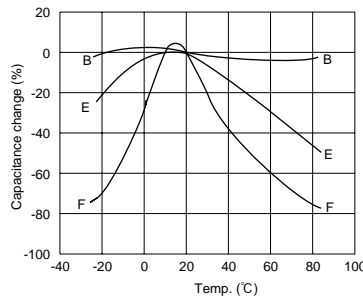
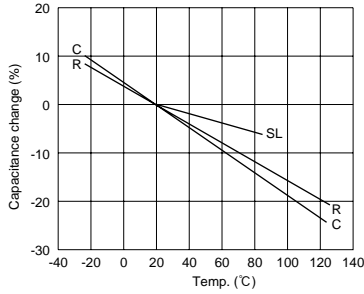
# Disc Ceramic Capacitors

● Disc Ceramic Capacitors

| Description                     | Series                          | Rated Voltage   | Temp. Char.                                  | Capacitance Range (pF) |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|---------------------------------|---------------------------------|-----------------|--|------------------------|----------------|---------|----------|----|----|-----|-----|-----|------|------|------|-------|-------|-------|--------|--------|--------|
|                                 |                                 |                 |  | 1                      | 3              | 5       | 10       | 30 | 50 | 100 | 300 | 500 | 1000 | 3000 | 5000 | 10000 | 30000 | 50000 | 100000 | 300000 | 500000 |
| High Voltage Ceramic Capacitors | DES<br>DEB<br>DEC<br>DEA<br>DEH | DC250V to 6.3kV | SL   | 5 to 560               |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | D  | 100 to 4700            |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | B  | 100 to 6800            |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | R  | 150 to 10000           |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | C  | 330 to 4700            |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | E  | 1000 to 10000          |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | F  | 1000 to 10000          |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | DEF  | 6.3kVp-p               | CH             | 2 to 10 |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | SL   | 10 to 47               |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
|                                 |                                 |                 | Safety Standard Certified Ceramic Capacitors | KY<br>KH<br>KX<br>DEJ  | AC250V(r.m.s.) | SL      | 10 to 68 |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
| B                               | 100 to 680                      |                 |  |                        |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
| E                               | 1000 to 4700                    |                 |  |                        |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
| F                               | 4700 to 10000                   |                 |  |                        |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |
| DEF                             |                                 |                 |  |                        |                |         |          |    |    |     |     |     |      |      |      |       |       |       |        |        |        |

● Typical Examples of Temperature Characteristics

● High Voltage Ceramic Capacitors/  
Safety Standard Certified Ceramic Capacitors

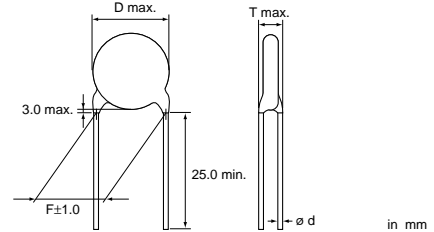
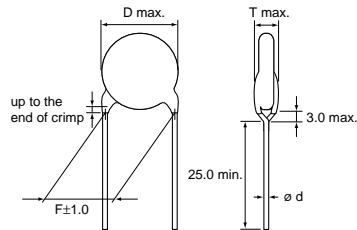


## High Voltage Ceramic Capacitors (250V-6.3kV)

### DEB Series

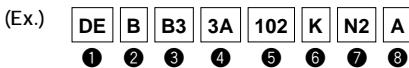
Vertical Crimp Long type  
(Lead Code: A\*)

Straight Long type  
(Lead Code: C\*)



Operating Temp. Range -25°C to +85°C

● Part number configuration (Please see page 22 for details)



| Part Number  | DC Rated Volt. (V) | Temp. Char. / ⑤ Capacitance Range (pF)   |       |            | ⑦ Lead Code and ⑧ Packaging Code |        | Dimensions (mm) |     |   |                        |     |     |   |   |          |
|--|--------------------|--|-------|------------|----------------------------------|--------|-----------------|-----|---|------------------------|-----|-----|---|---|----------|
|  |                    | B  | E     | F          | Bulk                             | Taping | D               | F   | T | ød                     |     |     |   |   |          |
| Char. B :<br>DEBB33A□□□K□□□<br>⑤ ⑦ ⑧<br>Char. E :<br>DEBE33A□□□Z□□□<br>⑤ ⑦ ⑧<br>Char. F :<br>DEBF33A□□□Z□□□<br>⑤ ⑦ ⑧ | 1k                 | 100 to 330   | —     | —          | C1B                              | P2A    | 4.5             | 5   | 4 | 0.5±0.05 <sup>1)</sup> |     |     |   |   |          |
|  |                    | 470  | 1000  | —          |                                  |        | 5               |     |   |                        |     |     |   |   |          |
|  |                    | 680, 1000  | —     | 2200       | A2B                              | N2A    | 6               |     |   |                        |     |     |   |   |          |
|  |                    | —  | 2200  | 4700       |                                  |        | 7               |     |   |                        |     |     |   |   |          |
|  |                    | 1500   | —     | —          |                                  |        | 8               |     |   |                        |     |     |   |   |          |
|  |                    | 2200   | 4700  | —          |                                  |        | 9               |     |   |                        |     |     |   |   |          |
|  |                    | 3300   | —     | 10000      |                                  |        | 10              |     |   |                        |     |     |   |   |          |
|  |                    | 4700   | —     | —          |                                  |        | A3B             |     |   |                        | N3A | 12  |   |   |          |
|  |                    | —  | 10000 | —          | 13                               |        |                 |     |   |                        |     |     |   |   |          |
|  |                    | 6800   | —     | —          | N7A                              | 15     |                 |     |   |                        |     |     |   |   |          |
|  |                    | —  | —     | —          |                                  | 7.5    |                 |     |   |                        |     |     |   |   |          |
|  |                    | Char. B :<br>DEBB33D□□□K□□□<br>⑤ ⑦ ⑧<br>Char. E :<br>DEBE33D□□□Z□□□<br>⑤ ⑦ ⑧<br>Char. F :<br>DEBF33D□□□Z□□□<br>⑤ ⑦ ⑧ | 2k    | 100 to 220 | —                                | —      | C1B             |     |   |                        | P2A | 4.5 | 5 | 5 | 0.6±0.05 |
| 330  | —                  |  |       | 1000       | 5                                |        |                 |     |   |                        |     |     |   |   |          |
| 470  | 1000               |  |       | —          | A2B                              | N2A    | 6               |     |   |                        |     |     |   |   |          |
| 680  | —                  |  |       | 2200       |                                  |        | 7               |     |   |                        |     |     |   |   |          |
| 1000   | 2200               |  |       | —          |                                  |        | 8               |     |   |                        |     |     |   |   |          |
| 1500   | —                  |  |       | 4700       |                                  |        | 9               |     |   |                        |     |     |   |   |          |
| 2200   | —                  |  |       | —          |                                  |        | 10              |     |   |                        |     |     |   |   |          |
| —  | 4700               |  |       | —          |                                  |        | 11              |     |   |                        |     |     |   |   |          |
| 3300   | —                  |  |       | 10000      | A3B                              | N3A    | 12              |     |   |                        |     |     |   |   |          |
| 4700   | —                  |  |       | —          |                                  |        | 15              |     |   |                        |     |     |   |   |          |
| —  | 10000              |  |       | —          |                                  | N7A    | 16              |     |   |                        |     |     |   |   |          |
| —  | —                  |  |       | —          |                                  |        | 7.5             |     |   |                        |     |     |   |   |          |
| Char. B :<br>DEBB33F□□□K□□□<br>⑤ ⑦ ⑧<br>Char. E :<br>DEBE33F□□□Z□□□<br>⑤ ⑦ ⑧   | 3.15k              | 100 to 220   | —     | —          | CDB                              | P3A    | 5               | 7.5 | 6 | 0.6±0.05               |     |     |   |   |          |
|  |                    | 330  | —     | —          |                                  |        | 6               |     |   |                        |     |     |   |   |          |
|  |                    | 470  | 1000  | —          | C3B                              | N3A    | 7               |     |   |                        |     |     |   |   |          |
|  |                    | 680  | —     | —          |                                  |        | 8               |     |   |                        |     |     |   |   |          |
|  |                    | 1000   | —     | —          | A3B                              | N3A    | 9               |     |   |                        |     |     |   |   |          |
|  |                    | —  | 2200  | —          |                                  |        | 10              |     |   |                        |     |     |   |   |          |
|  |                    | 1500   | —     | —          |                                  |        | 11              |     |   |                        |     |     |   |   |          |
|  |                    | 2200   | 4700  | —          |                                  |        | 13              |     |   |                        |     |     |   |   |          |
|  |                    | 3300   | —     | —          |                                  |        | N7A             |     |   |                        | 15  |     |   |   |          |
|  |                    | —  | —     | —          |                                  |        |                 |     |   |                        | 7.5 |     |   |   |          |
|  |                    | Capacitance Tolerance  |       | K          | Z                                | Z      | —               |     |   |                        |     |     |   |   |          |
|  |                    | Capacitance Step   |       | E6         | E3                               | E3     | —               |     |   |                        |     |     |   |   |          |

1) 0.6±0.05mm for Lead Code P2 and P3.

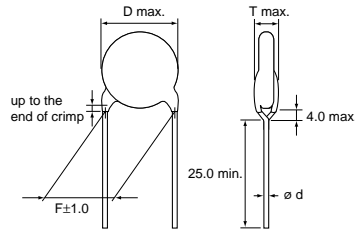
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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# High Voltage Ceramic Capacitors (250V-6.3kV)

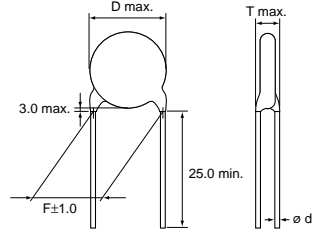
DEC Series

1  
Capacitors

Vertical Crimp Long type  
(Lead Code: A\*)



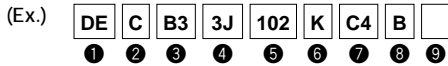
Straight Long type  
(Lead Code: C\*)



in mm

Operating Temp. Range -25°C to +85°C

●Part number configuration (Please see page 22 for details)



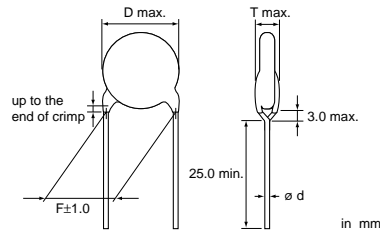
| Part Number       | Temp. Char. | DC Rated Volt. (V) | Cap. (pF) | Cap. Tol. | Dimensions (mm) |     |   |          |      |   |    |
|-------------------|-------------|--------------------|-----------|-----------|-----------------|-----|---|----------|------|---|----|
|                   |             |                    |           |           | D               | F   | T | ød       |      |   |    |
| DEC1X3J100JA3BMS1 | SL          | 6.3k               | 10        | ±5%       | 7               | 7.5 | 7 | 0.6±0.05 |      |   |    |
| DEC1X3J100JC4BMS1 |             |                    |           |           |                 | 10  |   |          |      |   |    |
| DEC1X3J120JA3B    |             |                    | 8         |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J120JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J150JA3B    |             |                    | 9         |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J150JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J180JA3B    |             |                    | 10        |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J180JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J220JA3B    |             |                    | 11        |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J220JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J270JA3B    |             |                    | 12        |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J270JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J330JA3B    |             |                    | 13        |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J330JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J390JA3B    |             |                    | 14        |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J390JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J470JA3B    |             |                    | 15        |           | 7.5             |     |   |          |      |   |    |
| DEC1X3J470JC4B    |             |                    |           |           | 10              |     |   |          |      |   |    |
| DEC1X3J560JC4B    |             |                    | 10        |           | 56              |     |   |          |      |   |    |
| DEC1X3J680JC4B    |             |                    |           |           | 68              |     |   |          |      |   |    |
| DEC1X3J820JC4B    |             |                    | 12        |           | 82              |     |   |          |      |   |    |
| DEC1X3J101JC4B    |             |                    |           |           | 100             |     |   |          |      |   |    |
| DEC1X3J121JC4B    |             |                    | 13        |           | 120             |     |   |          |      |   |    |
| DEC1X3J151JC4B    |             |                    |           |           | 150             |     |   |          |      |   |    |
| DECB33J101KC4B    |             |                    | B         |           | ±10%            | 100 |   |          | ±10% | 9 | 10 |
| DECB33J151KC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECB33J221KC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECB33J331KC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECB33J471KC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECB33J681KC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECB33J102KC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECE33J102ZC4B    |             |                    |           |           |                 |     |   |          |      |   |    |
| DECE33J222ZC4B    | E           | +80%<br>-20%       | 1000      | ±10%      | 11              | 15  |   |          |      |   |    |
| DECE33J222ZC4B    | 2200        |                    |           |           |                 |     |   |          |      |   |    |

# High Voltage Ceramic Capacitors (250V-6.3kV)

DES Series

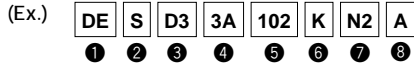


Vertical Crimp Long type  
(Lead Code: A\*)



Operating Temp. Range -25°C to +125°C

●Part number configuration (Please see page 22 for details)



| Part Number    | DC Rated Volt. (V) | Cap. (pF) | Cap. Tol. (%) | ⑦Lead Code and ⑧Packaging Code |        | Dimensions (mm) |     |     |          |
|----------------|--------------------|-----------|---------------|--------------------------------|--------|-----------------|-----|-----|----------|
|                |                    |           |               | Bulk                           | Taping | D               | F   | T   | ød       |
| DESD32H101K□□□ | 500                | 100       | ±10           | A2B                            | N2A    | 6               | 5   | 4   | 0.6±0.05 |
| DESD32H151K□□□ |                    | 150       |               |                                |        |                 |     |     |          |
| DESD32H221K□□□ |                    | 220       |               |                                |        |                 |     |     |          |
| DESD32H331K□□□ |                    | 330       |               |                                |        |                 |     |     |          |
| DESD32H471K□□□ |                    | 470       |               |                                |        |                 |     |     |          |
| DESD32H681K□□□ |                    | 680       |               |                                |        |                 |     |     |          |
| DESD32H102K□□□ |                    | 1000      |               |                                |        |                 |     |     |          |
| DESD32H152K□□□ |                    | 1500      |               |                                |        |                 |     |     |          |
| DESD32H222K□□□ |                    | 2200      |               |                                |        |                 |     |     |          |
| DESD32H332K□□□ |                    | 3300      |               |                                |        |                 |     |     |          |
| DESD32H472K□□□ | 4700               |           |               |                                |        |                 |     |     |          |
| DESD33A101K□□□ | 1k                 | 100       | ±10           | A2B                            | N2A    | 6               | 5   | 4.5 | 0.6±0.05 |
| DESD33A151K□□□ |                    | 150       |               |                                |        |                 |     |     |          |
| DESD33A221K□□□ |                    | 220       |               |                                |        |                 |     |     |          |
| DESD33A331K□□□ |                    | 330       |               |                                |        |                 |     |     |          |
| DESD33A471K□□□ |                    | 470       |               |                                |        |                 |     |     |          |
| DESD33A681K□□□ |                    | 680       |               |                                |        |                 |     |     |          |
| DESD33A102K□□□ |                    | 1000      |               |                                |        |                 |     |     |          |
| DESD33A152K□□□ |                    | 1500      |               |                                |        |                 |     |     |          |
| DESD33A222K□□□ |                    | 2200      |               |                                |        |                 |     |     |          |
| DESD33A332K□□□ |                    | 3300      |               |                                |        |                 |     |     |          |
| DESD33A472K□□□ | 4700               |           |               |                                |        |                 |     |     |          |
|                |                    |           |               | A3B                            | N3A    | 12              | 7.5 |     |          |
|                |                    |           |               | A3B                            | N7A    | 14              | 7.5 |     |          |
|                |                    |           |               | A3B                            | N7A    | 17              | 7.5 |     |          |

Three blank columns are filled with Lead Code and Packaging Code.

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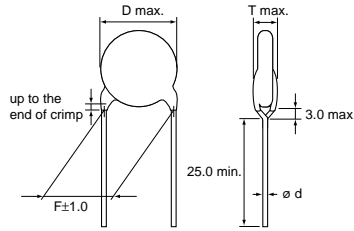
# High Voltage Ceramic Capacitors (250V-6.3kV)

DEA/DEH Series

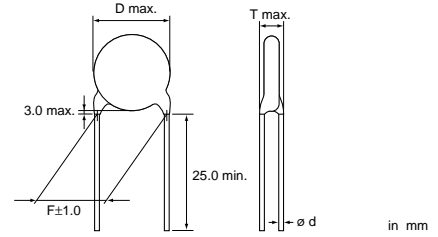
1  
Capacitors



Vertical Crimp Long type  
(Lead Code: A\*)

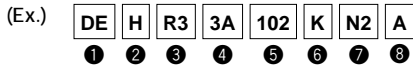


Straight Long type  
(Lead Code: C\*)



Operating Temp. Range -25°C to +125°C

●Part number configuration (Please see page 22 for details)



| Part Number   | DC Rated Volt. (V) | Temp. Char./⑤ Capacitance Range (pF) |                |                | ⑦ Lead Code and ⑧ Packaging Code |        | Dimensions (mm) |     |                   |                        |
|---|--------------------|--------------------------------------|----------------|----------------|----------------------------------|--------|-----------------|-----|-------------------|------------------------|
|   |                    | SL (DEA Series)                      | R (DEH Series) | C (DEH Series) | Bulk                             | Taping | D               | F   | T                 | ød                     |
|   |                    |                                      |                |                |                                  |        |                 |     |                   |                        |
| Char. R :<br>DEHR32E□□□K□□□<br>⑤ ⑦ ⑧  | 250                | ---                                  | 220 to 1000    | ---            | A2B                              | N2A    | 6               | 5   | 4                 | 0.6±0.05               |
|   |                    | ---                                  | 1500           | ---            |                                  |        | 7               |     |                   |                        |
|   |                    | ---                                  | 2200           | ---            |                                  |        | 8               |     |                   |                        |
|   |                    | ---                                  | 3300           | ---            |                                  |        | 9               |     |                   |                        |
|   |                    | ---                                  | 4700           | ---            |                                  |        | 10              |     |                   |                        |
|   |                    | ---                                  | 6800 , 10000   | ---            |                                  |        | 12              |     |                   |                        |
| Char. C :<br>DEHC32H□□□K□□□<br>⑤ ⑦ ⑧  | 500                | ---                                  | ---            | 330 , 470      | A2B                              | N2A    | 6               | 5   | 4                 | 0.6±0.05               |
|   |                    | ---                                  | ---            | 680            |                                  |        | 7               |     |                   |                        |
|   |                    | ---                                  | ---            | 1000           |                                  |        | 8               |     |                   |                        |
|   |                    | ---                                  | ---            | 1500           |                                  |        | 9               |     |                   |                        |
|   |                    | ---                                  | ---            | 2200           |                                  |        | 10              |     |                   |                        |
|   |                    | ---                                  | ---            | 3300           |                                  |        | 12              |     |                   |                        |
|   |                    | ---                                  | ---            | 4700           |                                  |        | A4B             |     |                   |                        |
| Char. SL :<br>DEA1X3A□□□J□□□<br>⑤ ⑦ ⑧<br><br>Char. R :<br>DEHR33A□□□K□□□<br>⑤ ⑦ ⑧ | 1k                 | 10 to 47                             | ---            | ---            | C1B                              | P2A    | 4.5             | 5   | 4                 | 0.5±0.05 <sup>1)</sup> |
|   |                    | 56 , 68                              | ---            | ---            |                                  |        | 5               |     |                   |                        |
|   |                    | 82 to 120                            | ---            | ---            | A2B                              | N2A    | 6               | 5   | 4.5 <sup>2)</sup> | 0.6±0.05               |
|   |                    | 150 , 180                            | 220 to 470     | ---            |                                  |        | 7               |     |                   |                        |
|   |                    | 220                                  | 680            | ---            |                                  |        | 8               |     |                   |                        |
|   |                    | 270                                  | 1000           | ---            |                                  |        | 9               |     |                   |                        |
|   |                    | 330 , 390                            | ---            | ---            |                                  |        | 10              |     |                   |                        |
|   |                    | 470                                  | 1500           | ---            |                                  |        | 11              |     |                   |                        |
|   |                    | 560                                  | ---            | ---            |                                  |        | 12              |     |                   |                        |
|   |                    | ---                                  | 2200           | ---            | A3B                              | N3A    | 13              | 7.5 |                   |                        |
|   |                    | ---                                  | 3300           | ---            |                                  |        | 15              |     |                   |                        |
|   |                    | ---                                  | 4700           | ---            |                                  |        | 17              |     |                   |                        |
|   |                    | ---                                  | ---            | ---            | A3B                              | N7A    | 15              | 7.5 |                   |                        |
| ---   | ---                | ---                                  | 17             |                |                                  |        |                 |     |                   |                        |

Continued on the following page.

Continued from the preceding page.

| Part Number   | DC Rated Volt. (V) | Temp. Char./⑤ Capacitance Range (pF) |                                       |                | ⑦ Lead Code and ⑧ Packaging Code |        | Dimensions (mm) |     |     |                        |          |
|---|--------------------|--------------------------------------|---------------------------------------|----------------|----------------------------------|--------|-----------------|-----|-----|------------------------|----------|
|   |                    | SL (DEA Series)                      | R (DEH Series)                        | C (DEH Series) | Bulk                             | Taping | D               | F   | T   | ød                     |          |
| Char. SL :<br>DEA1X3D□□□J□□□<br>⑤ ⑦ ⑧<br><br>Char. R :<br>DEHR33D□□□K□□□<br>⑤ ⑦ ⑧ | 2k                 | 10 to 33                             | ---                                   | ---            | C1B                              | P2A    | 4.5             | 5   | 5   | 0.5±0.05 <sup>1)</sup> |          |
|   |                    | 39                                   | ---                                   | ---            |                                  |        | 5               |     |     |                        |          |
|   |                    | 47 to 68                             | ---                                   | ---            | A2B                              | N2A    | 6               |     |     |                        |          |
|   |                    | 82 , 100                             | ---                                   | ---            |                                  |        | 7               |     |     |                        |          |
|   |                    | 120 , 150                            | ---                                   | ---            |                                  |        | 8               |     |     |                        |          |
|   |                    | 180                                  | ---                                   | ---            |                                  |        | 9               |     |     |                        |          |
|   |                    | 220                                  | ---                                   | ---            |                                  |        | 10              |     |     |                        |          |
|   |                    | 270                                  | ---                                   | ---            |                                  |        | 11              |     |     |                        |          |
|   |                    | ---                                  | 220 , 270                             | ---            |                                  |        | C3B             |     |     |                        | P3A      |
|   |                    | ---                                  | 330 , 390                             | ---            | A3B                              | N3A    | 8               |     |     |                        |          |
|   |                    | ---                                  | 470 , 560                             | ---            |                                  |        | 9               |     |     |                        |          |
|   |                    | ---                                  | 680                                   | ---            |                                  |        | 10              |     |     |                        |          |
|   |                    | ---                                  | 820                                   | ---            |                                  |        | 11              |     |     |                        |          |
|   |                    | 330                                  | 1000 to 1500                          | ---            |                                  |        | 12              |     |     |                        |          |
|   |                    | 390                                  | ---                                   | ---            |                                  |        | 13              |     |     |                        |          |
|   |                    | 470                                  | 1800                                  | ---            |                                  |        | 14              |     |     |                        |          |
|   |                    | 560                                  | 2200                                  | ---            |                                  |        | N7A             | 15  |     |                        |          |
|   |                    | ---                                  | 2700                                  | ---            |                                  |        |                 | 17  |     |                        |          |
|   |                    | ---                                  | 3300                                  | ---            |                                  |        |                 | 19  |     |                        |          |
|   |                    | ---                                  | 3900                                  | ---            | A4B                              | ---    | 20              | 10  | 7.5 | 6                      | 0.6±0.05 |
|   |                    | ---                                  | 4700                                  | ---            | ---                              | 21     |                 |     |     |                        |          |
| Char. SL :<br>DEA1X3F□□□J□□□<br>⑤ ⑦ ⑧<br><br>Char. R :<br>DEHR33F□□□K□□□<br>⑤ ⑦ ⑧ | 3.15k              | 10 to 22                             | ---                                   | ---            | CDB                              | P3A    | 5               | 7.5 | 6   | 0.5±0.05 <sup>1)</sup> |          |
|   |                    | 27 to 39                             | ---                                   | ---            | C3B                              |        | 6               |     |     |                        |          |
|   |                    | 47, 56                               | 150 to 270                            | ---            | A3B                              | N3A    | 7               |     |     |                        |          |
|   |                    | 68, 82                               | 330                                   | ---            |                                  |        | 8               |     |     |                        |          |
|   |                    | 100                                  | 390                                   | ---            |                                  |        | 9               |     |     |                        |          |
|   |                    | 120                                  | 470, 560                              | ---            |                                  |        | 10              |     |     |                        |          |
|   |                    | 150, 180                             | 680                                   | ---            |                                  |        | 11              |     |     |                        |          |
|   |                    | 220                                  | 820                                   | ---            |                                  |        | 12              |     |     |                        |          |
|   |                    | ---                                  | 1000                                  | ---            |                                  |        | 13              |     |     |                        |          |
|   |                    | 270                                  | 1200                                  | ---            |                                  |        | 14              |     |     |                        |          |
|   |                    | 330                                  | 1500                                  | ---            |                                  |        | N7A             |     |     | 15                     |          |
|   |                    | 390                                  | 1800                                  | ---            |                                  |        |                 |     |     | 16                     |          |
|   |                    | ---                                  | 2200                                  | ---            |                                  |        |                 |     |     | 17                     |          |
|   |                    | ---                                  | 2700                                  | ---            |                                  |        |                 |     |     | 19                     |          |
|   |                    | ---                                  | ---                                   | ---            |                                  |        | A4B             |     |     | ---                    | 19       |
| Capacitance Tolerance   |                    | J                                    | K                                     | K              | ---                              |        |                 |     |     |                        |          |
| Capacitance Step  |                    | E12                                  | E6 (250V to 1kV)<br>E12 (2kV, 3.15kV) |                | ---                              |        |                 |     |     |                        |          |

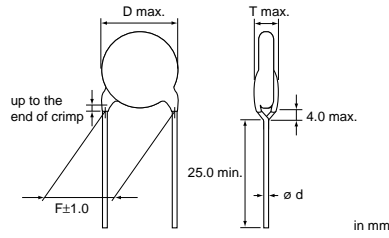
1) 0.6±0.05 mm for Lead Code P2 and P3.  
2) 4mm for Characteristics SL.

# High Voltage Ceramic Capacitors (6.3kVp-p)

DEF Series (LCD Backlight Inverter Circuit)

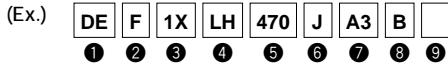
1  
Capacitors

Vertical Crimp Long type  
(Lead Code: A\*)



Operating Temp. Range -25°C to +105°C

●Part number configuration (Please see page 22 for details)



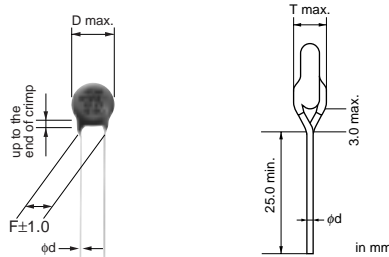
| Part Number     | Rated Volt. (Vp-p) | Cap. (pF) | Cap. Tol. | ⑦Lead Code and ⑧Packaging Code |        | Dimensions (mm) |     |   |          |
|-----------------|--------------------|-----------|-----------|--------------------------------|--------|-----------------|-----|---|----------|
|                 |                    |           |           | Bulk                           | Taping | D               | F   | T | ød       |
| DEF2CLH020C□□□□ | 6.3k               | 2         | ±0.25pF   | A3B                            | N3A    | 7               | 7.5 | 6 | 0.6±0.05 |
| DEF2CLH030C□□□□ |                    | 3         |           |                                |        |                 |     |   |          |
| DEF2CLH040C□□□□ |                    | 4         |           |                                |        |                 |     |   |          |
| DEF2CLH050D□□□□ |                    | 5         |           |                                |        |                 |     |   |          |
| DEF2CLH060D□□□□ |                    | 6         | ±0.5pF    |                                |        |                 |     |   |          |
| DEF2CLH070D□□□□ |                    | 7         |           |                                |        |                 |     |   |          |
| DEF2CLH080D□□□□ |                    | 8         |           |                                |        |                 |     |   |          |
| DEF2CLH090D□□□□ |                    | 9         |           |                                |        |                 |     |   |          |
| DEF2CLH100J□□□□ |                    | 10        | ±5%       |                                |        |                 |     |   |          |
| DEF1XLH100J□□□□ |                    | 10        |           |                                |        |                 |     |   |          |
| DEF1XLH120J□□□□ |                    | 12        |           |                                |        |                 |     |   |          |
| DEF1XLH150J□□□□ |                    | 15        |           |                                |        |                 |     |   |          |
| DEF1XLH180J□□□□ |                    | 18        |           |                                |        |                 |     |   |          |
| DEF1XLH220J□□□□ |                    | 22        |           |                                |        |                 |     |   |          |
| DEF1XLH270J□□□□ |                    | 27        |           |                                |        |                 |     |   |          |
| DEF1XLH330J□□□□ |                    | 33        |           |                                |        |                 |     |   |          |
| DEF1XLH390J□□□□ |                    | 39        |           |                                |        |                 |     |   |          |
| DEF1XLH470J□□□□ |                    | 47        |           |                                |        |                 |     |   |          |

Three blank columns are filled with Lead Code and Packaging Code.

## Safety Standard Certified Ceramic Capacitors

Type KY (Basic Insulation) —IEC60384-14 Class X1, Y2—

Vertical Crimp Long type  
(Lead code: A2, A3)

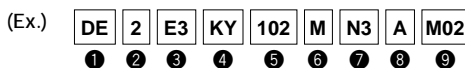


Operating Temp. Range -25°C to +125°C (Standard of UL : -25°C to +85°C)

|       | Standard No.                                      | Rated Voltage   |
|-------|---|-----------------|
| UL    | UL1414  | AC250V (r.m.s.) |
| CSA   | E384-14   |                 |
| BSI   | EN 60065 (8.8, 14.2)<br>EN 60384-14, IEC 60384-14 |                 |
| SEMKO | EN 60384-14<br>IEC 60384-14                       |                 |
| ESTI  |   |                 |
| VDE   |   |                 |
| FIMKO |   |                 |
| NEMKO |   |                 |
| DEMKO | IEC 60384-14<br>AS3250                            |                 |
| NSW   |   |                 |

\*Please contact us when the recognition of Chinese Safety Standard or South Korean Safety Standard is necessary.

●Part number configuration (Please see page 23 for details)





●Lead spacing F=7.5mm

| Part Number       | Temp. Char. | Cap. (pF) | Cap. Tol. (%) | ⑦Lead Code and ⑧Packaging Code |        | Dimensions (mm) |     |   |          |
|-------------------|-------------|-----------|---------------|--------------------------------|--------|-----------------|-----|---|----------|
|                   |             |           |               | Bulk                           | Taping | D               | F   | T | ød       |
| DE21XKY100J□□□M02 | SL          | 10        | ±5            | A3B                            | N3A    | 8               | 7.5 | 5 | 0.6±0.05 |
| DE21XKY150J□□□M02 |             | 15        |               |                                |        |                 |     |   |          |
| DE21XKY220J□□□M02 |             | 22        |               |                                |        |                 |     |   |          |
| DE21XKY330J□□□M02 |             | 33        |               |                                |        |                 |     |   |          |
| DE21XKY470J□□□M02 |             | 47        |               |                                |        |                 |     |   |          |
| DE21XKY680J□□□M02 |             | 68        |               |                                |        |                 |     |   |          |
| DE2B3KY101K□□□M02 | B           | 100       | ±10           |                                |        | 7               |     |   |          |
| DE2B3KY151K□□□M02 |             | 150       |               |                                |        |                 |     |   |          |
| DE2B3KY221K□□□M02 |             | 220       |               |                                |        |                 |     |   |          |
| DE2B3KY331K□□□M02 |             | 330       |               |                                |        |                 |     |   |          |
| DE2B3KY471K□□□M02 |             | 470       |               |                                |        |                 |     |   |          |
| DE2B3KY681K□□□M02 |             | 680       |               |                                |        |                 |     |   |          |
| DE2E3KY102M□□□M02 | E           | 1000      | ±20           |                                |        | 8               |     |   |          |
| DE2E3KY152M□□□M02 |             | 1500      |               |                                |        |                 |     |   |          |
| DE2E3KY222M□□□M02 |             | 2200      |               |                                |        |                 |     |   |          |
| DE2E3KY332M□□□M02 |             | 3300      |               |                                |        |                 |     |   |          |
| DE2E3KY472M□□□M02 |             | 4700      |               |                                |        |                 |     |   |          |
| DE2F3KY103M□□□M02 |             | F         |               |                                |        |                 |     |   |          |

Dielectric Strength : AC2600V (r.m.s.), 60 s  
 Three blank columns are filled with Lead Code and Packaging Code.  
 Murata part numbers might be changed depending on lead code or any other changes.  
 Therefore, please specify only the type name (KY) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

●Lead spacing F=5mm

| Part Number       | Temp. Char. | Cap. (pF) | Cap. Tol. (%) | ⑦Lead Code and ⑧Packaging Code |        | Dimensions (mm) |   |   |          |
|-------------------|-------------|-----------|---------------|--------------------------------|--------|-----------------|---|---|----------|
|                   |             |           |               | Bulk                           | Taping | D               | F | T | ød       |
| DE21XKY100J□□□M01 | SL          | 10        | ±5            | A2B                            | N2A    | 8               | 5 | 5 | 0.6±0.05 |
| DE21XKY150J□□□M01 |             | 15        |               |                                |        |                 |   |   |          |
| DE21XKY220J□□□M01 |             | 22        |               |                                |        |                 |   |   |          |
| DE21XKY330J□□□M01 |             | 33        |               |                                |        |                 |   |   |          |
| DE21XKY470J□□□M01 |             | 47        |               |                                |        |                 |   |   |          |
| DE21XKY680J□□□M01 |             | 68        |               |                                |        |                 |   |   |          |
| DE2B3KY101K□□□M01 | B           | 100       | ±10           |                                |        | 7               |   |   |          |
| DE2B3KY151K□□□M01 |             | 150       |               |                                |        |                 |   |   |          |
| DE2B3KY221K□□□M01 |             | 220       |               |                                |        |                 |   |   |          |
| DE2B3KY331K□□□M01 |             | 330       |               |                                |        |                 |   |   |          |
| DE2B3KY471K□□□M01 |             | 470       |               |                                |        |                 |   |   |          |
| DE2B3KY681K□□□M01 |             | 680       |               |                                |        |                 |   |   |          |
| DE2E3KY102M□□□M01 | E           | 1000      | ±20           |                                |        | 8               |   |   |          |
| DE2E3KY152M□□□M01 |             | 1500      |               |                                |        |                 |   |   |          |
| DE2E3KY222M□□□M01 |             | 2200      |               |                                |        |                 |   |   |          |
| DE2E3KY332M□□□M01 |             | 3300      |               |                                |        |                 |   |   |          |
| DE2E3KY472M□□□M01 |             | 4700      |               |                                |        |                 |   |   |          |
| DE2E3KY472M□□□M01 |             |           |               |                                |        |                 |   |   |          |

Dielectric Strength : AC2000V (r.m.s.), 60 s  
 Three blank columns are filled with Lead Code and Packaging Code.  
 Murata part numbers might be changed depending on lead code or any other changes.  
 Therefore, please specify only the type name (KY) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

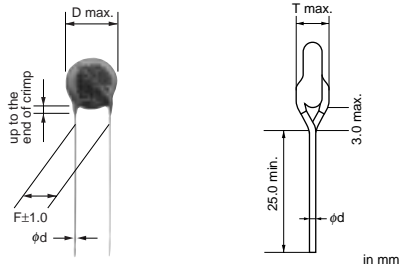
△Note • This PDF catalog is downloaded from the website of Murata Manufacturing co., ltd. Therefore, it's specifications are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.  
 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Safety Standard Certified Ceramic Capacitors

Type KH (Basic Insulation) —IEC60384-14 Class X1, Y2—

1  
Capacitors

Vertical Crimp Long type  
(Lead code: A3)



Operating Temp. Range -25°C to +125°C (Standard of UL : -25°C to +85°C)

|       | Standard No.                                      | Rated Voltage   |
|-------|---|-----------------|
| UL    | UL1414  | AC250V (r.m.s.) |
| CSA   | E384-14   |                 |
| BSI   | EN 60065 (8.8, 14.2)<br>EN 60384-14, IEC 60384-14 |                 |
| SEMKO | EN 60384-14<br>IEC 60384-14                       |                 |
| ESTI  |   |                 |
| VDE   |   |                 |
| FIMKO |   |                 |
| NEMKO |   |                 |
| DEMKO | IEC 60384-14<br>AS3250                            |                 |
| NSW   |   |                 |

\*Please contact us when the recognition of Chinese Safety Standard or South Korean Safety Standard is necessary.

●Part number configuration (Please see page 23 for details)



| Part Number    | Temp. Char. | Cap. (pF) | Cap. Tol. (%) | ⑦Lead Code and ⑧Packaging Code |        | Dimensions (mm) |     |     |          |     |    |          |  |  |          |
|----------------|-------------|-----------|---------------|--------------------------------|--------|-----------------|-----|-----|----------|-----|----|----------|--|--|----------|
|                |             |           |               | Bulk                           | Taping | D               | F   | T   | φd       |     |    |          |  |  |          |
| DE2B3KH101K□□□ | B           | 100       | ±10           | A3B                            | N3A    | 8               | 7.5 | 7   | 0.6±0.05 |     |    |          |  |  |          |
| DE2B3KH151K□□□ |             | 150       |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2B3KH221K□□□ |             | 220       |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2B3KH331K□□□ |             | 330       |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2B3KH471K□□□ |             | 470       |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2B3KH681K□□□ |             | 680       |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2E3KH102M□□□ | E           | 1000      | ±20           |                                |        | A3B             | N3A | 8   |          | 7.5 | 7  | 0.6±0.05 |  |  |          |
| DE2E3KH152M□□□ |             | 1500      |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2E3KH222M□□□ |             | 2200      |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2E3KH332M□□□ |             | 3300      |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2E3KH472M□□□ |             | 4700      |               |                                |        |                 |     |     |          |     |    |          |  |  |          |
| DE2F3KH103M□□□ | F           | 10000     |               |                                |        |                 |     | A3B |          | N7A | 16 |          |  |  | 0.6±0.05 |

Dielectric Strength : AC2600V (r.m.s.), 60 s

Three blank columns are filled with Lead Code and Packaging Code.

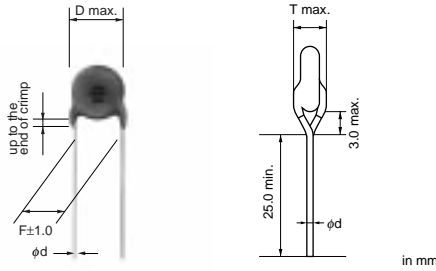
Murata part numbers might be changed depending on lead code or any other changes.

Therefore, please specify only the type name (KH) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

# Safety Standard Certified Ceramic Capacitors

Type KX Small Size (Reinforced Insulation) —IEC60384-14 Class X1, Y1—

Vertical Crimp Long type  
(Lead code: A4)



|       | Standard No.                                      | Rated Voltage   |
|-------|---|-----------------|
| UL    | UL1414  | AC250V (r.m.s.) |
| CSA   | E384-14   |                 |
| BSI   | EN 60065 (8.8, 14.2)<br>EN 60384-14, IEC 60384-14 |                 |
| SEMKO | EN 60384-14<br>IEC 60384-14                       |                 |
| ESTI  |   |                 |
| VDE   |   |                 |
| FIMKO |   |                 |
| NEMKO |   |                 |
| DEMKO |   |                 |
| IMQ   | EN 60384-14                                       |                 |

Operating Temp. Range -25°C to +125°C (Standard of UL : -25°C to +85°C)

\* Small sized Type KX differs from current Type KX in electrical characteristics, such as the voltage dependency, of capacitance temperature dependency, and Dielectric strength.

Therefore, before replacing current Type KX, please make a performance check by equipment.

\*Please contact us when the recognition of Chinese Safety Standard or South Korean Safety Standard is necessary.

● Part number configuration (Please see page 23 for details)

(Ex.) 

|    |   |    |    |     |   |    |   |     |
|----|---|----|----|-----|---|----|---|-----|
| DE | 1 | E3 | KX | 102 | M | N4 | A | L01 |
| ①  | ② | ③  | ④  | ⑤   | ⑥ | ⑦  | ⑧ | ⑨   |

| Part Number       | Temp. Char. | Cap. (pF) | Cap. Tol. (%) | ⑦ Lead Code and ⑧ Packaging Code |        | Dimensions (mm) |     |   |          |    |   |          |
|-------------------|-------------|-----------|---------------|----------------------------------|--------|-----------------|-----|---|----------|----|---|----------|
|                   |             |           |               | Bulk                             | Taping | D               | F   | T | ød       |    |   |          |
| DE1B3KX101K□□□L01 | B           | 100       | ±10           | A4B                              | N4A    | 8               | 10  | 7 | 0.6±0.05 |    |   |          |
| DE1B3KX151K□□□L01 |             | 150       |               |                                  |        |                 |     |   |          |    |   |          |
| DE1B3KX221K□□□L01 |             | 220       |               |                                  |        |                 |     |   |          |    |   |          |
| DE1B3KX331K□□□L01 |             | 330       |               |                                  |        |                 |     |   |          |    |   |          |
| DE1B3KX471K□□□L01 |             | 470       |               |                                  |        |                 |     |   |          |    |   |          |
| DE1B3KX681K□□□L01 |             | 680       |               |                                  |        |                 |     |   |          |    |   |          |
| DE1E3KX102M□□□L01 | E           | 1000      | ±20           |                                  |        | A4B             | N4A | 8 |          | 10 | 7 | 0.6±0.05 |
| DE1E3KX152M□□□L01 |             | 1500      |               |                                  |        |                 |     |   |          |    |   |          |
| DE1E3KX222M□□□L01 |             | 2200      |               |                                  |        |                 |     |   |          |    |   |          |
| DE1E3KX332M□□□L01 |             | 3300      |               |                                  |        |                 |     |   |          |    |   |          |
| DE1E3KX472M□□□L01 |             | 4700      |               |                                  |        |                 |     |   |          |    |   |          |
| DE1E3KX102M□□□L01 |             | 1000      |               |                                  |        |                 |     |   |          |    |   |          |

Dielectric Strength : AC4000V (r.m.s.), 60 s

Three blank columns are filled with Lead Code and Packaging Code. Individual specification code "L01" expresses small size.

Murata part numbers might be changed depending on lead code or any other changes.

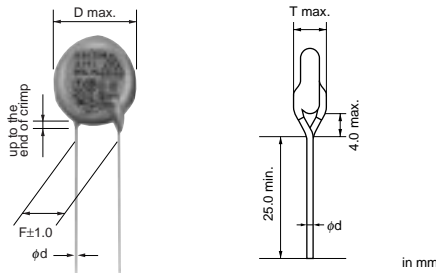
Therefore, please specify only the type name (KX) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

# Safety Standard Certified Ceramic Capacitors

Type KX (Reinforced Insulation) —IEC60384-14 Class X1, Y1—

1  
Capacitors

Vertical Crimp Long type  
(Lead code: A5)



|       | Standard No.                                      | Rated Voltage   |
|-------|---|-----------------|
| UL    | UL1414  | AC250V (r.m.s.) |
| CSA   | E384-14   |                 |
| BSI   | EN 60065 (8.8, 14.2)<br>EN 60384-14, IEC 60384-14 |                 |
| SEMKO | EN 60384-14<br>IEC 60384-14                       |                 |
| ESTI  |   |                 |
| VDE   |   |                 |
| FIMKO |   |                 |
| NEMKO |   |                 |
| DEMKO |   |                 |
| IMQ   | EN 60384-14                                       |                 |

Operating Temp. Range -25°C to +125°C (Standard of UL : -25°C to +85°C)

\*Please contact us when the recognition of Chinese Safety Standard or South Korean Safety Standard is necessary.

●Part number configuration (Please see page 23 for details)

(Ex.) 

|    |   |    |    |     |   |    |   |   |
|----|---|----|----|-----|---|----|---|---|
| DE | 1 | B3 | KX | 221 | K | N5 | A | □ |
| ①  | ② | ③  | ④  | ⑤   | ⑥ | ⑦  | ⑧ | ⑨ |

| Part Number       | Temp. Char. | Cap. (pF) | Cap. Tol. (%) | ⑦Lead Code and ⑧Packaging Code |        | Dimensions (mm) |    |   |                                      |
|-------------------|-------------|-----------|---------------|--------------------------------|--------|-----------------|----|---|--------------------------------------|
|                   |             |           |               | Bulk                           | Taping | D               | F  | T | ød                                   |
| DE11XKX100J□□□    | SL          | 10        | ±5            | A5B                            | N5A    | 9               | 10 | 8 | 0.6 <sup>+0.1</sup> <sub>-0.05</sub> |
| DE11XKX150J□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE11XKX220J□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE11XKX330J□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE11XKX470J□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE11XKX680J□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE1B3KX101K□□□    | B           | 100       | ±10           |                                |        |                 |    |   |                                      |
| DE1B3KX151K□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE1B3KX221K□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE1B3KX331K□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE1B3KX471K□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE1B3KX681K□□□    |             |           |               |                                |        |                 |    |   |                                      |
| DE1E3KX102M□□□A01 | E           | 1000      | ±20           |                                |        |                 |    |   |                                      |
| DE1E3KX152M□□□A01 |             |           |               |                                |        |                 |    |   |                                      |
| DE1E3KX222M□□□A01 |             |           |               |                                |        |                 |    |   |                                      |
| DE1E3KX332M□□□A01 |             |           |               |                                |        |                 |    |   |                                      |
| DE1E3KX392M□□□A01 |             |           |               |                                |        |                 |    |   |                                      |
| DE1E3KX472M□□□A01 |             |           |               |                                |        |                 |    |   |                                      |

Dielectric Strength : AC4000V (r.m.s.), 60 s

Three blank columns are filled with Lead Code and Packaging Code.

Murata part numbers might be changed depending on lead code or any other changes.

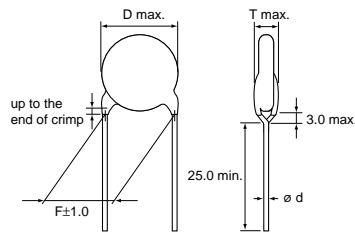
Therefore, please specify only the type name (KX) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

# Safety Standard Certified Ceramic Capacitors

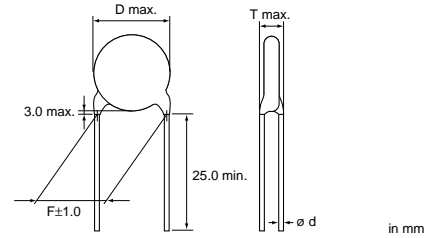
DEJ Series—Products which are Based on the Electrical Appliance and Material Safety Law of Japan—



Vertical Crimp Long type  
(Lead Code: A\*)

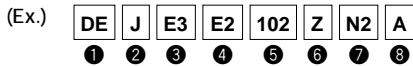


Straight Long type  
(Lead Code: C\*)



Operating Temp. Range -25°C to +85°C

● Part number configuration (Please see page 23 for details)



| Part Number    | Temp. Char. | Cap. (pF) | Cap. Tol. (%) | ⑦ Lead Code and ⑧ Packaging Code |        |     | Dimensions (mm) |                   |   |          |
|----------------|-------------|-----------|---------------|----------------------------------|--------|-----|-----------------|-------------------|---|----------|
|                |             |           |               | Bulk                             | Taping |     | D               | F                 | T | ød       |
| DEJE3E2102Z□□□ | E           | 1000      | +80<br>-20    | A3B                              | N2A    | N3A | 7               | 7.5 <sup>1)</sup> | 4 | 0.6±0.05 |
| DEJE3E2222Z□□□ |             | 8         |               |                                  |        |     |                 |                   |   |          |
| DEJE3E2332Z□□□ |             | 9         |               |                                  |        |     |                 |                   |   |          |
| DEJE3E2472Z□□□ |             | 11        |               |                                  |        |     |                 |                   |   |          |
| DEJF3E2472Z□□□ | F           | 4700      |               |                                  |        |     | 8               |                   |   |          |
| DEJF3E2103Z□□□ |             | 10000     |               |                                  |        |     | 11              |                   |   |          |

Dielectric Strength : AC1500V (r.m.s.), 60 s

1) 5mm for Lead Code N2

Three blank columns are filled with Lead Code and Packaging Code.

● Minimum Quantity (order in sets only)/Minimum Order Quantity

|   |           | Minimum Quantity | Minimum Order Quantity |                     |
|---|-----------|------------------|------------------------|---------------------|
| High-Voltage Ceramic Capacitors/<br>Safety Standard Certified<br>Ceramic Capacitors | Bulk      | 1,000            | 3,000                  |                     |
|   | Lead Code | P2, N2           | 1,500 <sup>1)</sup>    | 3,000               |
|   |           | P3, N3           | 1,000 <sup>2)</sup>    | 3,000 <sup>3)</sup> |
|   |           | N7               | 500 <sup>4)</sup>      | 2,000               |
|   |           | N4, N5           | 500                    | 2,000               |

1) 1,000 pcs. for Type KY.

2) 900 pcs. for 2kV and 3.15kV rated voltages, DEF Series and Type KH/KY.

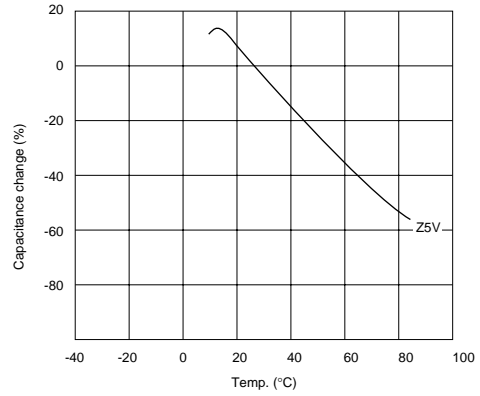
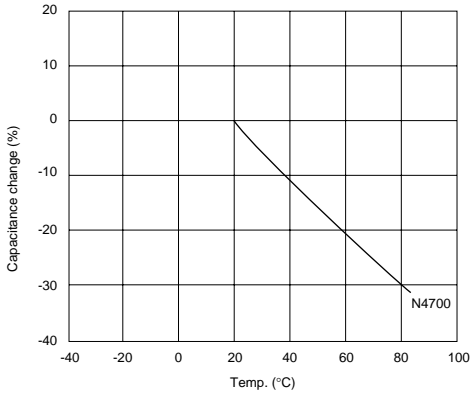
3) 2,700 pcs. for 2kV and 3.15kV rated voltages, DEF Series and Type KH/KY.

4) 400 pcs. for Type KH.

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

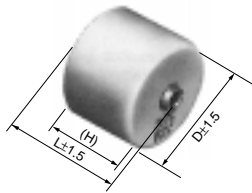
# High Voltage Ceramic Capacitors (10-40kV)

● Typical Example of Temperature Characteristics



# High Voltage Ceramic Capacitors (10-40kV)

DHS Series



in mm

Operating Temp. Range -20°C to +85°C

● Part number configuration (Please see page 24 for details)

(Ex.) 

|    |   |    |    |     |   |    |   |
|----|---|----|----|-----|---|----|---|
| DH | S | 4E | 4D | 142 | K | LX | B |
| ①  | ② | ③  | ④  | ⑤   | ⑥ | ⑦  | ⑧ |

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

**●DHS N4700 Series**

| Part Number    | Capacitance (pF) | Capacitance Tolerance (%) | DC Rated Voltage (kV) | Dimensions (mm) |    |    | Terminal Type (Screw Thread Type)     |    |                                       |                                       |
|----------------|------------------|---------------------------|-----------------------|-----------------|----|----|---------------------------------------|----|---------------------------------------|---------------------------------------|
|                |                  |                           |                       | D               | L  | H  |                                       |    |                                       |                                       |
| DHS4E4A561KC2B | 560              | ±10                       | 10                    | 20              | 16 | 12 | ISO M4, P0.7<br>(Metric Screw Thread) |    |                                       |                                       |
| DHS4E4A122KH2B | 1200             |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4A282KL2B | 2800             |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4A502KR2B | 5000             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4A802KT2B | 8000             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4A561MCXB | 560              | ±20                       |                       | 20              |    |    |                                       | 16 | 12                                    | No.8-32, NC-2B<br>(Inch Screw Thread) |
| DHS4E4A122MHXB | 1200             |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4A282MLXB | 2800             |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4A502MRXB | 5000             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4A802MTXB | 8000             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4C371KC2B | 370              | ±10                       | 15                    | 20              | 18 | 14 | ISO M4, P0.7<br>(Metric Screw Thread) |    |                                       |                                       |
| DHS4E4C112KH2B | 1100             |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4C192KL2B | 1900             |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4C342KR2B | 3400             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4C532KT2B | 5300             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4C371MCXB | 370              | ±20                       |                       | 20              |    |    | 18                                    | 14 | No.8-32, NC-2B<br>(Inch Screw Thread) |                                       |
| DHS4E4C112MHXB | 1100             |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4C192MLXB | 1900             |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4C342MRXB | 3400             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4C532MTXB | 5300             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4D281KC2B | 280              | ±10                       | 20                    | 20              | 24 | 20 |                                       |    | ISO M4, P0.7<br>(Metric Screw Thread) |                                       |
| DHS4E4D881KH2B | 880              |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4D142KL2B | 1400             |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4D252KR2B | 2500             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4D402KT2B | 4000             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4D281MCXB | 280              | ±20                       |                       | 20              |    |    | 24                                    | 20 | No.8-32, NC-2B<br>(Inch Screw Thread) |                                       |
| DHS4E4D881MHXB | 880              |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4D142MLXB | 1400             |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4D252MRXB | 2500             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4D402MTXB | 4000             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4F191KC2B | 190              | ±10                       | 30                    | 20              | 28 | 24 |                                       |    | ISO M4, P0.7<br>(Metric Screw Thread) |                                       |
| DHS4E4F591KH2B | 590              |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4F941KL2B | 940              |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4F172KR2B | 1700             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4F272KT2B | 2700             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4F191MCXB | 190              | ±20                       |                       | 20              |    |    | 28                                    | 24 | No.8-32, NC-2B<br>(Inch Screw Thread) |                                       |
| DHS4E4F591MHXB | 590              |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4F941MLXB | 940              |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4F172MRXB | 1700             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4F272MTXB | 2700             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4G141KC2B | 140              | ±10                       | 40                    | 20              | 36 | 32 |                                       |    | ISO M4, P0.7<br>(Metric Screw Thread) |                                       |
| DHS4E4G441KH2B | 440              |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4G701KL2B | 700              |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4G132KR2B | 1300             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4G202KT2B | 2000             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |
| DHS4E4G141MCXB | 140              | ±20                       |                       | 20              |    |    | 36                                    | 32 | No.8-32, NC-2B<br>(Inch Screw Thread) |                                       |
| DHS4E4G441MHXB | 440              |                           |                       | 30              |    |    |                                       |    |                                       |                                       |
| DHS4E4G701MLXB | 700              |                           |                       | 38              |    |    |                                       |    |                                       |                                       |
| DHS4E4G132MRXB | 1300             |                           |                       | 52              |    |    |                                       |    |                                       |                                       |
| DHS4E4G202MTXB | 2000             |                           |                       | 60              |    |    |                                       |    |                                       |                                       |

**● DHS Z5V Series**

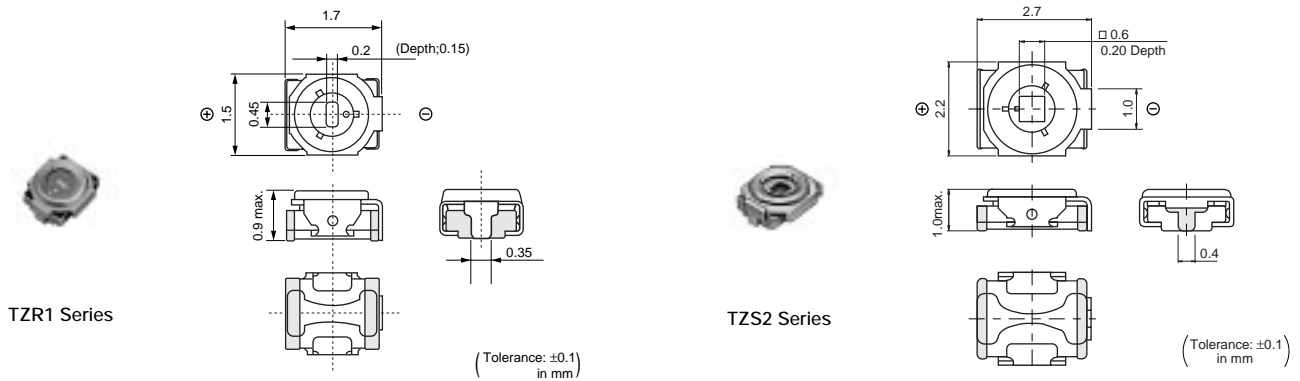
| Part Number    | Capacitance (pF) | Capacitance Tolerance (%) | DC Rated Voltage (kV) | Dimensions (mm)                    |                                    |    | Terminal Type (Screw Thread Type)  |                                    |    |    |
|----------------|------------------|---------------------------|-----------------------|------------------------------------|------------------------------------|----|------------------------------------|------------------------------------|----|----|
|                |                  |                           |                       | D                                  | L                                  | H  |                                    |                                    |    |    |
| DHSF44D601ZD2B | 600              | +80, -20                  | 20                    | 24                                 | 26                                 | 24 | ISO M4, P0.7 (Metric Screw Thread) |                                    |    |    |
| DHSF44D102ZH2B | 1000             |                           |                       | 30                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D242ZN2B | 2400             |                           |                       | 43                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D332ZR2B | 3300             |                           |                       | 52                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D482ZT2B | 4800             |                           |                       | 60                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D601ZDXB | 600              |                           |                       | 24                                 |                                    |    |                                    | No.8-32, NC-2B (Inch Screw Thread) |    |    |
| DHSF44D102ZHXB | 1000             |                           |                       | 30                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D242ZNXB | 2400             |                           |                       | 43                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D332ZRXB | 3300             |                           |                       | 52                                 |                                    |    |                                    |                                    |    |    |
| DHSF44D482ZTXB | 4800             |                           |                       | 60                                 |                                    |    |                                    |                                    |    |    |
| DHSF44F461ZD2B | 460              |                           |                       | 30                                 |                                    |    | 24                                 |                                    | 34 | 32 |
| DHSF44F781ZH2B | 780              |                           |                       |                                    |                                    |    |                                    | 30                                 |    |    |
| DHSF44F182ZN2B | 1800             |                           | 43                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44F252ZR2B | 2500             |                           | 52                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44F362ZT2B | 3600             |                           | 60                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44F461ZDXB | 460              |                           | 24                    |                                    | No.8-32, NC-2B (Inch Screw Thread) |    |                                    |                                    |    |    |
| DHSF44F781ZHXB | 780              |                           | 30                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44F182ZNXB | 1800             |                           | 43                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44F252ZRXB | 2500             |                           | 52                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44F362ZTXB | 3600             |                           | 60                    |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44G341ZD2B | 340              |                           | 40                    |                                    |                                    | 24 | 41                                 | 39                                 |    |    |
| DHSF44G571ZH2B | 570              |                           |                       |                                    | 30                                 |    |                                    |                                    |    |    |
| DHSF44G132ZN2B | 1300             |                           |                       | 43                                 |                                    |    |                                    |                                    |    |    |
| DHSF44G192ZR2B | 1900             |                           |                       | 52                                 |                                    |    |                                    |                                    |    |    |
| DHSF44G272ZT2B | 2700             | 60                        |                       |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44G341ZDXB | 340              | 24                        |                       | No.8-32, NC-2B (Inch Screw Thread) |                                    |    |                                    |                                    |    |    |
| DHSF44G571ZHXB | 570              | 30                        |                       |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44G132ZNXB | 1300             | 43                        |                       |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44G192ZRXB | 1900             | 52                        |                       |                                    |                                    |    |                                    |                                    |    |    |
| DHSF44G272ZTXB | 2700             | 60                        |                       |                                    |                                    |    |                                    |                                    |    |    |

**● Applications**

- Lasers
- High Voltage DC power supplies



# Ceramic Trimmer Capacitors



● TZR1 Series

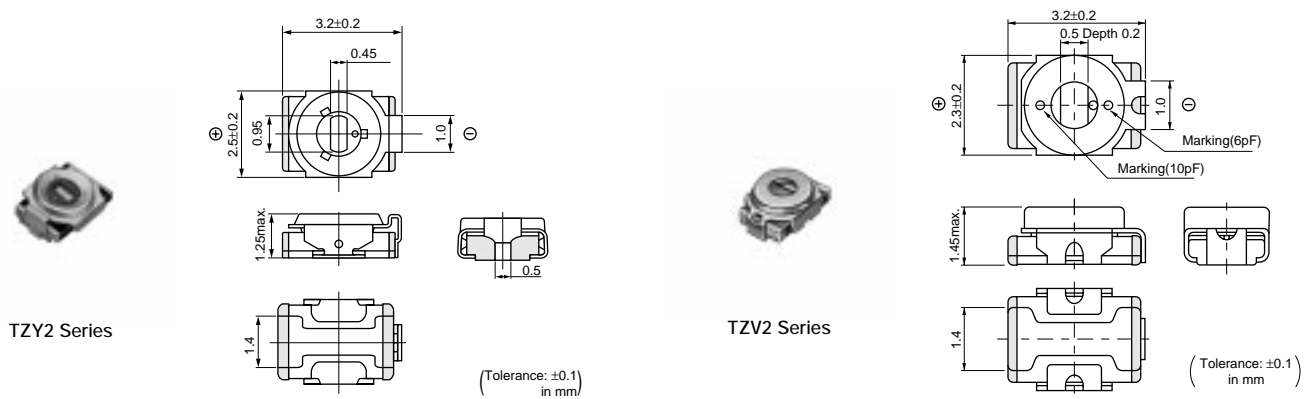
| Part Number  | Cmin. (max.) (pF) | Cmax. (pF)   | TC             | Q                        | Rated Voltage | Withstanding Voltage |
|--------------|-------------------|--------------|----------------|--------------------------|---------------|----------------------|
| TZR1Z010A001 | 0.55              | 1.0 +100/-0% | NP0±300ppm/°C  | 200min. at 200MHz, Cmax. | 25Vdc         | 55Vdc                |
| TZR1Z1R5A001 | 0.7               | 1.5 +100/-0% | NP0±300ppm/°C  | 200min. at 200MHz, Cmax. | 25Vdc         | 55Vdc                |
| TZR1Z040A001 | 1.5               | 4.0 +100/-0% | NP0±500ppm/°C  | 300min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |
| TZR1R080A001 | 3.0               | 8.0 +100/-0% | N750±500ppm/°C | 300min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |

Insulation Resistance: 10000M ohm    Torque: 0.1 to 1.0mNm    Operating Temperature Range: -25 to +85°C

● TZS2 Series

| Part Number  | Cmin. (max.) (pF) | Cmax. (pF)    | TC             | Q                      | Rated Voltage | Withstanding Voltage |
|--------------|-------------------|---------------|----------------|------------------------|---------------|----------------------|
| TZS2Z060A001 | 3.0               | 6.0 +100/-0%  | NP0±300ppm/°C  | 500min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |
| TZS2Z100A001 | 3.5               | 10.0 +100/-0% | NP0±300ppm/°C  | 500min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |
| TZS2R200A001 | 7.0               | 20.0 +100/-0% | N750±500ppm/°C | 500min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |

Insulation Resistance: 10000M ohm    Torque: 0.7 to 4.9mNm    Operating Temperature Range: -25 to +85°C



● TZY2 Series

| Part Number  | Cmin. (max.) (pF) | Cmax. (pF)   | TC            | Q                        | Rated Voltage | Withstanding Voltage |
|--------------|-------------------|--------------|---------------|--------------------------|---------------|----------------------|
| TZY2Z010A001 | 0.5               | 1.0 +100/-0% | NP0±300ppm/°C | 200min. at 200MHz, Cmax. | 25Vdc         | 55Vdc                |
| TZY2Z2R5A001 | 0.65              | 2.5 +100/-0% | NP0±300ppm/°C | 200min. at 200MHz, Cmax. | 25Vdc         | 55Vdc                |
| TZY2Z030A001 | 1.5               | 3.0 +100/-0% | NP0±300ppm/°C | 300min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |
| TZY2Z060A001 | 2.5               | 6.0 +100/-0% | NP0±300ppm/°C | 500min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |

Continued on the following page.

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

Continued from the preceding page.

| Part Number         | Cmin. (max.) (pF) | Cmax. (pF)    | TC              | Q                      | Rated Voltage | Withstanding Voltage |
|---------------------|-------------------|---------------|-----------------|------------------------|---------------|----------------------|
| <b>TZY2Z100A001</b> | 3.0               | 10.0 +100/-0% | NP0±300ppm/°C   | 500min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |
| <b>TZY2R200A001</b> | 4.5               | 20.0 +100/-0% | N750±500ppm/°C  | 500min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |
| <b>TZY2R250A001</b> | 5.5               | 25.0 +100/-0% | N750±500ppm/°C  | 300min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |
| <b>TZY2K450A001</b> | 8.0               | 45.0 +100/-0% | N1000±500ppm/°C | 300min. at 1MHz, Cmax. | 25Vdc         | 55Vdc                |

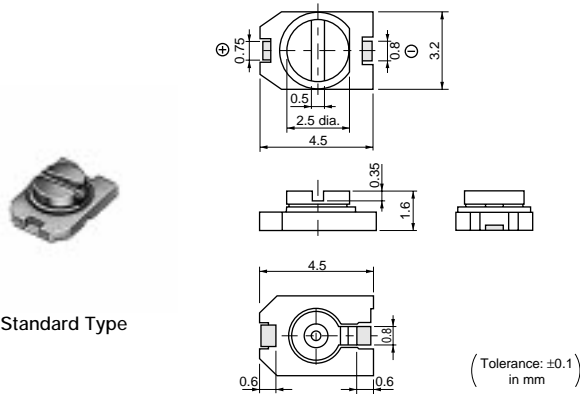
Insulation Resistance: 10000M ohm    Torque: 0.7 to 4.9mNm    Operating Temperature Range: -25 to +85°C

### ● TZV2 Series

| Part Number         | Cmin. (max.) (pF) | Cmax. (pF)    | TC             | Q                        | Rated Voltage | Withstanding Voltage |
|---------------------|-------------------|---------------|----------------|--------------------------|---------------|----------------------|
| <b>TZV2Z2R5A110</b> | 0.65              | 2.5 +100/-0%  | NP0±300ppm/°C  | 200min. at 200MHz, Cmax. | 25Vdc         | 55Vdc                |
| <b>TZV2Z030A110</b> | 1.5               | 3.0 +100/-0%  | NP0±300ppm/°C  | 300min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |
| <b>TZV2Z060A110</b> | 2.5               | 6.0 +100/-0%  | NP0±300ppm/°C  | 500min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |
| <b>TZV2Z100A110</b> | 3.0               | 10.0 +100/-0% | NP0±300ppm/°C  | 500min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |
| <b>TZV2R200A110</b> | 4.5               | 20.0 +100/-0% | N750±500ppm/°C | 500min. at 1MHz, Cmax.   | 25Vdc         | 55Vdc                |

Insulation Resistance: 10000M ohm    Torque: 1.0 to 9.8mNm    Operating Temperature Range: -25 to +85°C

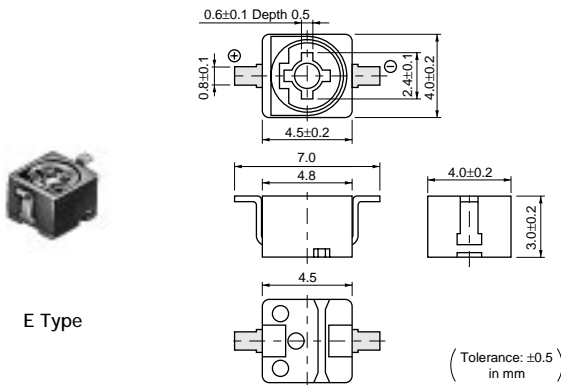
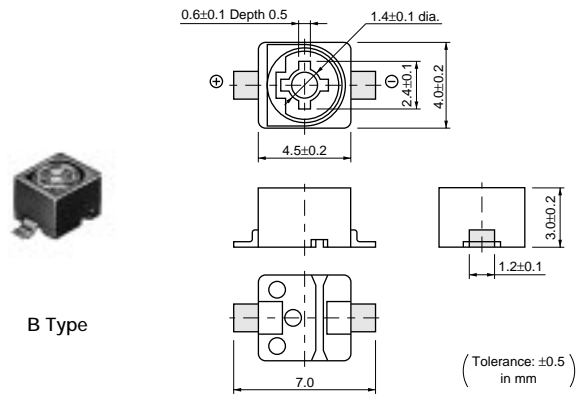
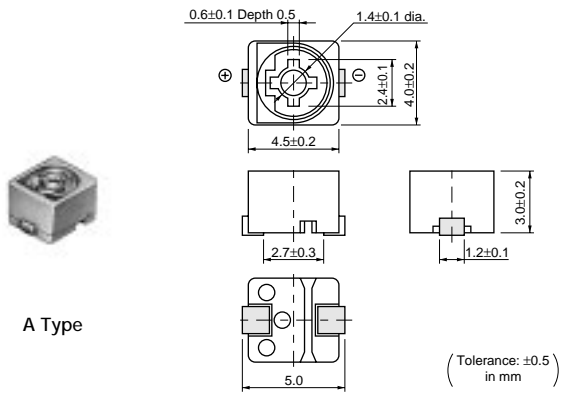
### ● TZC3 Series



| Part Number         | Cmin. (max.) (pF) | Cmax. (pF)   | TC              | Q                      | Rated Voltage | Withstanding Voltage | Stator/Case Color |
|---------------------|-------------------|--------------|-----------------|------------------------|---------------|----------------------|-------------------|
| <b>TZC3Z030A110</b> | 1.4               | 3.0 +50/-0%  | NP0±300ppm/°C   | 300min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Brown             |
| <b>TZC3Z060A110</b> | 2.0               | 6.0 +50/-0%  | NP0±300ppm/°C   | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Blue              |
| <b>TZC3R100A110</b> | 3.0               | 10.0 +50/-0% | N750±300ppm/°C  | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | White             |
| <b>TZC3P200A110</b> | 5.0               | 20.0 +50/-0% | N1200±500ppm/°C | 300min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Red               |
| <b>TZC3P300A110</b> | 6.5               | 30.0 +50/-0% | N1200±500ppm/°C | 300min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Green             |

Insulation Resistance: 10000M ohm    Torque: 1.5 to 9.8mNm    Operating Temperature Range: -25 to +85°C

● TZB4 Series



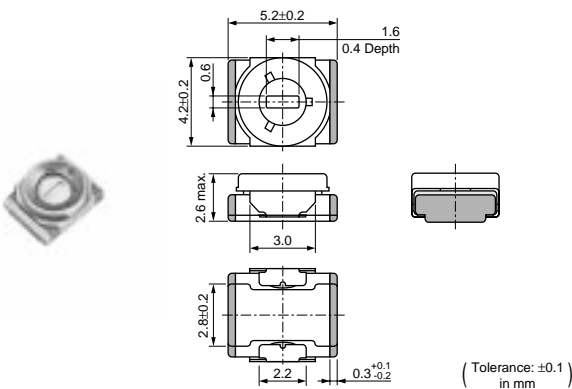
| Part Number  | Cmin. (max.) (pF) | Cmax. (pF)    | TC              | Q                      | Rated Voltage | Withstanding Voltage | Stator/Case Color |
|--------------|-------------------|---------------|-----------------|------------------------|---------------|----------------------|-------------------|
| TZB4Z030□□10 | 1.4               | 3.0 +50/-0%   | NP0±200ppm/°C   | 300min. at 1MHz, Cmax  | 100Vdc        | 220Vdc               | Brown             |
| TZB4Z060□□10 | 2.0               | 6.0 +50/-0%   | NP0±200ppm/°C   | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Blue              |
| TZB4Z100□□10 | 3.0               | 10.0 +50/-0%  | NP0±300ppm/°C   | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | White             |
| TZB4R200□□10 | 4.5               | 20.0 +50/-0%  | N750±400ppm/°C  | 500min. at 1MHz, Cmax  | 100Vdc        | 220Vdc               | Red               |
| TZB4P300□□10 | 6.5               | 30.0 +50/-0%  | N1200±500ppm/°C | 300min. at 1MHz, Cmax  | 100Vdc        | 220Vdc               | Green             |
| TZB4P400□□10 | 8.5               | 40.0 +50/-0%  | N1200±500ppm/°C | 300min. at 1MHz, Cmax  | 100Vdc        | 220Vdc               | Yellow            |
| TZB4Z250□□10 | 4.0               | 25.0 +100/-0% | NP0±300ppm/°C   | 300min. at 1MHz, Cmax. | 50Vdc         | 110Vdc               | Black+Marking     |
| TZB4R500□□10 | 7.0               | 50.0 +100/-0% | N750±300ppm/°C  | 300min. at 1MHz, Cmax  | 50Vdc         | 110Vdc               | Black+Marking     |

Insulation Resistance: 10000M ohm Torque: 1.5 to 9.8mNm Operating Temperature Range: -25 to +85°C

First blank: Terminal Type (A or B: Top Adjustment, E:Rear Adjustment) Second blank: Cover film codes (A: not provided, B: provided)

ex. TZB4Z100AB10: Terminal Type is A, and Cover film is provided.

● TZW4 Series

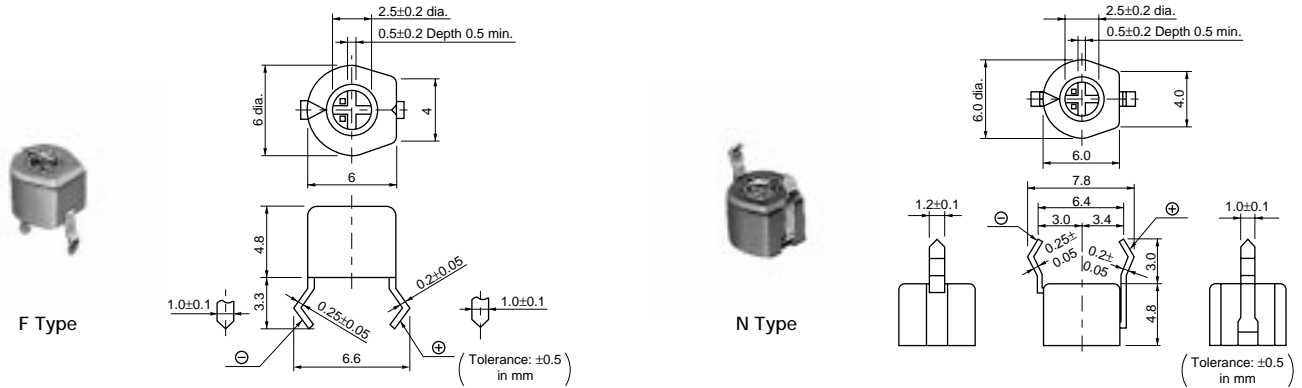


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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

| Part Number         | Cmin. (max.) (pF) | Cmax. (pF)   | TC            | Q                        | Rated Voltage | Withstanding Voltage |
|---------------------|-------------------|--------------|---------------|--------------------------|---------------|----------------------|
| <b>TZW4Z010A001</b> | 0.4               | 1.0 +50/-0%  | NP0±150ppm/°C | 200min. at 500MHz, Cmax. | 250Vdc        | 550Vdc               |
| <b>TZW4Z1R5A001</b> | 0.4               | 1.5 +100/-0% | NP0±150ppm/°C | 200min. at 500MHz, Cmax. | 250Vdc        | 550Vdc               |

Insulation Resistance: 10000M ohm Torque: 1.5 to 10.0mNm Operating Temperature Range: -55 to +125°C

● TZ03 Series



| Part Number         | Cmin. (max.) (pF) | Cmax. (pF)     | TC              | Q                      | Rated Voltage | Withstanding Voltage | Stator/Case Color |
|---------------------|-------------------|----------------|-----------------|------------------------|---------------|----------------------|-------------------|
| <b>TZ03Z2R3□169</b> | 1.25              | 2.3 +50/-0%    | NP0±200ppm/°C   | 300min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Black             |
| <b>TZ03Z050□169</b> | 1.5               | 5.0 +50/-0%    | NP0±200ppm/°C   | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Blue              |
| <b>TZ03Z070□169</b> | 2.0               | 7.0 +50/-0%    | NP0±200ppm/°C   | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Blue              |
| <b>TZ03Z100□169</b> | 2.7               | 10.0 +50/-0%   | NP0±200ppm/°C   | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Blue              |
| <b>TZ03R200□169</b> | 4.2               | 20.0 +50/-0%   | N750±300ppm/°C  | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Red               |
| <b>TZ03R300□169</b> | 5.2               | 30.0 +50/-0%   | N750±300ppm/°C  | 500min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Green             |
| <b>TZ03P450□169</b> | 6.8               | 45.0 +50/-0%   | N1200±500ppm/°C | 300min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Yellow            |
| <b>TZ03P600□169</b> | 9.8               | 60.0 +50/-0%   | N1200±500ppm/°C | 300min. at 1MHz, Cmax. | 100Vdc        | 220Vdc               | Brown             |
| <b>TZ03Z500□169</b> | 6.0               | 50.0 +100/-0%  | NP0±300ppm/°C   | 300min. at 1MHz, Cmax. | 50Vdc         | 110Vdc               | Orange            |
| <b>TZ03R900□169</b> | 9.0               | 90.0 +100/-0%  | N750±300ppm/°C  | 300min. at 1MHz, Cmax. | 50Vdc         | 110Vdc               | Black+Dot         |
| <b>TZ03R121□169</b> | 10.0              | 120.0 +100/-0% | N750±300ppm/°C  | 300min. at 1MHz, Cmax. | 50Vdc         | 110Vdc               | Black             |

Insulation Resistance: 10000M ohm Torque: 2.0 to 14.7mNm Operating Temperature Range: -25 to +85°C

A blank column is filled with terminal type codes (F: Top Adjustment, N: Rear Adjustment).

# 2

## Noise Suppression Products/ EMI Suppression Filters

**EMIFIL<sup>®</sup> (Inductor Type)**

**EMIFIL<sup>®</sup> (Capacitor Type)**

**EMIFIL<sup>®</sup> (LC Combined)**

**EMIFIL<sup>®</sup> (RC Combined)**

**Common Mode Choke Coil**

**Leaded EMIFIL<sup>®</sup> (Inductor Type)**

**Leaded EMIFIL<sup>®</sup> (Capacitor Type)**

**Block Type EMFIL<sup>®</sup> (LC Combined)**

**Leaded Common Mode Choke Coil**

**EMIGUARD<sup>®</sup> (EMIFIL<sup>®</sup> with Varistor Function)**

**AC Line Filters**

**Microwave Absorber**

**Ferrite Cores for EMI Suppression**

● Part Numbering

**Chip Ferrite Bead**

(Part Number) **BL M 18 AG 102 S N 1 D**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product ID
- ② Type
- ③ Dimensions (L×W)
- ④ Characteristics/Applications

| Code *1   | Characteristics/Applications                      | Series                             |
|-----------|---|------------------------------------|
| <b>AG</b> | for General Use                                   | <b>BLM02/03/15/18/21, BLA2A/31</b> |
| <b>AX</b> |   | <b>BLM15</b>                       |
| <b>TG</b> |   | <b>BLM18</b>                       |
| <b>BA</b> | for High-speed Signal Lines                       | <b>BLM15/18</b>                    |
| <b>BB</b> |   | <b>BLM03/15/18/21, BLA2A</b>       |
| <b>BD</b> |   | <b>BLM03/15/18/21, BLA2A/31</b>    |
| <b>PD</b> | for Power Supplies                                | <b>BLM15</b>                       |
| <b>PG</b> |   | <b>BLM03/15/18/21/31/41</b>        |
| <b>KG</b> | for Power Supplies (Low DC Resistance Type)       | <b>BLM18</b>                       |
| <b>SG</b> |   | <b>BLM18</b>                       |
| <b>RK</b> | for Digital Interface                             | <b>BLM18/21</b>                    |
| <b>HG</b> | for GHz Band General Use                          | <b>BLM15/18</b>                    |
| <b>EG</b> | for GHz Band General Use (Low DC Resistance Type) |                                    |
| <b>HB</b> | for GHz Band High-speed Signal Lines              |                                    |
| <b>HD</b> |   |                                    |
| <b>HE</b> |   | <b>BLM18</b>                       |
| <b>HK</b> | for GHz Band Digital Interface                    | <b>BLM18</b>                       |
| <b>GA</b> | for High-GHz Band High-speed Signal Lines         | <b>BLM15</b>                       |
| <b>GG</b> | for High-GHz Band General Use                     | <b>BLM15/18</b>                    |

\*1 Frequency characteristics vary with each code.

⑤ Impedance  
 Expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Performance  
 Expressed by a letter.

Ex.)

| Code       | Performance |
|------------|-------------|
| <b>S/T</b> | Sn Plating  |
| <b>A</b>   | Au Plating  |

- ⑦ Category
- ⑧ Number of Circuits
- ⑨ Packaging

**EMIFIL® Capacitor Type/Capacitor Array Type**

(Part Number) **NF M 3D CC 102 R 1H 3 L**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)



④ Features

| Code      | Features                         |
|-----------|----------------------------------|
| <b>CC</b> | Capacitor Type for Signal Lines  |
| <b>PC</b> | Capacitor Type for Large Current |
| <b>PS</b> | High Loss Type for Large Current |

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Characteristics

| Code     | Capacitance Change (Temperature Characteristics) |
|----------|--|
| <b>B</b> | ±10%, ±12.5%, +10/-13%                           |
| <b>F</b> | +30/-80%, +30/-84%                               |
| <b>R</b> | ±15%, +15/-18%                                   |
| <b>U</b> | -750 ±120ppm/°C                                  |
| <b>S</b> | +350 to -1000ppm/°C                              |

⑦ Rated Voltage

⑧ Electrode/Others (NFM Series)

| Code     | Electrode      | Series                            |
|----------|----------------|-----------------------------------|
| <b>3</b> | Sn Plating     | <b>NFM</b> (Except <b>NFM55</b> ) |
| <b>4</b> | Solder Coating | <b>NFM55</b>                      |

⑨ Number of Circuits (NFA□□CC Series)

| Code     | Number of Circuits |
|----------|--------------------|
| <b>4</b> | 4 Circuits         |

⑨ Packaging

**EMIFIL® LC Combined Type**

(Part Number) **NF L 18 ST 107 X 1C 3 L**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)
- ④ Features

| Code      | Features                    |
|-----------|-----------------------------|
| <b>SP</b> | π Circuit for Signal Lines  |
| <b>ST</b> | T Circuit for Signal Lines  |
| <b>PT</b> | T Circuit for Large Current |

⑤ Cut-off Frequency (NFL/NFW Series)

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Capacitance (NFE Series)

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.



**⑥ Characteristics (NFL/NFW Series)**

| Code     | Characteristics   |
|----------|-------------------|
| <b>X</b> | Cut-off Frequency |

**⑥ Characteristics (NFE Series)**

| Code     | Capacitance Change (Temperature Characteristics) |
|----------|--|
| <b>B</b> | ±10%   |
| <b>C</b> | ±20%, ±22%                                       |
| <b>D</b> | +20/-30%, +22/-33%                               |
| <b>E</b> | +20/-55%, +22/-56%                               |
| <b>F</b> | +30/-80%, +22/-82%                               |
| <b>R</b> | ±15%   |
| <b>U</b> | -750 ±120ppm/ °C                                 |
| <b>Z</b> | Other  |

**⑦ Rated Voltage**
**⑧ Electrode**

| Code       | Electrode                | Series     |
|------------|--------------------------|------------|
| <b>3/7</b> | Sn Plating               | <b>NFL</b> |
| <b>4</b>   | Lead Free Solder Coating | <b>NFW</b> |
| <b>9</b>   | Others                   | <b>NFE</b> |

**⑨ Packaging**
**EMIFIL® LC Combined Array Type (NFA18S/21S Series)**

(Part Number) **NF** **A** **21** **SL** **207** **X** **1A** **4** **5** **L**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)
- ④ Features

| Code      | Features                          |
|-----------|-----------------------------------|
| <b>SL</b> | L Circuit for Signal Lines        |
| <b>SD</b> | L Circuit for Differential Signal |

**⑤ Cut-off Frequency**

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

- ⑥ Features
- ⑦ Rated Voltage
- ⑧ Number of Circuits
- ⑨ Dimensions (T)
- ⑩ Packaging

**EMIFIL® RC Combined Type/RC Combined Array Type**

(Part Number) **NF** **R** **21** **GD** **470** **470** **2** **L**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)


**④ Features**

| Code      | Features                          |
|-----------|-----------------------------------|
| <b>GD</b> | RC Combined Type for Signal Lines |

**⑤ Capacitance**

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

**⑥ Resistance**

Expressed by three-digit alphanumerics. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

**⑦ Electrode/Others (NFR Series)**

| Code     | Electrode  |
|----------|------------|
| <b>2</b> | Sn Plating |

**⑦ Number of Circuits (NFA□□GD Series)**

| Code     | Number of Circuits |
|----------|--------------------|
| <b>4</b> | 4 Circuits         |

**⑧ Packaging**
**Common Mode Choke Coil**

(Part Number) **DL** **W** **21** **S** **N** **371** **S** **Q** **2** **L**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)
- ④ Type

| Code     | Type   |
|----------|--|
| <b>S</b> | Magnetically Shielded One Circuit Type             |
| <b>D</b> | Magnetically Shielded Two Circuit Type             |
| <b>H</b> | Open Magnetic One Circuit Type                     |
| <b>G</b> | Magnetically Monolithic Type (sectional winding)   |
| <b>T</b> | Magnetically Shielded One Circuit Low Profile Type |

- ⑤ Category
- ⑥ Impedance
- ⑦ Circuit
- ⑧ Features
- ⑨ Number of Signal Lines
- ⑩ Packaging

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**Ferrite Bead Inductors**

(Part Number) **BL** **02** **RN** **2** **R1** **M** **2** **B**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

② Series

| Code      | Series          |
|-----------|-----------------|
| <b>01</b> | Beads ø3.6      |
| <b>02</b> | Beads ø3.4      |
| <b>03</b> | Beads ø2.3 max. |

③ Beads Core Material

④ Numbers of Beads Core

⑤ Lead Type

| Code      | Lead Type                                  | Series           |
|-----------|--|------------------|
| <b>A1</b> | Axial Straight Type                        | <b>BL01</b>      |
| <b>A2</b> | Axial Crimp Type                           | <b>BL01</b>      |
| <b>R1</b> | Radial Straight Type                       | <b>BL02/BL03</b> |
| <b>R2</b> | Radial Straight and Wave Formed Leads Type | <b>BL02</b>      |
| <b>R3</b> | Radial Incrimp Type                        | <b>BL02</b>      |

⑥ Lead Length, Space

| Code     | Lead Length, Space          | Series           |
|----------|-----------------------------|------------------|
| <b>A</b> | Bulk, Axial Type, 3.7mm     | <b>BL01</b>      |
| <b>D</b> | Bulk, Axial Type, 45.0mm    |                  |
| <b>E</b> | Taping Axial Type, 26.0mm   |                  |
| <b>F</b> | Taping, Axial Type, 52.0mm  |                  |
| <b>J</b> | Bulk, Radial Type, 5.0mm    |                  |
| <b>M</b> | Bulk, Radial Type, 10.0mm   | <b>BL02/BL03</b> |
| <b>N</b> | Taping, Radial Type, 16.5mm |                  |
| <b>P</b> | Taping, Radial Type, 18.5mm |                  |
| <b>Q</b> | Taping, Radial Type, 20.0mm |                  |

⑦ Lead Diameter

| Code     | Lead Diameter |
|----------|---------------|
| <b>1</b> | ø0.60mm       |
| <b>2</b> | ø0.65mm       |

⑧ Packaging

**Disc Type EMIFIL®**

(Part Number) **DS** **S** **9** **H** **B3** **2E** **271** **Q55** **B**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

② Structure

③ Style

| Code     | Style                |
|----------|----------------------|
| <b>6</b> | Diameter 8.0mm max.  |
| <b>9</b> | Diameter 12.0mm max. |



④ Category

| Code     | Category        |
|----------|-----------------|
| <b>N</b> | for General Use |
| <b>H</b> | for Heavy-duty  |

⑤ Temperature Characteristics

| Code         | Capacitance Change                           |
|--------------|--|
| <b>B3/P3</b> | ±10% (Temperature Range: -25°C to +85°C)     |
| <b>C5</b>    | ±22% (Temperature Range: -25°C to +85°C)     |
| <b>T3</b>    | +20/-30% (Temperature Range: -25°C to +85°C) |
| <b>E5</b>    | +22/-56% (Temperature Range: -25°C to +85°C) |
| <b>F3</b>    | +30/-80% (Temperature Range: -25°C to +85°C) |
| <b>Z8</b>    | +30/-85% (Temperature Range: -10°C to +60°C) |

⑥ Rated Voltage

⑦ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑧ Lead Type / ⑨ Packaging

| Code        | Lead Type | Lead Length* (in mm) | Packaging           | Series                           |
|-------------|-----------|----------------------|---------------------|----------------------------------|
| <b>Q55B</b> | Straight  | 25.0 min.            | Bulk                | All series                       |
| <b>Q50B</b> |           | 4.0±0.5              |                     | <b>DST9N/H</b>                   |
| <b>Q52B</b> |           | 6.0±1.0              |                     | <b>DST9N</b>                     |
| <b>Q54B</b> |           | 4.0±0.5              |                     | <b>DSN6N/9N, DSS6N/9N, DSS9H</b> |
| <b>Q56B</b> |           | 6.0±1.0              |                     | <b>DSS6N</b>                     |
| <b>T41B</b> | Incrimp   | 4.0±0.5              | Paper Reel (ø320mm) | <b>DSS9N/H</b>                   |
| <b>T51B</b> |           | 25.0 min.            |                     |                                  |
| <b>Q91J</b> | Straight  | 20.0±1.0             | Ammo Pack           | <b>DS□6, DSN9N/H</b>             |
| <b>Q92J</b> |           | 16.5±1.0             |                     |                                  |
| <b>Q93J</b> |           | 18.5±1.0             |                     |                                  |
| <b>Q91A</b> |           | 20.0±1.0             |                     |                                  |
| <b>Q92A</b> |           | 16.5±1.0             |                     |                                  |
| <b>Q93A</b> | 18.5±1.0  | <b>DSS6N</b>         |                     |                                  |
| <b>U21A</b> | 16.5±1.0  |                      |                     |                                  |
| <b>U31A</b> | Incrimp   | 18.5±1.0             |                     |                                  |

\*Lead Distance between Reference and Bottom Planes except Bulk.

**Leaded Common Mode Choke Coil**

(Part Number) **PL** **T** **09H** **N** **200** **3R0** **P** **1** **B**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

② Type

③ Applications

④ Features

⑤ Inductance

Expressed by three figures. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Rated Current

Expressed by three-digit alphanumerics. The unit is in amperes (A). A decimal point is expressed by the capital letter "R". In this case, all figures are significant digits.





**7** Winding Mode

| Code | Winding Mode         |
|------|----------------------|
| P    | Aligned Winding Type |

**8** Lead Dimensions

**9** Packaging

**Lead Type EMIGUARD® (EMIFIL® with Varistor Function)**

(Part Number) **VF** **S** **6** **V** **D8** **1E** **221** **T51** **B**

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**1** Product ID

**2** Structure

| Code | Structure                   |
|------|-----------------------------|
| S    | Built-in Ferrite Beads Type |
| R    | with Resistance             |

**3** Style

**4** Features

**5** Temperature Characteristics

| Code | Capacitance Change                            |
|------|---|
| D8   | +20/-30% (Temperature Range: -40°C to +105°C) |
| D3   | +20/-30% (Temperature Range: -25°C to +85°C)  |

**6** Rated Voltage

**7** Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

**8** Lead Type / **9** Packaging

| Code | Lead Type | Lead Length* | Packaging              | Series    |
|------|-----------|--------------|------------------------|-----------|
| T51B | Incrimp   | 25.0mm min.  | Bulk                   | VFR3/VFS6 |
| U31A |           | 18.5+/-1.0mm | Ammo Pack              |           |
| Q55B | Straight  | 25.0mm min.  | Bulk                   | VFS9      |
| Q91J |           | 20.0+/-1.0mm | Paper Reel<br>(ø320mm) |           |
| Q92J |           | 16.5+/-1.0mm |                        |           |
| Q93J |           | 18.5+/-1.0mm |                        |           |

\*Lead Distance between Reference and Bottom Planes except Bulk.

**AC Line Filters**

(Part Number) **PL** **A** **10** **A** **S** **152** **2R0** **R** **2** **B**

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**1** Product ID

**2** Type

**3** Applications

**4** Structure

| Code | Structure            |
|------|----------------------|
| A    | Core Vertical Type   |
| B    | Core Horizontal Type |


**5** Features

**6** Inductance

Expressed by three figures. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

**7** Rated Current

Expressed by three-digit alphanumerics. The unit is in amperes (A). A decimal point is expressed by the capital letter "R". In this case, all figures are significant digits.

**8** Winding Mode

| Code | Winding Mode                                  |
|------|---|
| A    | Parallel Winding Type                         |
| B    | Parallel Winding Type (High Performance Type) |
| D    | Sectional Winding Type                        |
| R    | Standard Type                                 |
| P    | Single Layer Winding Type                     |

**9** Lead Dimensions

**10** Packaging

**Microwave Absorber**

(Part Number) **EA** **1026** **A** **160** **M** **200** **200**

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**1** Product ID

**2** Sheet Type

| Code | Sheet Type  |
|------|---|
| 10□□ | Iron carbonyl type (UL certified type/non Halogen type) |
| 2070 | Metal Flake Powder (non Halogen type)                   |
| 2100 | Metal Flake Powder (UL certified type)                  |
| 2200 | Metal Flake Powder (UL certified type/non Halogen type) |
| 3008 | Magnetic material (UL certified type/non Halogen type)  |

**3** Adhesive Tape Type

| Code | Adhesive Tape Type                         |
|------|--|
| A    | Standard tape type (non Halogen type)      |
| B    | Thin Adhesive tape type (non Halogen type) |
| L    | No tape type                               |
| U    | UL certified type (non Halogen type)       |

**4** Sheet Thickness

**5** Unit of Dimension

One capital letter expresses Unit of Dimension (**6**) and Dimensions Length (**7**).

| Code | Unit of Dimension |
|------|-------------------|
| M    | in mm (Standard)  |
| C    | in cm (Standard)  |

Standard shape is a rectangle.

Please contact us for other shapes.

**6** Dimension (Length)

Expressed by three digits including the first decimal place.



⑦ Dimension (Width)

Expressed by three digits including the first decimal place.

Ex.)

| Code           | Dimension (Length × Width) |
|----------------|----------------------------|
| <b>M300150</b> | 30.0×15.0 mm               |
| <b>C150100</b> | 15.0×10.0 cm               |

**Ferrite Core**

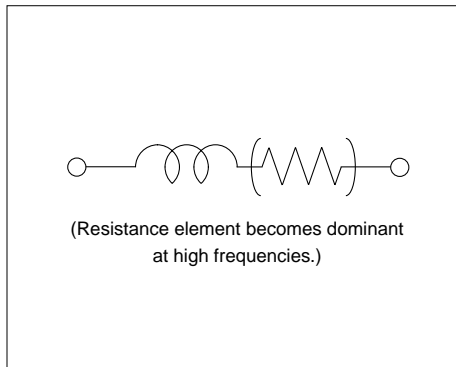
(Part Number) **FS RB 12 1 060 RT B0 0 T**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product ID
- ② Series
- ③ Dimensions
- ④ Outer Dimension Supplement Code
- ⑤ Length
- ⑥ Material
- ⑦ Process
- ⑧ Individual Specification Code
- ⑨ Packaging

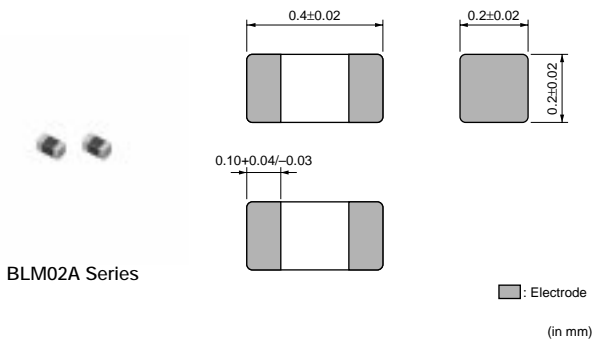
# EMIFIL® (Inductor Type)

Chip Ferrite Bead

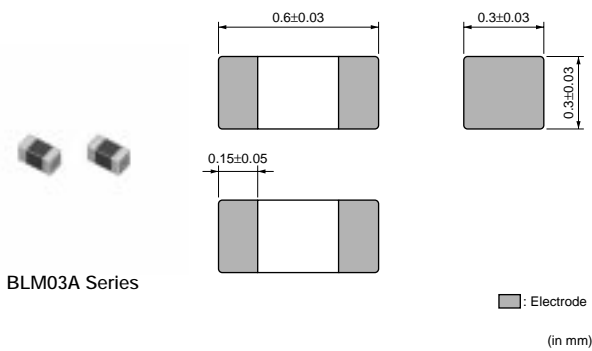
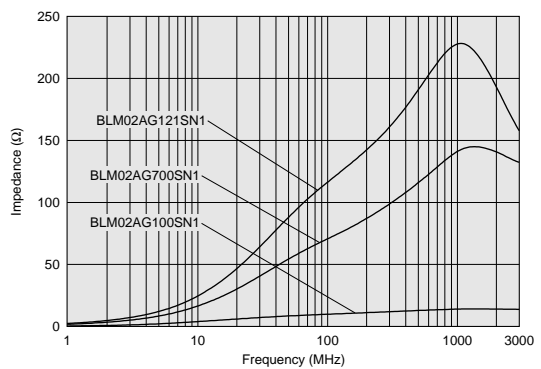
Equivalent Circuit



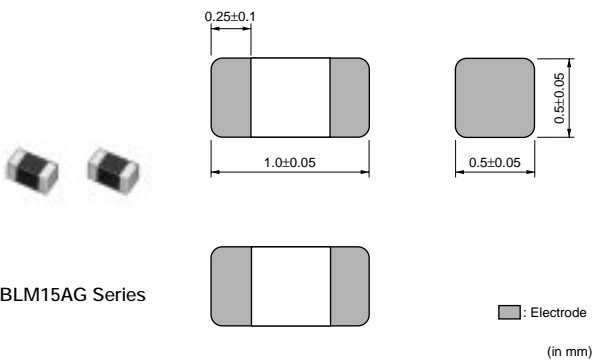
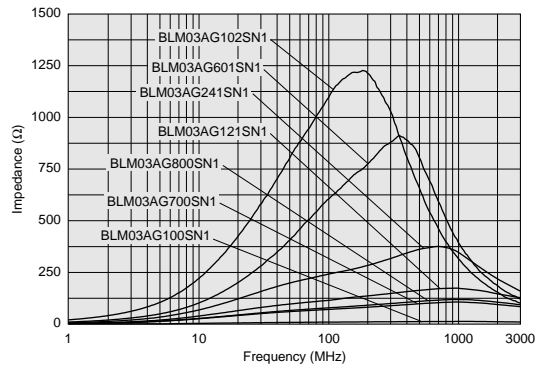
● BLM\_A Series



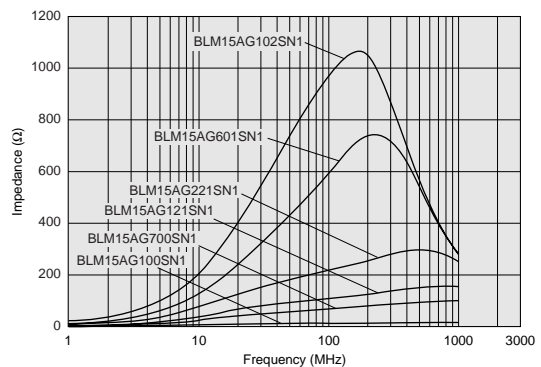
Impedance-Frequency Characteristics (Main Items)



Impedance-Frequency Characteristics (Main Items)



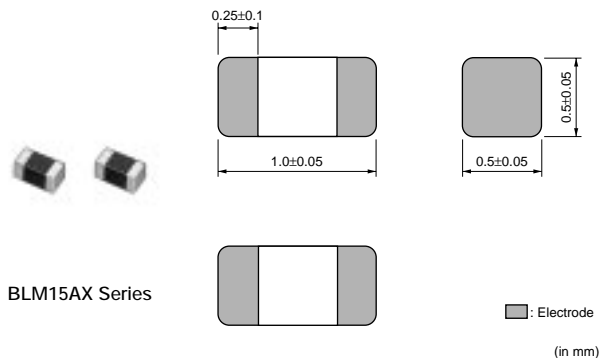
Impedance-Frequency Characteristics (Main Items)



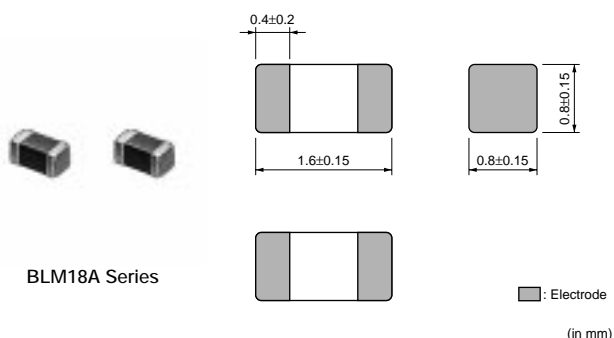
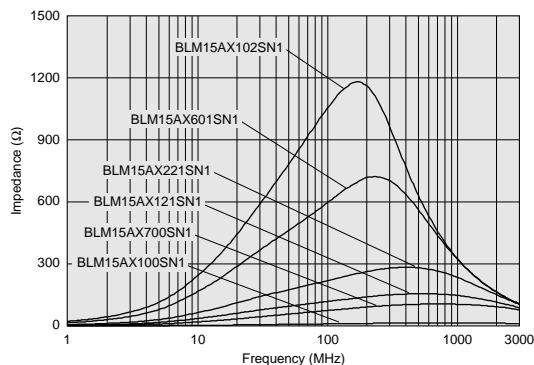
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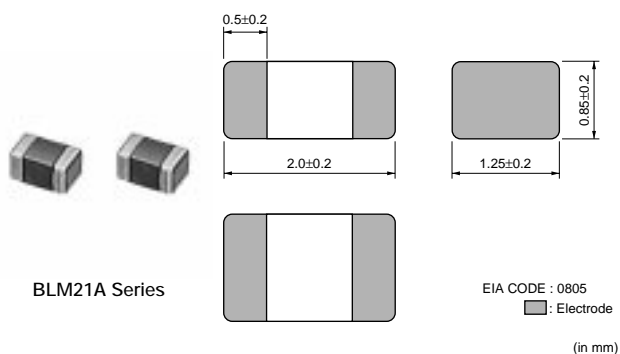
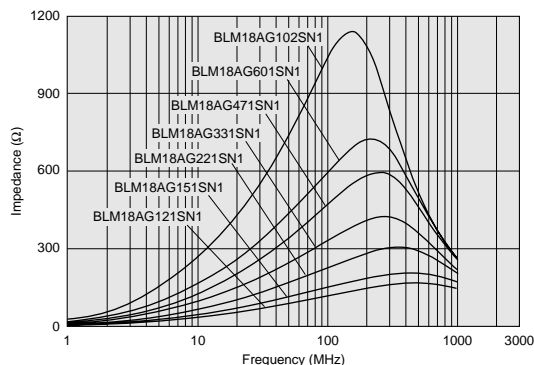
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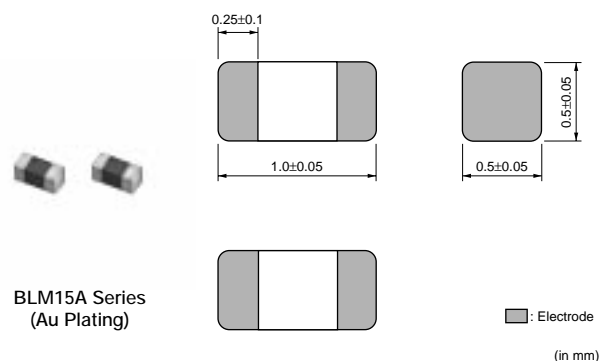
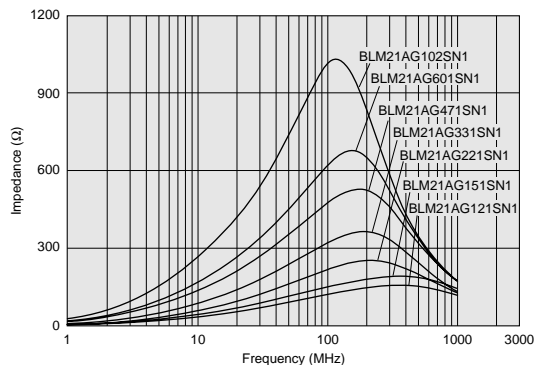
Impedance-Frequency Characteristics (Main Items)



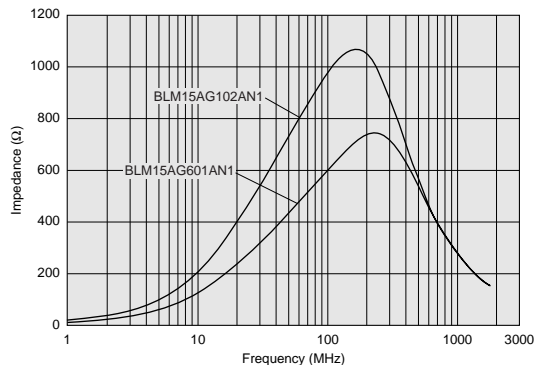
Impedance-Frequency Characteristics (Main Items)



Impedance-Frequency Characteristics (Main Items)

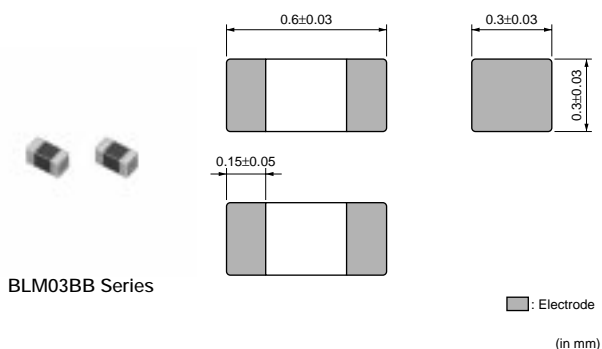


Impedance-Frequency Characteristics (Main Items)



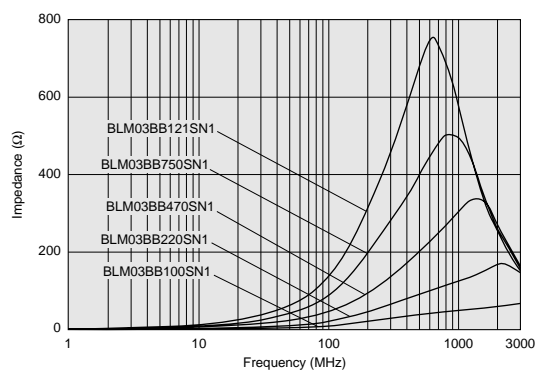
| Part Number   | Impedance<br>(at 100MHz/20°C)<br>(ohm) | Rated Current<br>(mA) | DC Resistance (max.)<br>(ohm) | Operating<br>Temperature Range | Case Size |
|---------------|--|-----------------------|-------------------------------|--------------------------------|-----------|
| BLM02AG100SN1 | 10 (Typ.)                              | 500                   | 0.1                           | -55 to +125°C                  | 01005     |
| BLM02AG700SN1 | 70 ±25%                                | 250                   | 0.5                           | -55 to +125°C                  | 01005     |
| BLM02AG121SN1 | 120 ±25%                               | 200                   | 0.8                           | -55 to +125°C                  | 01005     |
| BLM03AG100SN1 | 10 (Typ.)                              | 500                   | 0.1                           | -55 to +125°C                  | 0201      |
| BLM03AG700SN1 | 70 (Typ.)                              | 200                   | 0.4                           | -55 to +125°C                  | 0201      |
| BLM03AG800SN1 | 80 ±25%                                | 200                   | 0.4                           | -55 to +125°C                  | 0201      |
| BLM03AG121SN1 | 120 ±25%                               | 200                   | 0.5                           | -55 to +125°C                  | 0201      |
| BLM03AG241SN1 | 240 ±25%                               | 200                   | 0.8                           | -55 to +125°C                  | 0201      |
| BLM03AG601SN1 | 600 ±25%                               | 100                   | 1.5                           | -55 to +125°C                  | 0201      |
| BLM03AG102SN1 | 1000 ±25%                              | 100                   | 2.5                           | -55 to +125°C                  | 0201      |
| BLM15AG100SN1 | 10 (Typ.)                              | 1000                  | 0.05                          | -55 to +125°C                  | 0402      |
| BLM15AX100SN1 | 10 (Typ.)                              | 1740                  | 0.02                          | -55 to +125°C                  | 0402      |
| BLM15AG700SN1 | 70 (Typ.)                              | 500                   | 0.15                          | -55 to +125°C                  | 0402      |
| BLM15AX700SN1 | 70 ±25%                                | 780                   | 0.1                           | -55 to +125°C                  | 0402      |
| BLM15AG121SN1 | 120 ±25%                               | 500                   | 0.25                          | -55 to +125°C                  | 0402      |
| BLM15AX121SN1 | 120 ±25%                               | 680                   | 0.13                          | -55 to +125°C                  | 0402      |
| BLM15AG221SN1 | 220 ±25%                               | 300                   | 0.35                          | -55 to +125°C                  | 0402      |
| BLM15AX221SN1 | 220 ±25%                               | 580                   | 0.18                          | -55 to +125°C                  | 0402      |
| BLM15AG601SN1 | 600 ±25%                               | 300                   | 0.6                           | -55 to +125°C                  | 0402      |
| BLM15AX601SN1 | 600 ±25%                               | 420                   | 0.34                          | -55 to +125°C                  | 0402      |
| BLM15AG102SN1 | 1000 ±25%                              | 200                   | 1.0                           | -55 to +125°C                  | 0402      |
| BLM15AX102SN1 | 1000 ±25%                              | 350                   | 0.49                          | -55 to +125°C                  | 0402      |
| BLM18AG121SN1 | 120 ±25%                               | 500                   | 0.18                          | -55 to +125°C                  | 0603      |
| BLM18AG151SN1 | 150 ±25%                               | 500                   | 0.25                          | -55 to +125°C                  | 0603      |
| BLM18AG221SN1 | 220 ±25%                               | 500                   | 0.25                          | -55 to +125°C                  | 0603      |
| BLM18AG331SN1 | 330 ±25%                               | 500                   | 0.30                          | -55 to +125°C                  | 0603      |
| BLM18AG471SN1 | 470 ±25%                               | 500                   | 0.35                          | -55 to +125°C                  | 0603      |
| BLM18AG601SN1 | 600 ±25%                               | 500                   | 0.38                          | -55 to +125°C                  | 0603      |
| BLM18AG102SN1 | 1000 ±25%                              | 400                   | 0.50                          | -55 to +125°C                  | 0603      |
| BLM21AG121SN1 | 120 ±25%                               | 200                   | 0.15                          | -55 to +125°C                  | 0805      |
| BLM21AG151SN1 | 150 ±25%                               | 200                   | 0.15                          | -55 to +125°C                  | 0805      |
| BLM21AG221SN1 | 220 ±25%                               | 200                   | 0.20                          | -55 to +125°C                  | 0805      |
| BLM21AG331SN1 | 330 ±25%                               | 200                   | 0.25                          | -55 to +125°C                  | 0805      |
| BLM21AG471SN1 | 470 ±25%                               | 200                   | 0.25                          | -55 to +125°C                  | 0805      |
| BLM21AG601SN1 | 600 ±25%                               | 200                   | 0.30                          | -55 to +125°C                  | 0805      |
| BLM21AG102SN1 | 1000 ±25%                              | 200                   | 0.45                          | -55 to +125°C                  | 0805      |
| BLM15AG601AN1 | 600 ±25%                               | 300                   | 0.6                           | -55 to +125°C                  | 0402      |
| BLM15AG102AN1 | 1000 ±25%                              | 200                   | 1.0                           | -55 to +125°C                  | 0402      |

## ● BLM\_B Series



BLM03BB Series

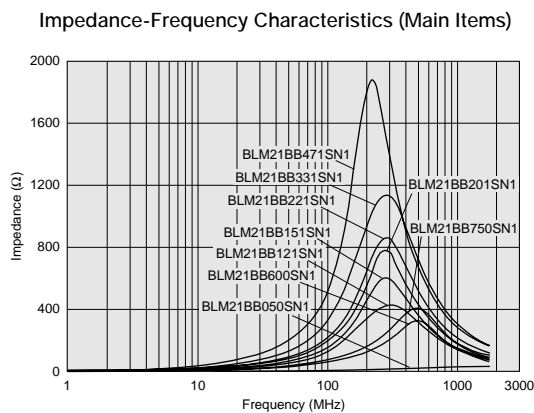
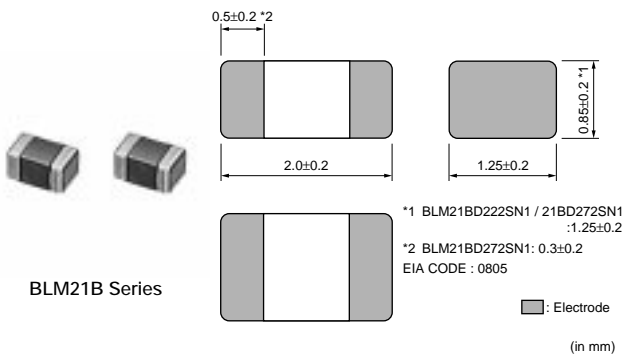
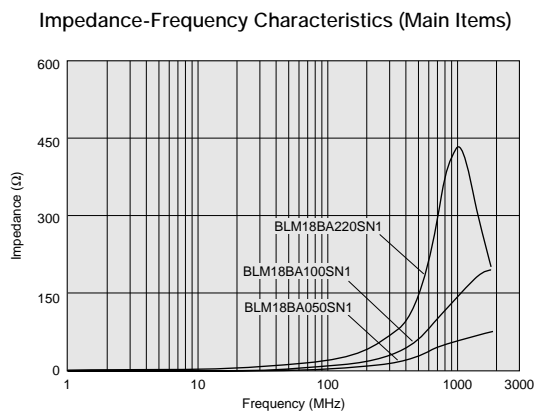
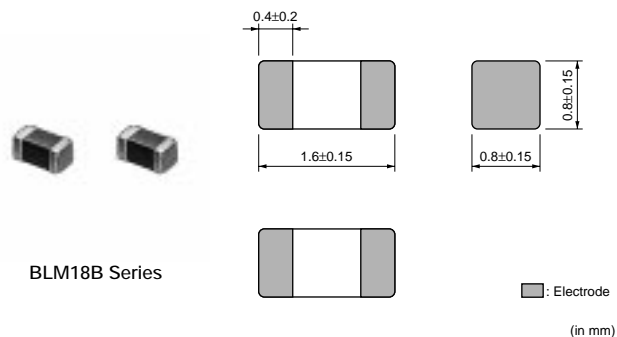
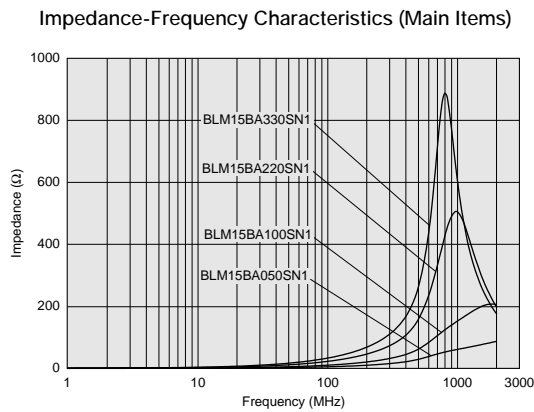
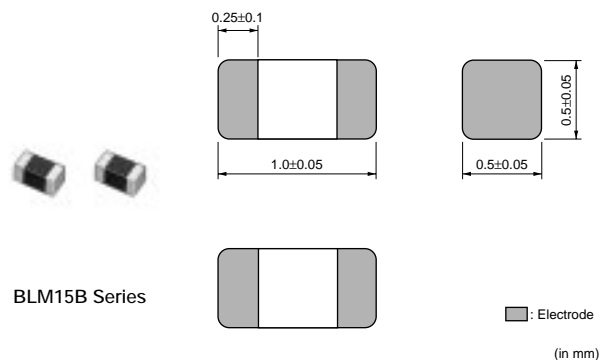
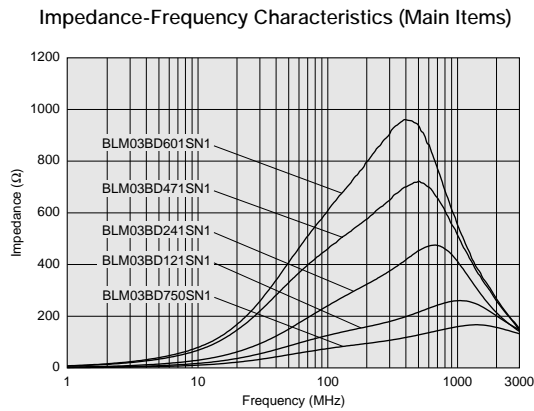
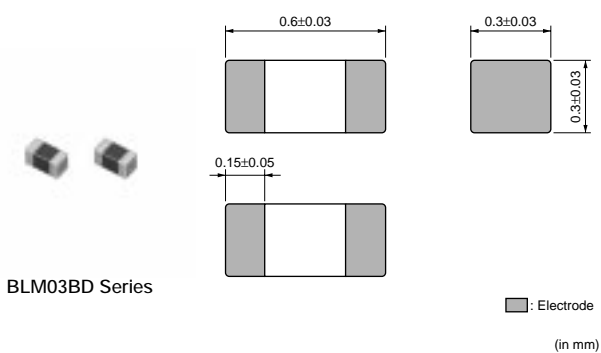
## Impedance-Frequency Characteristics (Main Items)




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Continued from the preceding page.



| Part Number   | Impedance<br>(at 100MHz/20°C)<br>(ohm) | Rated Current<br>(mA) | DC Resistance (max.)<br>(ohm) | Operating<br>Temperature Range | Case Size |
|---------------|--|-----------------------|-------------------------------|--------------------------------|-----------|
| BLM03BB100SN1 | 10 ±25%                                | 300                   | 0.4                           | -55 to +125°C                  | 0201      |
| BLM03BB220SN1 | 22 ±25%                                | 200                   | 0.5                           | -55 to +125°C                  | 0201      |
| BLM03BB470SN1 | 47 ±25%                                | 200                   | 0.7                           | -55 to +125°C                  | 0201      |
| BLM03BB750SN1 | 75 ±25%                                | 200                   | 1.0                           | -55 to +125°C                  | 0201      |
| BLM03BD750SN1 | 75 ±25%                                | 300                   | 0.4                           | -55 to +125°C                  | 0201      |
| BLM03BB121SN1 | 120 ±25%                               | 100                   | 1.5                           | -55 to +125°C                  | 0201      |
| BLM03BD121SN1 | 120 ±25%                               | 250                   | 0.5                           | -55 to +125°C                  | 0201      |
| BLM03BD241SN1 | 240 ±25%                               | 200                   | 0.8                           | -55 to +125°C                  | 0201      |
| BLM03BD471SN1 | 470 ±25%                               | 215                   | 1.5                           | -55 to +125°C                  | 0201      |
| BLM03BD601SN1 | 600 ±25%                               | 200                   | 1.7                           | -55 to +125°C                  | 0201      |
| BLM15BA050SN1 | 5 ±25%                                 | 300                   | 0.10                          | -55 to +125°C                  | 0402      |
| BLM15BB050SN1 | 5 ±25%                                 | 500                   | 0.08                          | -55 to +125°C                  | 0402      |
| BLM15BA100SN1 | 10 ±25%                                | 300                   | 0.20                          | -55 to +125°C                  | 0402      |
| BLM15BB100SN1 | 10 ±25%                                | 300                   | 0.10                          | -55 to +125°C                  | 0402      |
| BLM15BA220SN1 | 22 ±25%                                | 300                   | 0.30                          | -55 to +125°C                  | 0402      |
| BLM15BB220SN1 | 22 ±25%                                | 300                   | 0.20                          | -55 to +125°C                  | 0402      |
| BLM15BA330SN1 | 33 ±25%                                | 300                   | 0.40                          | -55 to +125°C                  | 0402      |
| BLM15BA470SN1 | 47 ±25%                                | 200                   | 0.60                          | -55 to +125°C                  | 0402      |
| BLM15BB470SN1 | 47 ±25%                                | 300                   | 0.35                          | -55 to +125°C                  | 0402      |
| BLM15BA750SN1 | 75 ±25%                                | 200                   | 0.80                          | -55 to +125°C                  | 0402      |
| BLM15BB750SN1 | 75 ±25%                                | 300                   | 0.40                          | -55 to +125°C                  | 0402      |
| BLM15BD750SN1 | 75 ±25%                                | 300                   | 0.20                          | -55 to +125°C                  | 0402      |
| BLM15BB121SN1 | 120 ±25%                               | 300                   | 0.55                          | -55 to +125°C                  | 0402      |
| BLM15BD121SN1 | 120 ±25%                               | 300                   | 0.30                          | -55 to +125°C                  | 0402      |
| BLM15BB221SN1 | 220 ±25%                               | 200                   | 0.80                          | -55 to +125°C                  | 0402      |
| BLM15BD221SN1 | 220 ±25%                               | 300                   | 0.40                          | -55 to +125°C                  | 0402      |
| BLM15BD471SN1 | 470 ±25%                               | 200                   | 0.60                          | -55 to +125°C                  | 0402      |
| BLM15BD601SN1 | 600 ±25%                               | 200                   | 0.65                          | -55 to +125°C                  | 0402      |
| BLM15BD102SN1 | 1000 ±25%                              | 200                   | 0.90                          | -55 to +125°C                  | 0402      |
| BLM15BD182SN1 | 1800 ±25%                              | 100                   | 1.40                          | -55 to +125°C                  | 0402      |
| BLM18BA050SN1 | 5 ±25%                                 | 500                   | 0.20                          | -55 to +125°C                  | 0603      |
| BLM18BB050SN1 | 5 ±25%                                 | 700                   | 0.05                          | -55 to +125°C                  | 0603      |
| BLM18BA100SN1 | 10 ±25%                                | 500                   | 0.25                          | -55 to +125°C                  | 0603      |
| BLM18BB100SN1 | 10 ±25%                                | 700                   | 0.10                          | -55 to +125°C                  | 0603      |
| BLM18BA220SN1 | 22 ±25%                                | 500                   | 0.35                          | -55 to +125°C                  | 0603      |
| BLM18BB220SN1 | 22 ±25%                                | 600                   | 0.20                          | -55 to +125°C                  | 0603      |
| BLM18BA470SN1 | 47 ±25%                                | 300                   | 0.55                          | -55 to +125°C                  | 0603      |
| BLM18BB470SN1 | 47 ±25%                                | 550                   | 0.25                          | -55 to +125°C                  | 0603      |
| BLM18BD470SN1 | 47 ±25%                                | 500                   | 0.30                          | -55 to +125°C                  | 0603      |
| BLM18BB600SN1 | 60 ±25%                                | 550                   | 0.25                          | -55 to +125°C                  | 0603      |
| BLM18BA750SN1 | 75 ±25%                                | 300                   | 0.70                          | -55 to +125°C                  | 0603      |
| BLM18BB750SN1 | 75 ±25%                                | 500                   | 0.30                          | -55 to +125°C                  | 0603      |
| BLM18BA121SN1 | 120 ±25%                               | 200                   | 0.90                          | -55 to +125°C                  | 0603      |
| BLM18BB121SN1 | 120 ±25%                               | 500                   | 0.30                          | -55 to +125°C                  | 0603      |
| BLM18BD121SN1 | 120 ±25%                               | 200                   | 0.40                          | -55 to +125°C                  | 0603      |
| BLM18BB141SN1 | 140 ±25%                               | 450                   | 0.35                          | -55 to +125°C                  | 0603      |
| BLM18BB151SN1 | 150 ±25%                               | 450                   | 0.37                          | -55 to +125°C                  | 0603      |
| BLM18BD151SN1 | 150 ±25%                               | 200                   | 0.40                          | -55 to +125°C                  | 0603      |
| BLM18BB221SN1 | 220 ±25%                               | 450                   | 0.45                          | -55 to +125°C                  | 0603      |
| BLM18BD221SN1 | 220 ±25%                               | 200                   | 0.45                          | -55 to +125°C                  | 0603      |
| BLM18BB331SN1 | 330 ±25%                               | 400                   | 0.58                          | -55 to +125°C                  | 0603      |
| BLM18BD331SN1 | 330 ±25%                               | 200                   | 0.50                          | -55 to +125°C                  | 0603      |
| BLM18BD421SN1 | 420 ±25%                               | 200                   | 0.55                          | -55 to +125°C                  | 0603      |
| BLM18BB471SN1 | 470 ±25%                               | 300                   | 0.85                          | -55 to +125°C                  | 0603      |
| BLM18BD471SN1 | 470 ±25%                               | 200                   | 0.55                          | -55 to +125°C                  | 0603      |

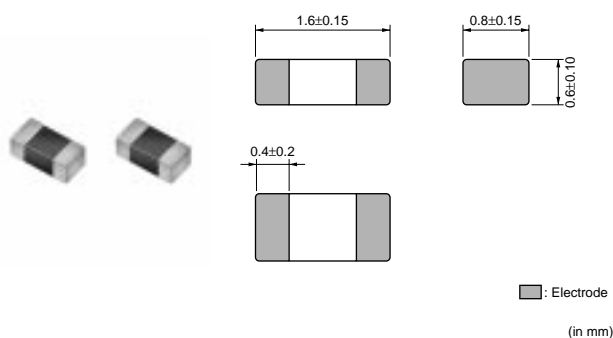
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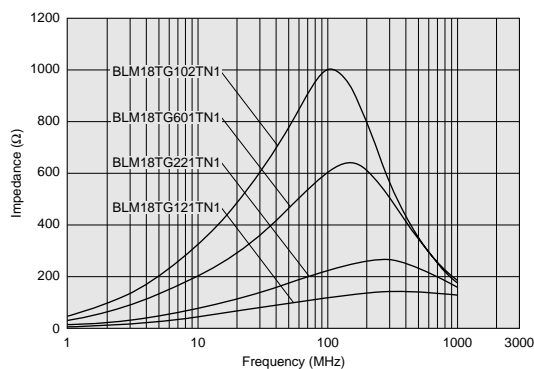
Continued from the preceding page.

| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM18BD601SN1 | 600 ±25%                         | 200                | 0.65                       | -55 to +125°C               | 0603      |
| BLM18BD102SN1 | 1000 ±25%                        | 100                | 0.85                       | -55 to +125°C               | 0603      |
| BLM18BD152SN1 | 1500 ±25%                        | 50                 | 1.20                       | -55 to +125°C               | 0603      |
| BLM18BD182SN1 | 1800 ±25%                        | 50                 | 1.50                       | -55 to +125°C               | 0603      |
| BLM18BD222SN1 | 2200 ±25%                        | 50                 | 1.50                       | -55 to +125°C               | 0603      |
| BLM18BD252SN1 | 2500 ±25%                        | 50                 | 1.50                       | -55 to +125°C               | 0603      |
| BLM21BB050SN1 | 5 ±25%                           | 500                | 0.07                       | -55 to +125°C               | 0805      |
| BLM21BB600SN1 | 60 ±25%                          | 200                | 0.20                       | -55 to +125°C               | 0805      |
| BLM21BB750SN1 | 75 ±25%                          | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21BB121SN1 | 120 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21BD121SN1 | 120 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21BB151SN1 | 150 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21BD151SN1 | 150 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21BB201SN1 | 200 ±25%                         | 200                | 0.35                       | -55 to +125°C               | 0805      |
| BLM21BB221SN1 | 220 ±25%                         | 200                | 0.35                       | -55 to +125°C               | 0805      |
| BLM21BD221SN1 | 220 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21BB331SN1 | 330 ±25%                         | 200                | 0.40                       | -55 to +125°C               | 0805      |
| BLM21BD331SN1 | 330 ±25%                         | 200                | 0.30                       | -55 to +125°C               | 0805      |
| BLM21BD421SN1 | 420 ±25%                         | 200                | 0.30                       | -55 to +125°C               | 0805      |
| BLM21BB471SN1 | 470 ±25%                         | 200                | 0.45                       | -55 to +125°C               | 0805      |
| BLM21BD471SN1 | 470 ±25%                         | 200                | 0.35                       | -55 to +125°C               | 0805      |
| BLM21BD601SN1 | 600 ±25%                         | 200                | 0.35                       | -55 to +125°C               | 0805      |
| BLM21BD751SN1 | 750 ±25%                         | 200                | 0.40                       | -55 to +125°C               | 0805      |
| BLM21BD102SN1 | 1000 ±25%                        | 200                | 0.40                       | -55 to +125°C               | 0805      |
| BLM21BD152SN1 | 1500 ±25%                        | 200                | 0.45                       | -55 to +125°C               | 0805      |
| BLM21BD182SN1 | 1800 ±25%                        | 200                | 0.50                       | -55 to +125°C               | 0805      |
| BLM21BD222TN1 | 2200 ±25%                        | 200                | 0.60                       | -55 to +125°C               | 0805      |
| BLM21BD222SN1 | 2250 (Typ.)                      | 200                | 0.60                       | -55 to +125°C               | 0805      |
| BLM21BD272SN1 | 2700 ±25%                        | 200                | 0.80                       | -55 to +125°C               | 0805      |

### ● BLM18T Series



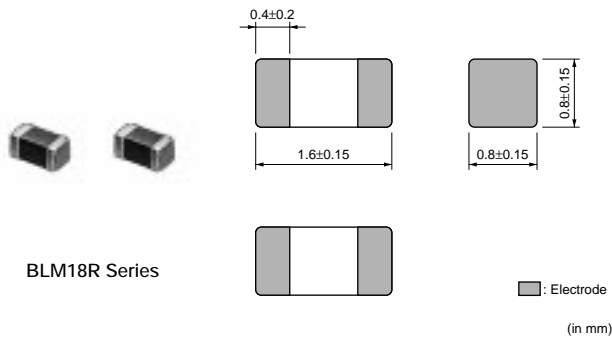
#### Impedance-Frequency Characteristics (Main Items)



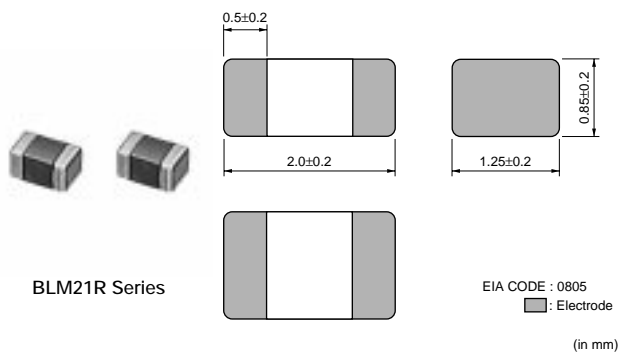
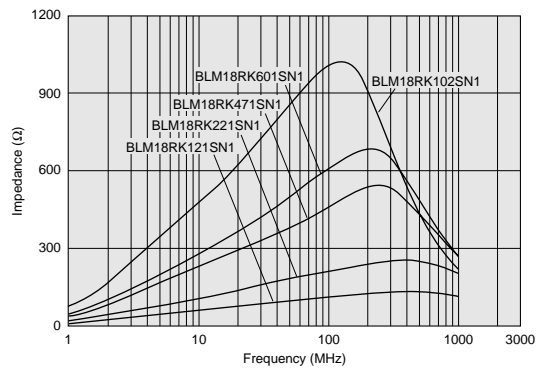
| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM18TG121TN1 | 120 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0603      |
| BLM18TG221TN1 | 220 ±25%                         | 200                | 0.30                       | -55 to +125°C               | 0603      |
| BLM18TG601TN1 | 600 ±25%                         | 200                | 0.45                       | -55 to +125°C               | 0603      |
| BLM18TG102TN1 | 1000 ±25%                        | 100                | 0.60                       | -55 to +125°C               | 0603      |



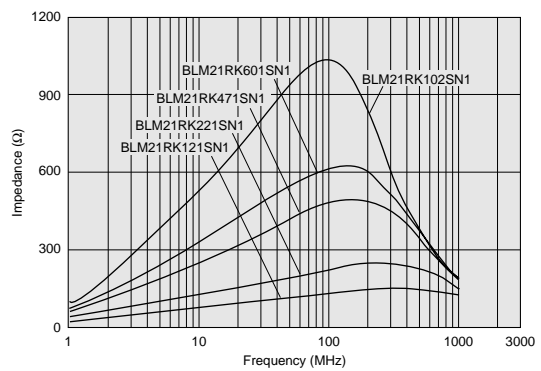
## ● BLM\_R Series



### Impedance-Frequency Characteristics (Main Items)

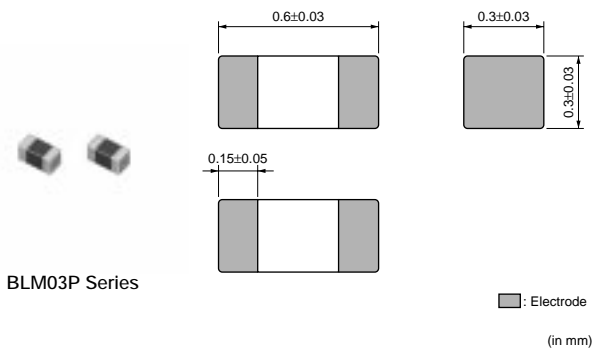


### Impedance-Frequency Characteristics (Main Items)

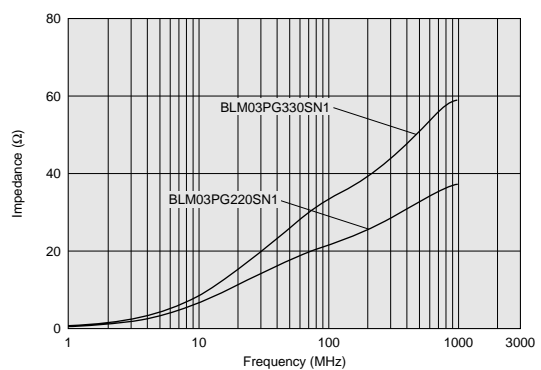


| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM18RK121SN1 | 120 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0603      |
| BLM18RK221SN1 | 220 ±25%                         | 200                | 0.30                       | -55 to +125°C               | 0603      |
| BLM18RK471SN1 | 470 ±25%                         | 200                | 0.50                       | -55 to +125°C               | 0603      |
| BLM18RK601SN1 | 600 ±25%                         | 200                | 0.60                       | -55 to +125°C               | 0603      |
| BLM18RK102SN1 | 1000 ±25%                        | 200                | 0.80                       | -55 to +125°C               | 0603      |
| BLM21RK121SN1 | 120 ±25%                         | 200                | 0.15                       | -55 to +125°C               | 0805      |
| BLM21RK221SN1 | 220 ±25%                         | 200                | 0.20                       | -55 to +125°C               | 0805      |
| BLM21RK471SN1 | 470 ±25%                         | 200                | 0.25                       | -55 to +125°C               | 0805      |
| BLM21RK601SN1 | 600 ±25%                         | 200                | 0.30                       | -55 to +125°C               | 0805      |
| BLM21RK102SN1 | 1000 ±25%                        | 200                | 0.50                       | -55 to +125°C               | 0805      |

## ● BLM\_P Series



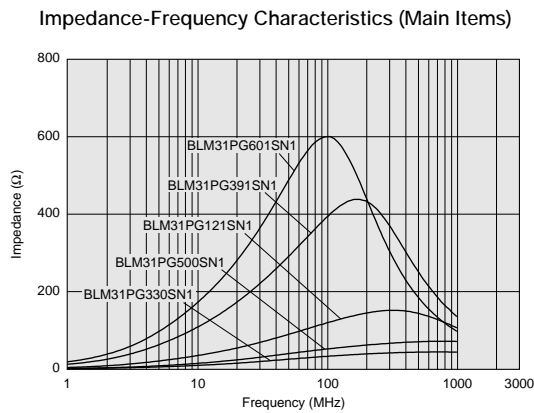
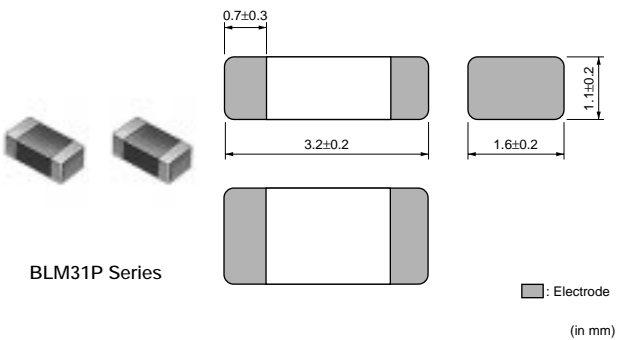
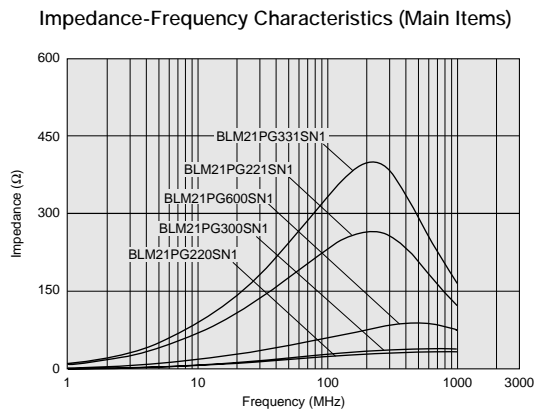
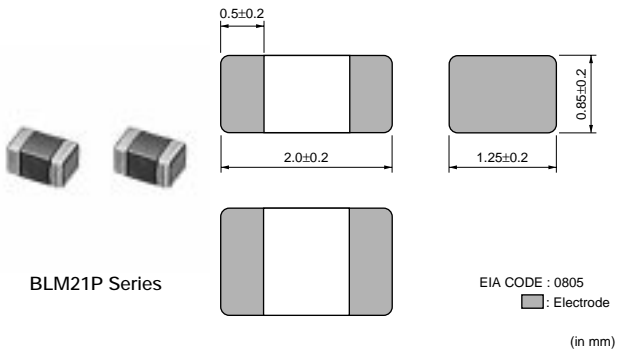
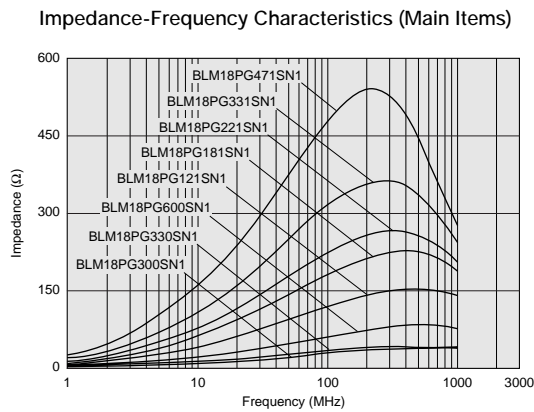
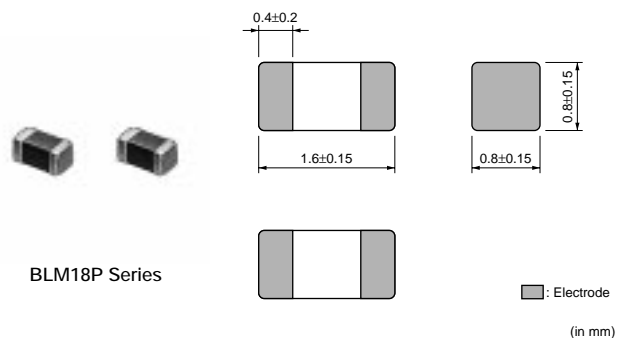
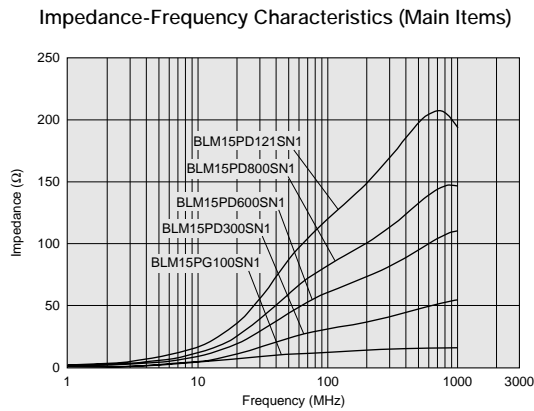
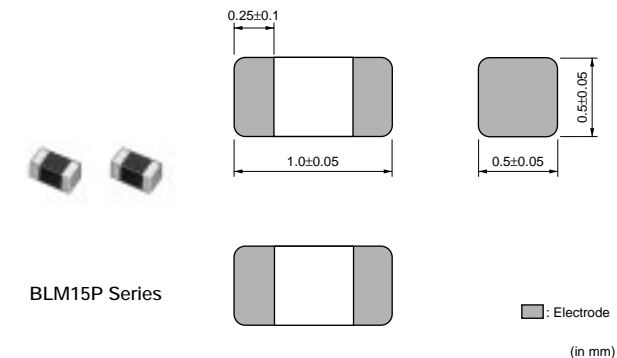
### Impedance-Frequency Characteristics (Main Items)



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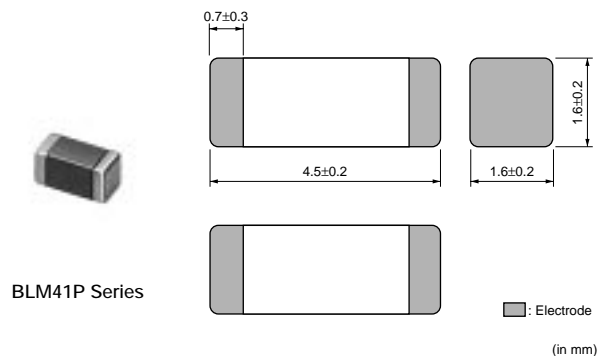
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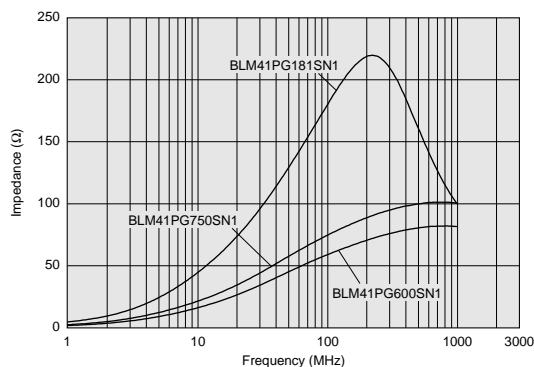


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Impedance-Frequency Characteristics (Main Items)

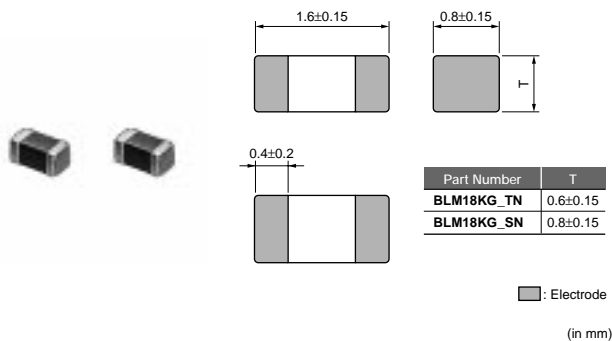


| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM03PG220SN1 | 22 ±25%                          | 900                | 0.065                      | -55 to +125°C               | 0201      |
| BLM03PG330SN1 | 33 ±25%                          | 750                | 0.090                      | -55 to +125°C               | 0201      |
| BLM15PG100SN1 | 10 (Typ.)                        | 1000               | 0.05                       | -55 to +125°C               | 0402      |
| BLM15PD300SN1 | 30 ±25%                          | 2200               | 0.035                      | -55 to +125°C               | 0402      |
| BLM15PD600SN1 | 60 ±25%                          | 1700               | 0.06                       | -55 to +125°C               | 0402      |
| BLM15PD800SN1 | 80 ±25%                          | 1500               | 0.07                       | -55 to +125°C               | 0402      |
| BLM15PD121SN1 | 120 ±25%                         | 1300               | 0.09                       | -55 to +125°C               | 0402      |
| BLM18PG300SN1 | 30 (Typ.)                        | 1000               | 0.05                       | -55 to +125°C               | 0603      |
| BLM18PG330SN1 | 33 ±25%                          | 3000               | 0.025                      | -55 to +125°C               | 0603      |
| BLM18PG600SN1 | 60 (Typ.)                        | 500                | 0.10                       | -55 to +125°C               | 0603      |
| BLM18PG121SN1 | 120 ±25%                         | 2000               | 0.05                       | -55 to +125°C               | 0603      |
| BLM18PG181SN1 | 180 ±25%                         | 1500               | 0.09                       | -55 to +125°C               | 0603      |
| BLM18PG221SN1 | 220 ±25%                         | 1400               | 0.10                       | -55 to +125°C               | 0603      |
| BLM18PG331SN1 | 330 ±25%                         | 1200               | 0.15                       | -55 to +125°C               | 0603      |
| BLM18PG471SN1 | 470 ±25%                         | 1000               | 0.20                       | -55 to +125°C               | 0603      |
| BLM21PG220SN1 | 22 ±25%                          | 6000               | 0.01                       | -55 to +125°C               | 0805      |
| BLM21PG300SN1 | 30 (Typ.)                        | 3000               | 0.015                      | -55 to +125°C               | 0805      |
| BLM21PG600SN1 | 60 ±25%                          | 3000               | 0.025                      | -55 to +125°C               | 0805      |
| BLM21PG221SN1 | 220 ±25%                         | 2000               | 0.050                      | -55 to +125°C               | 0805      |
| BLM21PG331SN1 | 330 ±25%                         | 1500               | 0.09                       | -55 to +125°C               | 0805      |
| BLM31PG330SN1 | 33 ±25%                          | 6000               | 0.01                       | -55 to +125°C               | 1206      |
| BLM31PG500SN1 | 50 (Typ.)                        | 3000               | 0.025                      | -55 to +125°C               | 1206      |
| BLM31PG121SN1 | 120 ±25%                         | 3000               | 0.025                      | -55 to +125°C               | 1206      |
| BLM31PG391SN1 | 390 ±25%                         | 2000               | 0.05                       | -55 to +125°C               | 1206      |
| BLM31PG601SN1 | 600 ±25%                         | 1500               | 0.09                       | -55 to +125°C               | 1206      |
| BLM41PG600SN1 | 60 (Typ.)                        | 6000               | 0.01                       | -55 to +125°C               | 1806      |
| BLM41PG750SN1 | 75 (Typ.)                        | 3000               | 0.025                      | -55 to +125°C               | 1806      |
| BLM41PG181SN1 | 180 ±25%                         | 3000               | 0.025                      | -55 to +125°C               | 1806      |
| BLM41PG471SN1 | 470 ±25%                         | 2000               | 0.05                       | -55 to +125°C               | 1806      |
| BLM41PG102SN1 | 1000 ±25%                        | 1500               | 0.09                       | -55 to +125°C               | 1806      |

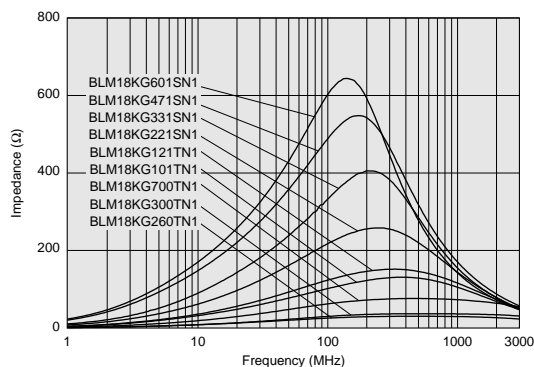
To operate at the temperature over +85°C, some of these items need derating of rated current. Please contact us for details.

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## ● BLM18K Series



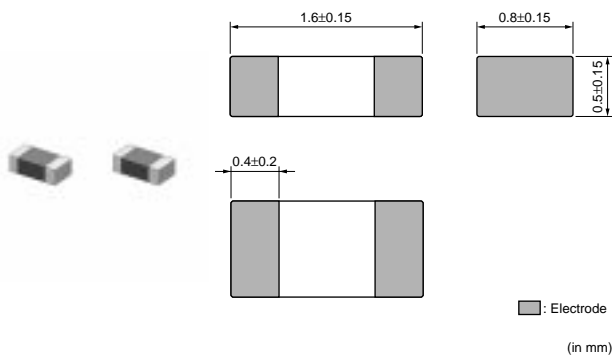
Impedance-Frequency Characteristics (Main Items)



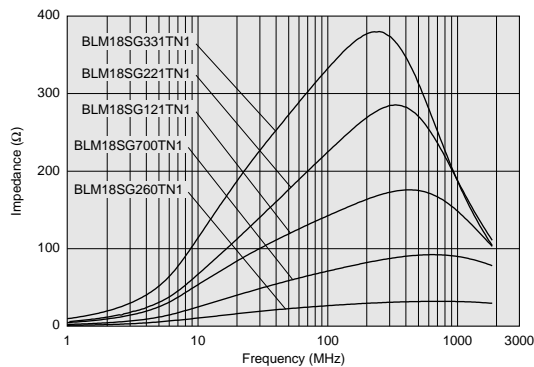
| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM18KG260TN1 | 26 ±25%                          | 6000               | 0.007                      | -55 to +125°C               | 0603      |
| BLM18KG300TN1 | 30 ±25%                          | 5000               | 0.010                      | -55 to +125°C               | 0603      |
| BLM18KG700TN1 | 70 ±25%                          | 3500               | 0.022                      | -55 to +125°C               | 0603      |
| BLM18KG101TN1 | 100 ±25%                         | 3000               | 0.030                      | -55 to +125°C               | 0603      |
| BLM18KG121TN1 | 120 ±25%                         | 3000               | 0.030                      | -55 to +125°C               | 0603      |
| BLM18KG221SN1 | 220 ±25%                         | 2200               | 0.050                      | -55 to +125°C               | 0603      |
| BLM18KG331SN1 | 330 ±25%                         | 1700               | 0.080                      | -55 to +125°C               | 0603      |
| BLM18KG471SN1 | 470 ±25%                         | 1500               | 0.130                      | -55 to +125°C               | 0603      |
| BLM18KG601SN1 | 600 ±25%                         | 1300               | 0.150                      | -55 to +125°C               | 0603      |

To operate at the temperature over +85°C, some of these items need derating of rated current. Please contact us for details.

## ● BLM18S Series



Impedance-Frequency Characteristics (Main Items)



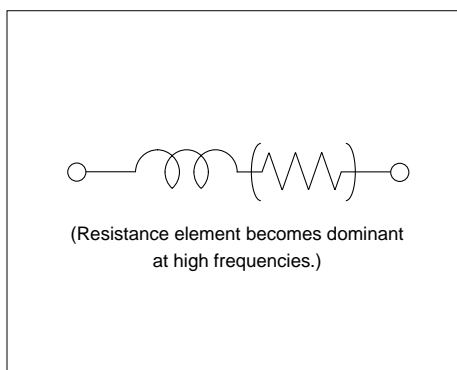
| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM18SG260TN1 | 26 ±25%                          | 6000               | 0.007                      | -55 to +125°C               | 0603      |
| BLM18SG700TN1 | 70 ±25%                          | 4000               | 0.020                      | -55 to +125°C               | 0603      |
| BLM18SG121TN1 | 120 ±25%                         | 3000               | 0.025                      | -55 to +125°C               | 0603      |
| BLM18SG221TN1 | 220 ±25%                         | 2500               | 0.040                      | -55 to +125°C               | 0603      |
| BLM18SG331TN1 | 330 ±25%                         | 1500               | 0.070                      | -55 to +125°C               | 0603      |

To operate at the temperature over +85°C, some of these items need derating of rated current. Please contact us for details.

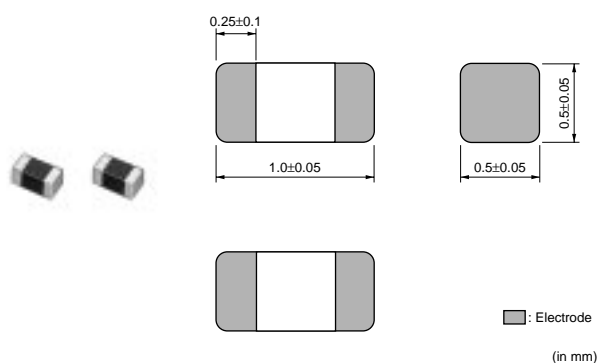
# EMIFIL® (Inductor Type)

Chip Ferrite Bead for GHz Noise

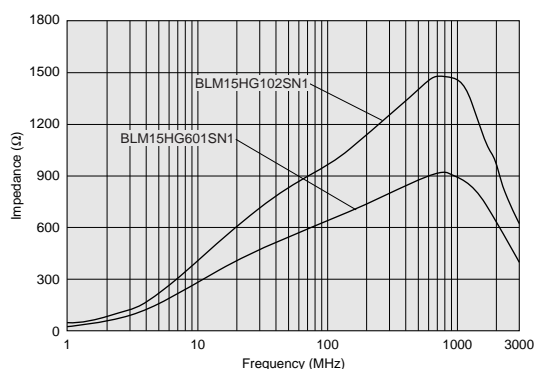
Equivalent Circuit



● BLM15H Series

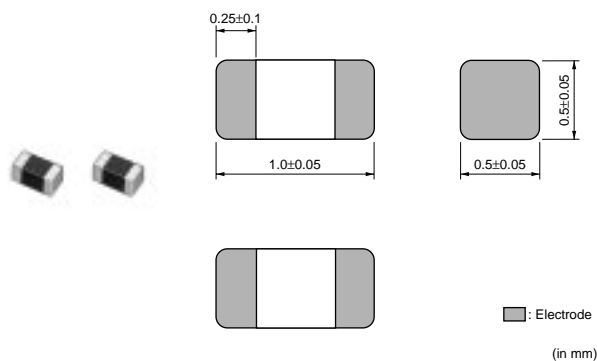


Impedance-Frequency Characteristics (Main Items)

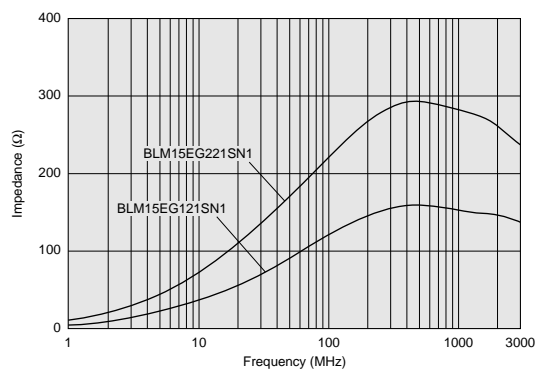


| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Impedance (at 1GHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLM15HG601SN1 | 600 ±25%                         | 1000 ±40%                      | 300                | 0.7                        | -55 to +125°C               | 0402      |
| BLM15HG102SN1 | 1000 ±25%                        | 1400 ±40%                      | 250                | 1.1                        | -55 to +125°C               | 0402      |
| BLM15HB121SN1 | 120 ±25%                         | 500 ±40%                       | 300                | 0.7                        | -55 to +125°C               | 0402      |
| BLM15HB221SN1 | 220 ±25%                         | 900 ±40%                       | 250                | 1.0                        | -55 to +125°C               | 0402      |
| BLM15HD601SN1 | 600 ±25%                         | 1400 ±40%                      | 300                | 0.85                       | -55 to +125°C               | 0402      |
| BLM15HD102SN1 | 1000 ±25%                        | 2000 ±40%                      | 250                | 1.25                       | -55 to +125°C               | 0402      |
| BLM15HD182SN1 | 1800 ±25%                        | 2700 ±40%                      | 200                | 2.2                        | -55 to +125°C               | 0402      |

● BLM15E Series



Impedance-Frequency Characteristics (Main Items)

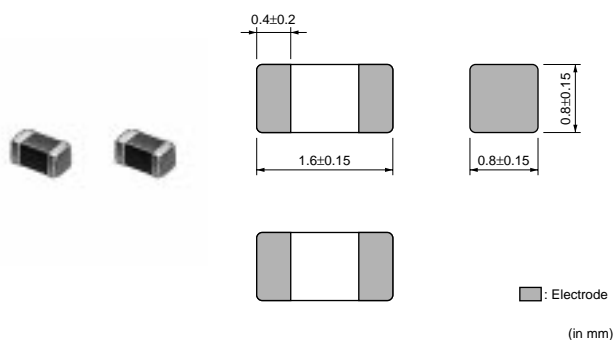


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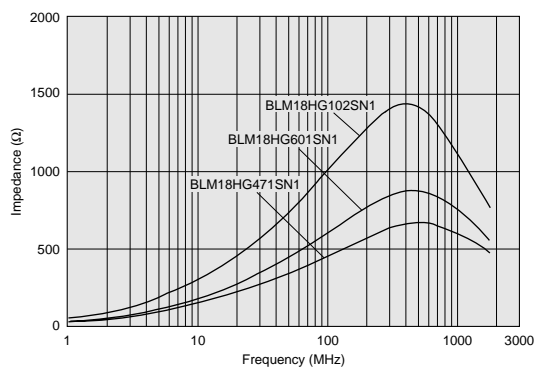
| Part Number          | Impedance (at 100MHz/20°C) (ohm) | Impedance (at 1GHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|----------------------|----------------------------------|--------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| <b>BLM15EG121SN1</b> | 120 ±25%                         | 145 (Typ.)                     | 1500               | 0.095                      | -55 to +125°C               | 0402      |
| <b>BLM15EG221SN1</b> | 220 ±25%                         | 270 (Typ.)                     | 700                | 0.28                       | -55 to +125°C               | 0402      |

To operate at the temperature over +85°C, some of these items need derating of rated current. Please contact us for details.

## ● BLM18H Series



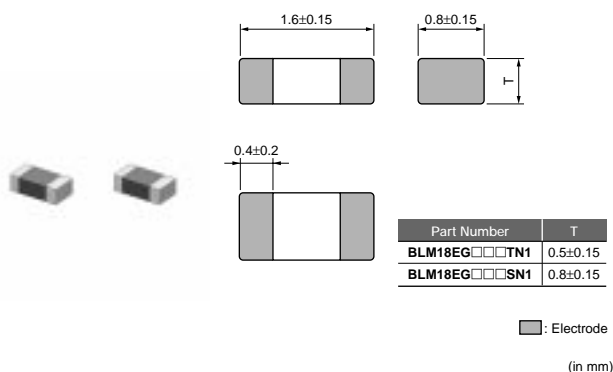
### Impedance-Frequency Characteristics (Main Items)



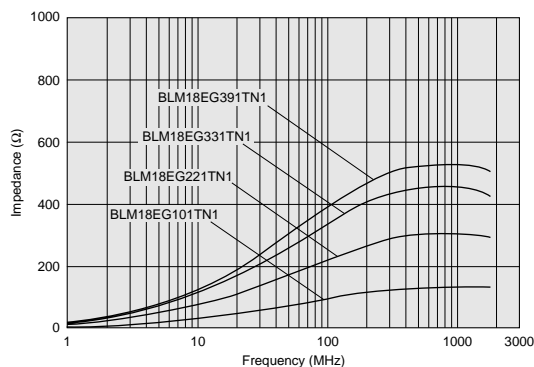
| Part Number          | Impedance (at 100MHz/20°C) (ohm) | Impedance (at 1GHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|----------------------|----------------------------------|--------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| <b>BLM18HG471SN1</b> | 470 ±25%                         | 600 (Typ.)                     | 200                | 0.85                       | -55 to +125°C               | 0603      |
| <b>BLM18HG601SN1</b> | 600 ±25%                         | 700 (Typ.)                     | 200                | 1.00                       | -55 to +125°C               | 0603      |
| <b>BLM18HG102SN1</b> | 1000 ±25%                        | 1000 (Typ.)                    | 100                | 1.60                       | -55 to +125°C               | 0603      |
| <b>BLM18HB121SN1</b> | 120 ±25%                         | 500 ±40%                       | 200                | 0.50                       | -55 to +125°C               | 0603      |
| <b>BLM18HB221SN1</b> | 220 ±25%                         | 1100 ±40%                      | 100                | 0.80                       | -55 to +125°C               | 0603      |
| <b>BLM18HB331SN1</b> | 330 ±25%                         | 1600 ±40%                      | 50                 | 1.20                       | -55 to +125°C               | 0603      |
| <b>BLM18HD471SN1</b> | 470 ±25%                         | 1000 (Typ.)                    | 100                | 1.20                       | -55 to +125°C               | 0603      |
| <b>BLM18HD601SN1</b> | 600 ±25%                         | 1200 (Typ.)                    | 100                | 1.50                       | -55 to +125°C               | 0603      |
| <b>BLM18HD102SN1</b> | 1000 ±25%                        | 1700 (Typ.)                    | 50                 | 1.80                       | -55 to +125°C               | 0603      |
| <b>BLM18HE601SN1</b> | 600 ±25%                         | 600 (Typ.)                     | 800                | 0.25                       | -55 to +125°C               | 0603      |
| <b>BLM18HE102SN1</b> | 1000 ±25%                        | 1000 (Typ.)                    | 600                | 0.35                       | -55 to +125°C               | 0603      |
| <b>BLM18HE152SN1</b> | 1500 ±25%                        | 1500 (Typ.)                    | 500                | 0.50                       | -55 to +125°C               | 0603      |
| <b>BLM18HK331SN1</b> | 330 ±25%                         | 400 ±40%                       | 200                | 0.50                       | -55 to +125°C               | 0603      |
| <b>BLM18HK471SN1</b> | 470 ±25%                         | 600 ±40%                       | 200                | 0.70                       | -55 to +125°C               | 0603      |
| <b>BLM18HK601SN1</b> | 600 ±25%                         | 700 ±40%                       | 100                | 0.90                       | -55 to +125°C               | 0603      |
| <b>BLM18HK102SN1</b> | 1000 ±25%                        | 1200 ±40%                      | 50                 | 1.50                       | -55 to +125°C               | 0603      |

To operate at the temperature over +85°C, some of these items need derating of rated current. Please contact us for details.

## ● BLM18E Series



### Impedance-Frequency Characteristics (Main Items)



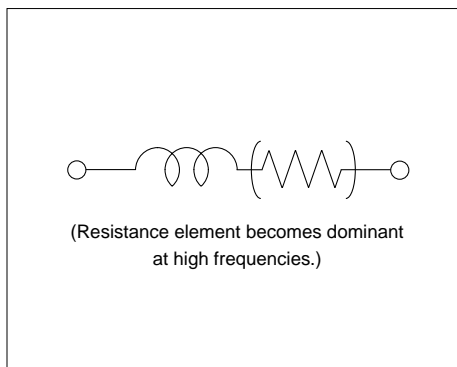
| Part Number          | Impedance (at 100MHz/20°C) (ohm) | Impedance (at 1GHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|----------------------|----------------------------------|--------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| <b>BLM18EG101TN1</b> | 100 ±25%                         | 140 (Typ.)                     | 2000               | 0.045                      | -55 to +125°C               | 0603      |
| <b>BLM18EG121SN1</b> | 120 ±25%                         | 145 (Typ.)                     | 2000               | 0.04                       | -55 to +125°C               | 0603      |
| <b>BLM18EG221SN1</b> | 220 ±25%                         | 260 (Typ.)                     | 2000               | 0.05                       | -55 to +125°C               | 0603      |
| <b>BLM18EG221TN1</b> | 220 ±25%                         | 300 (Typ.)                     | 1000               | 0.15                       | -55 to +125°C               | 0603      |
| <b>BLM18EG331TN1</b> | 330 ±25%                         | 450 (Typ.)                     | 500                | 0.21                       | -55 to +125°C               | 0603      |
| <b>BLM18EG391TN1</b> | 390 ±25%                         | 520 (Typ.)                     | 500                | 0.3                        | -55 to +125°C               | 0603      |
| <b>BLM18EG471SN1</b> | 470 ±25%                         | 550 (Typ.)                     | 500                | 0.21                       | -55 to +125°C               | 0603      |
| <b>BLM18EG601SN1</b> | 600 ±25%                         | 700 (Typ.)                     | 500                | 0.35                       | -55 to +125°C               | 0603      |

To operate at the temperature over +85°C, some of these items need derating of rated current. Please contact us for details.

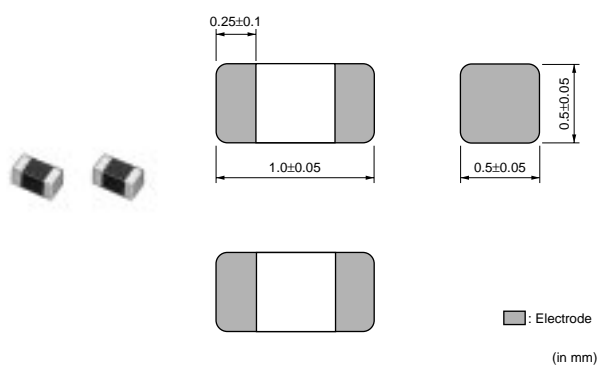
## EMIFIL® (Inductor Type)

Chip Ferrite Bead for High-GHz Noise

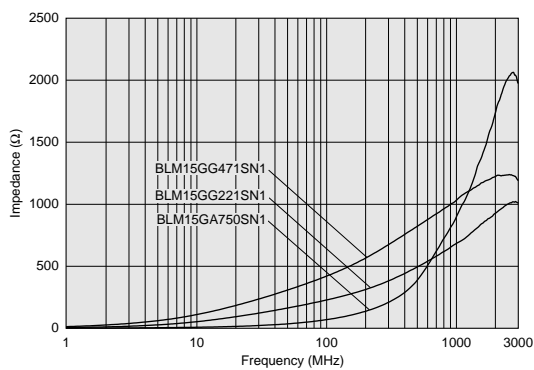
Equivalent Circuit



### ● BLM15G Series



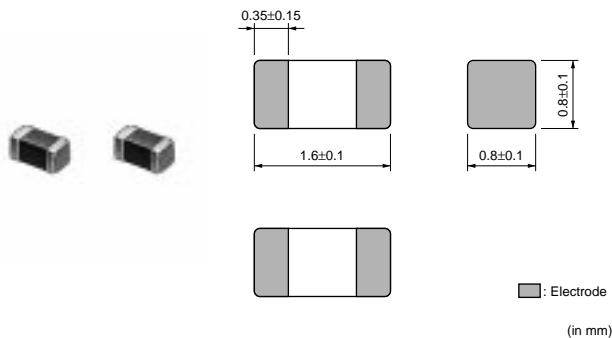
Impedance-Frequency Characteristics (Main Items)



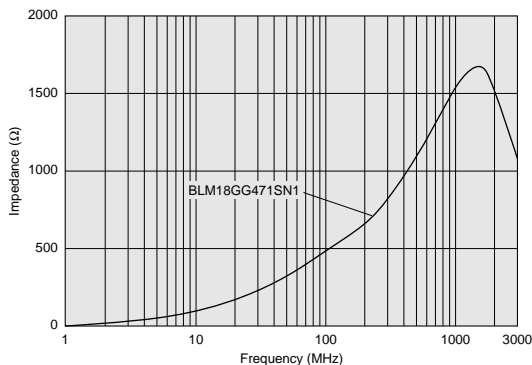
| Part Number          | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|----------------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| <b>BLM15GA750SN1</b> | 75 ±25%                          | 200                | 1.3                        | -55 to +125°C               | 0402      |
| <b>BLM15GG221SN1</b> | 220 ±25%                         | 300                | 0.7                        | -55 to +125°C               | 0402      |
| <b>BLM15GG471SN1</b> | 470 ±25%                         | 200                | 1.3                        | -55 to +125°C               | 0402      |

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● BLM18G Series



Impedance-Frequency Characteristics (Main Items)

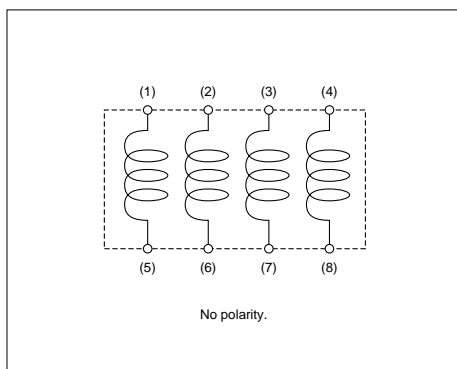


| Part Number          | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|----------------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| <b>BLM18GG471SN1</b> | 470 ±25%                         | 200                | 1.30                       | -55 to +125°C               | 0603      |

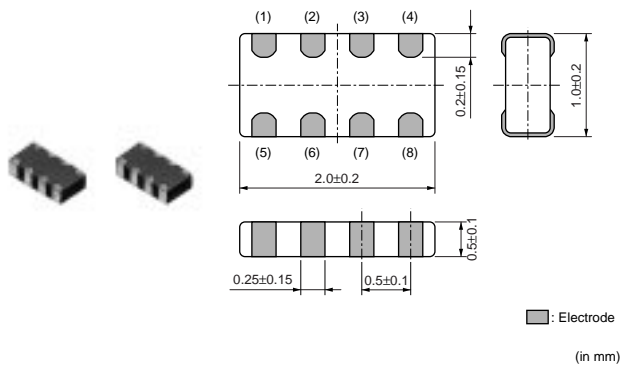
## EMIFIL® (Inductor Type)

Chip Ferrite Bead (Array)

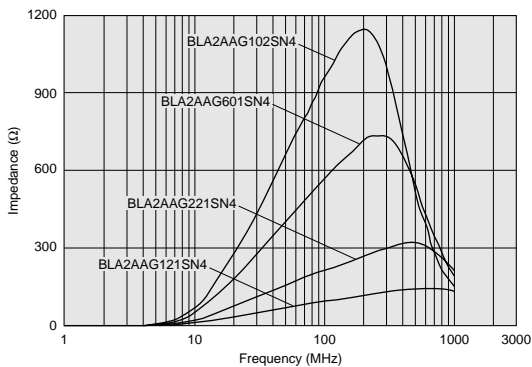
Equivalent Circuit



● BLA2A Series



Impedance-Frequency Characteristics (Main Items)



| Part Number          | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|----------------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| <b>BLA2AAG121SN4</b> | 120 ±25%                         | 100                | 0.50                       | -55 to +125°C               | 0804      |
| <b>BLA2AAG221SN4</b> | 220 ±25%                         | 50                 | 0.70                       | -55 to +125°C               | 0804      |
| <b>BLA2AAG601SN4</b> | 600 ±25%                         | 50                 | 1.10                       | -55 to +125°C               | 0804      |
| <b>BLA2AAG102SN4</b> | 1000 ±25%                        | 50                 | 1.30                       | -55 to +125°C               | 0804      |
| <b>BLA2ABB100SN4</b> | 10 ±25%                          | 200                | 0.1                        | -55 to +125°C               | 0804      |
| <b>BLA2ABB220SN4</b> | 22 ±25%                          | 200                | 0.2                        | -55 to +125°C               | 0804      |

Continued on the following page. ↗

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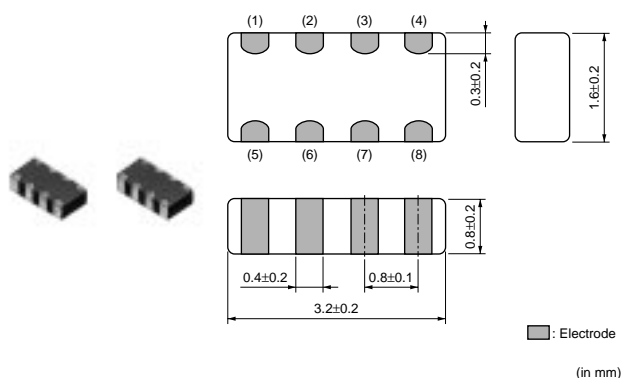


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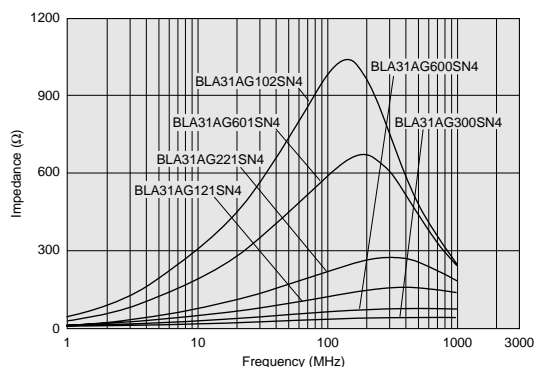
| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLA2ABB470SN4 | 47 ±25%                          | 200                | 0.35                       | -55 to +125°C               | 0804      |
| BLA2ABB121SN4 | 120 ±25%                         | 50                 | 0.60                       | -55 to +125°C               | 0804      |
| BLA2ABB221SN4 | 220 ±25%                         | 50                 | 0.90                       | -55 to +125°C               | 0804      |
| BLA2ABD750SN4 | 75 ±25%                          | 200                | 0.20                       | -55 to +125°C               | 0804      |
| BLA2ABD121SN4 | 120 ±25%                         | 200                | 0.35                       | -55 to +125°C               | 0804      |
| BLA2ABD221SN4 | 220 ±25%                         | 100                | 0.40                       | -55 to +125°C               | 0804      |
| BLA2ABD471SN4 | 470 ±25%                         | 100                | 0.65                       | -55 to +125°C               | 0804      |
| BLA2ABD601SN4 | 600 ±25%                         | 100                | 0.80                       | -55 to +125°C               | 0804      |
| BLA2ABD102SN4 | 1000 ±25%                        | 50                 | 1.00                       | -55 to +125°C               | 0804      |

Number of Circuits: 4

## ● BLA31 Series



Impedance-Frequency Characteristics (Main Items)



| Part Number   | Impedance (at 100MHz/20°C) (ohm) | Rated Current (mA) | DC Resistance (max.) (ohm) | Operating Temperature Range | Case Size |
|---------------|----------------------------------|--------------------|----------------------------|-----------------------------|-----------|
| BLA31AG300SN4 | 30 ±25%                          | 200                | 0.10                       | -55 to +125°C               | 1206      |
| BLA31AG600SN4 | 60 ±25%                          | 200                | 0.15                       | -55 to +125°C               | 1206      |
| BLA31AG121SN4 | 120 ±25%                         | 150                | 0.20                       | -55 to +125°C               | 1206      |
| BLA31AG221SN4 | 220 ±25%                         | 150                | 0.25                       | -55 to +125°C               | 1206      |
| BLA31AG601SN4 | 600 ±25%                         | 100                | 0.35                       | -55 to +125°C               | 1206      |
| BLA31AG102SN4 | 1000 ±25%                        | 50                 | 0.45                       | -55 to +125°C               | 1206      |
| BLA31BD121SN4 | 120 ±25%                         | 150                | 0.30                       | -55 to +125°C               | 1206      |
| BLA31BD221SN4 | 220 ±25%                         | 150                | 0.35                       | -55 to +125°C               | 1206      |
| BLA31BD471SN4 | 470 ±25%                         | 100                | 0.40                       | -55 to +125°C               | 1206      |
| BLA31BD601SN4 | 600 ±25%                         | 100                | 0.45                       | -55 to +125°C               | 1206      |
| BLA31BD102SN4 | 1000 ±25%                        | 50                 | 0.55                       | -55 to +125°C               | 1206      |

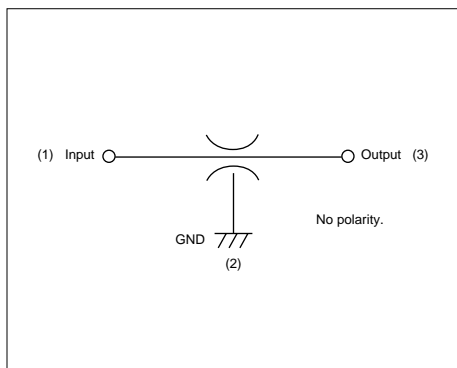
Number of Circuits: 4

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# EMIFIL® (Capacitor Type)

Single Circuit Type for Signal Lines

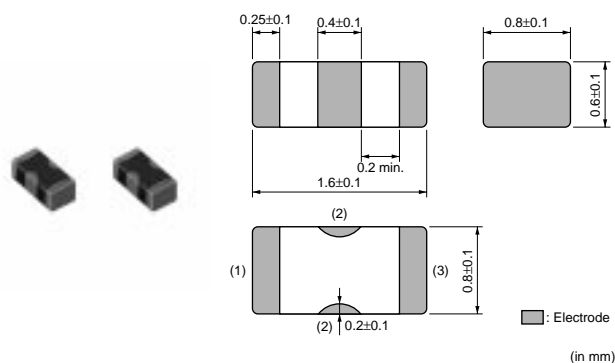
Equivalent Circuit



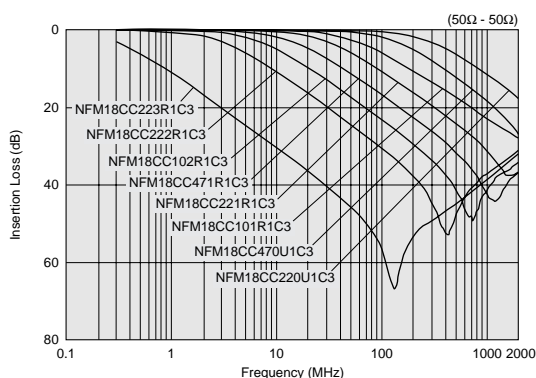
Noise Suppression Products/EMI Suppression Filters

2

● NFM18C Series (0603)

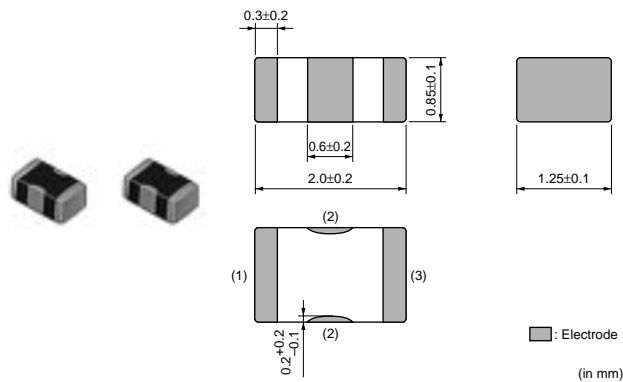


Insertion Loss Characteristics (Main Items)

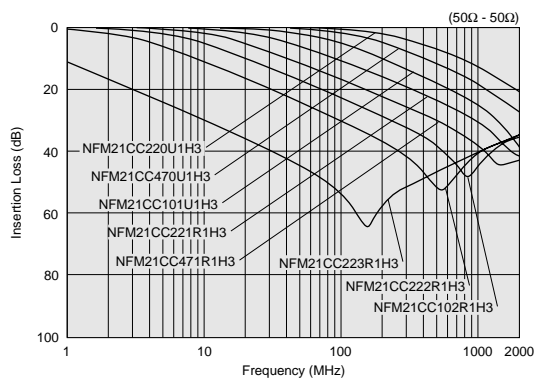


| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFM18CC220U1C3 | 22 ±20%          | 16                  | 400                | 1000                                 | -55 to +125°C               |
| NFM18CC470U1C3 | 47 ±20%          | 16                  | 400                | 1000                                 | -55 to +125°C               |
| NFM18CC101R1C3 | 100 ±20%         | 16                  | 500                | 1000                                 | -55 to +125°C               |
| NFM18CC221R1C3 | 220 ±20%         | 16                  | 500                | 1000                                 | -55 to +125°C               |
| NFM18CC471R1C3 | 470 ±20%         | 16                  | 500                | 1000                                 | -55 to +125°C               |
| NFM18CC102R1C3 | 1000 ±20%        | 16                  | 600                | 1000                                 | -55 to +125°C               |
| NFM18CC222R1C3 | 2200 ±20%        | 16                  | 700                | 1000                                 | -55 to +125°C               |
| NFM18CC223R1C3 | 22000 ±20%       | 16                  | 1000               | 1000                                 | -55 to +125°C               |

● NFM21C Series (0805)



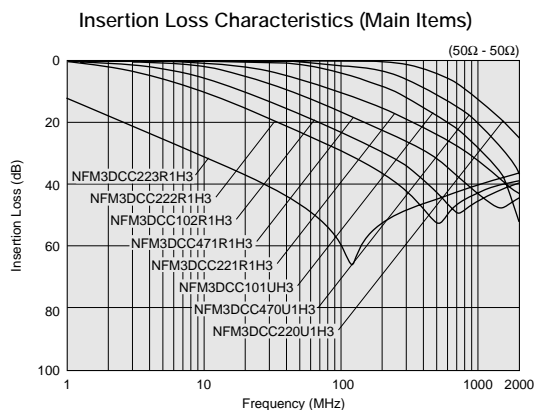
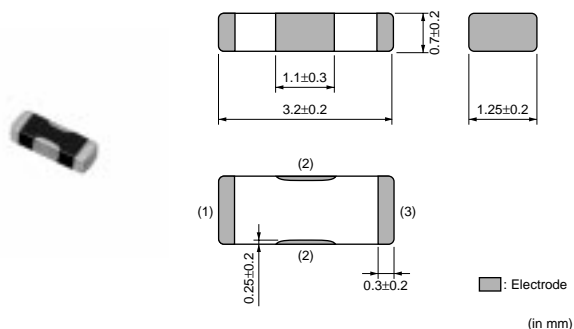
Insertion Loss Characteristics (Main Items)



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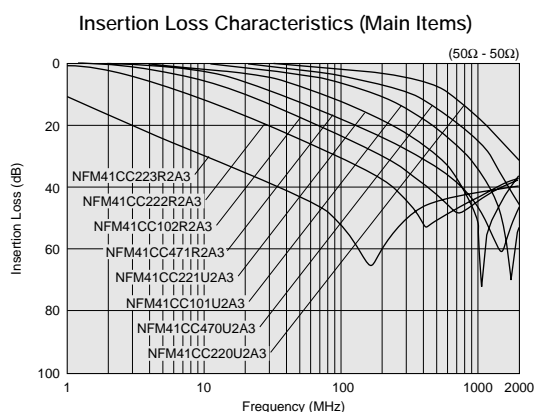
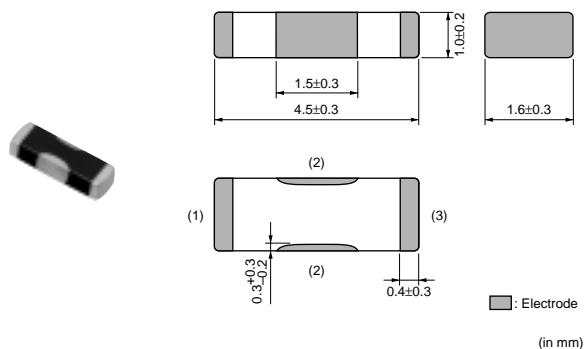
| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFM21CC220U1H3 | 22 ±20%          | 50                  | 700                | 1000                                 | -55 to +125°C               |
| NFM21CC470U1H3 | 47 ±20%          | 50                  | 700                | 1000                                 | -55 to +125°C               |
| NFM21CC101U1H3 | 100 ±20%         | 50                  | 700                | 1000                                 | -55 to +125°C               |
| NFM21CC221R1H3 | 220 ±20%         | 50                  | 700                | 1000                                 | -55 to +125°C               |
| NFM21CC471R1H3 | 470 ±20%         | 50                  | 1000               | 1000                                 | -55 to +125°C               |
| NFM21CC102R1H3 | 1000 ±20%        | 50                  | 1000               | 1000                                 | -55 to +125°C               |
| NFM21CC222R1H3 | 2200 ±20%        | 50                  | 1000               | 1000                                 | -55 to +125°C               |
| NFM21CC223R1H3 | 22000 ±20%       | 50                  | 2000               | 1000                                 | -55 to +125°C               |

### ● NFM3DC Series (1205)



| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFM3DCC220U1H3 | 22 50/-20%       | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC470U1H3 | 47 50/-20%       | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC101U1H3 | 100 50/-20%      | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC221R1H3 | 220 50/-20%      | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC471R1H3 | 470 50/-20%      | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC102R1H3 | 1000 50/-20%     | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC222R1H3 | 2200 50/-20%     | 50                  | 300                | 1000                                 | -55 to +125°C               |
| NFM3DCC223R1H3 | 22000 50/-20%    | 50                  | 300                | 1000                                 | -55 to +125°C               |

### ● NFM41C Series (1806)



| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFM41CC220U2A3 | 22 50/-20%       | 100                 | 300                | 10000                                | -55 to +125°C               |
| NFM41CC470U2A3 | 47 50/-20%       | 100                 | 300                | 10000                                | -55 to +125°C               |
| NFM41CC101U2A3 | 100 50/-20%      | 100                 | 300                | 10000                                | -55 to +125°C               |

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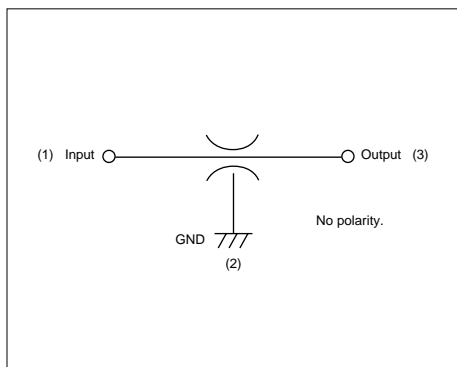
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| Part Number           | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|-----------------------|------------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| <b>NFM41CC221U2A3</b> | 220 50/-20%      | 100                 | 300                | 10000                                | -55 to +125°C               |
| <b>NFM41CC471R2A3</b> | 470 50/-20%      | 100                 | 300                | 10000                                | -55 to +125°C               |
| <b>NFM41CC102R2A3</b> | 1000 50/-20%     | 100                 | 300                | 10000                                | -55 to +125°C               |
| <b>NFM41CC222R2A3</b> | 2200 50/-20%     | 100                 | 300                | 10000                                | -55 to +125°C               |
| <b>NFM41CC223R2A3</b> | 22000 50/-20%    | 100                 | 300                | 10000                                | -55 to +125°C               |

## EMIFIL® (Capacitor Type)

Single Circuit Type for Large Current

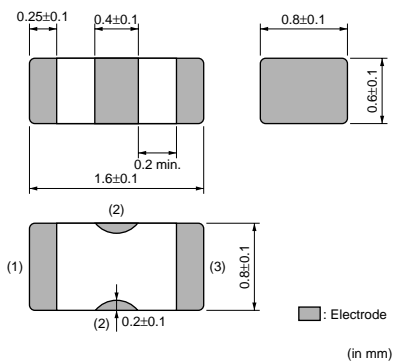
Equivalent Circuit



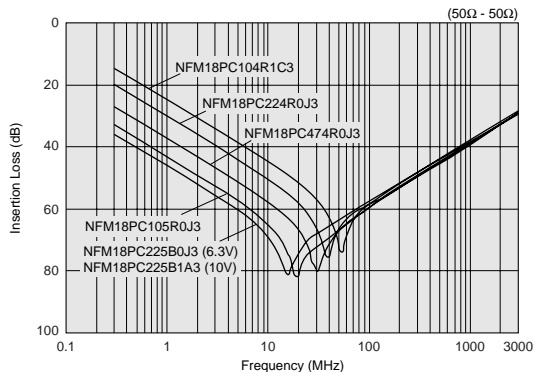
● NFM18P (0603)/NFM21P (0805)/NFM3DP (1205)/NFM31P (1206)/NFM41P (1806)/NFM55P (2220) Series



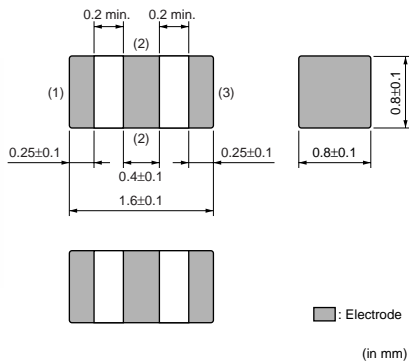
NFM18PC Series



Insertion Loss Characteristics (Main Items)



NFM18PC105R0J3  
NFM18PC225B1A3



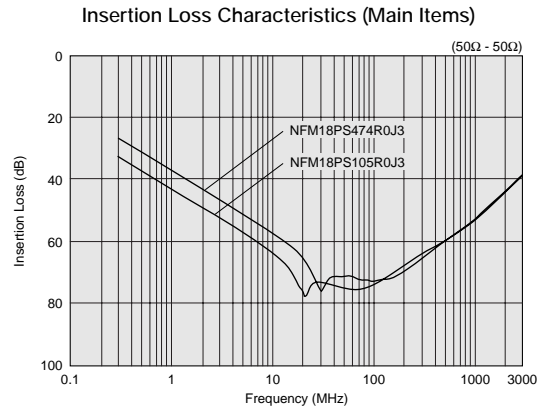
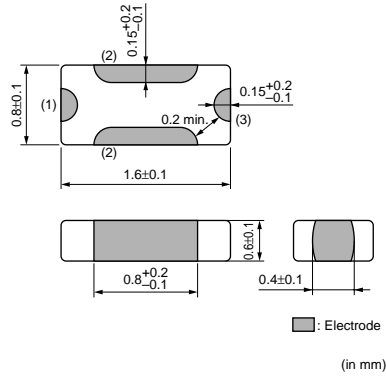
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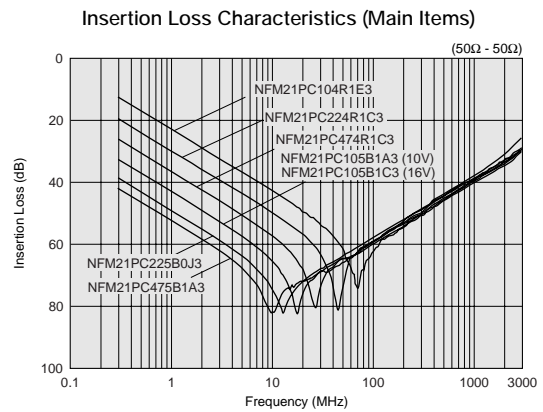
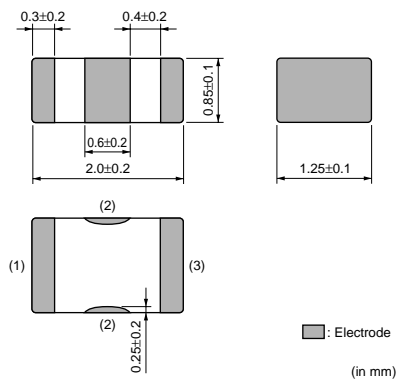
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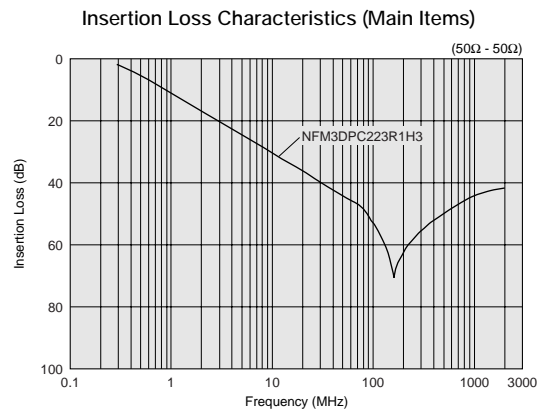
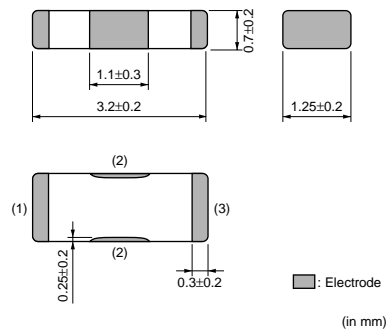
NFM18PS Series



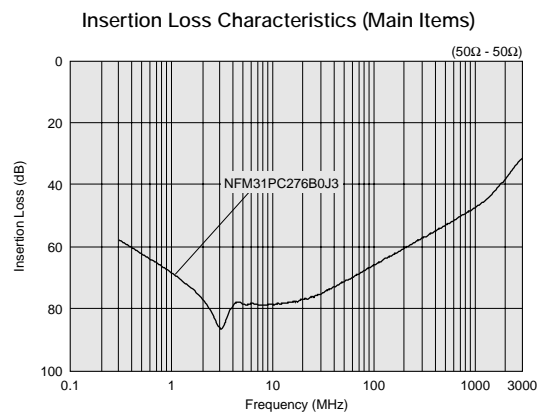
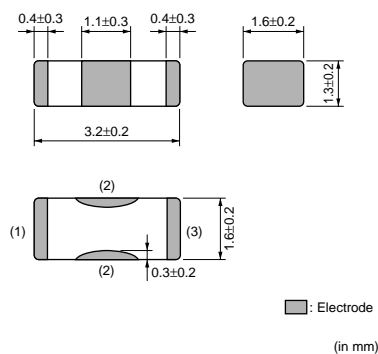
NFM21P Series



NFM3DP Series



NFM31P Series



Continued on the following page.

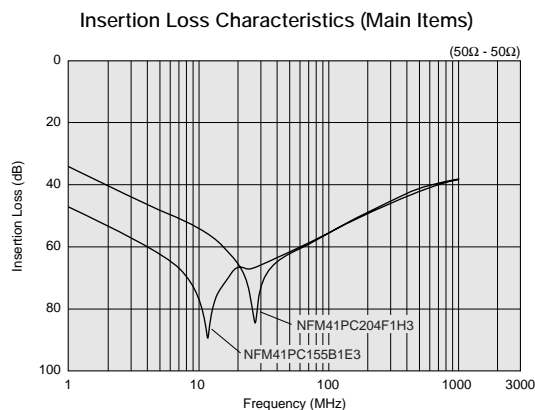
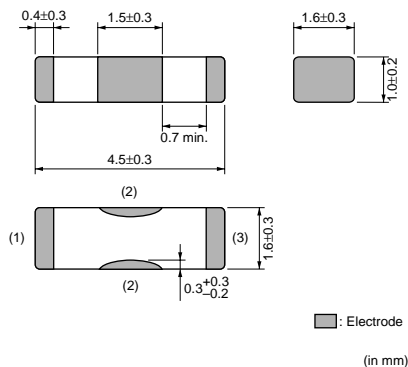
2  
Noise Suppression Products/EMI Suppression Filters

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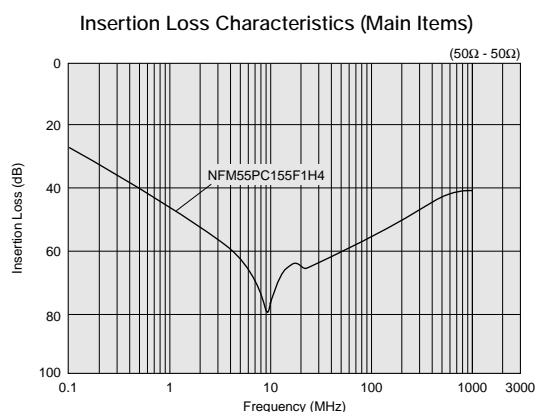
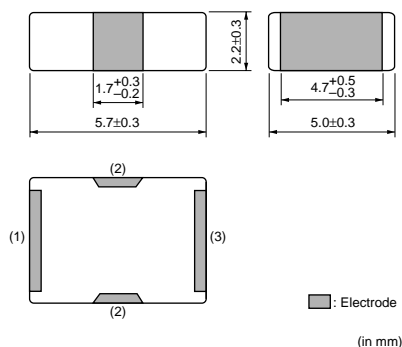
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NFM41P Series



NFM55P Series

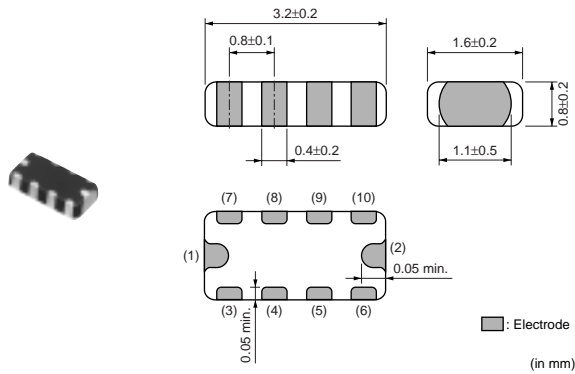


| Part Number    | Capacitance (μF) | Rated Voltage (Vdc) | Rated Current (A) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|-------------------|--------------------------------------|-----------------------------|
| NFM18PC104R1C3 | 0.1 ±20%         | 16                  | 2                 | 1000                                 | -55 to +125°C               |
| NFM18PC224R0J3 | 0.22 ±20%        | 6.3                 | 2                 | 1000                                 | -55 to +125°C               |
| NFM18PC474R0J3 | 0.47 ±20%        | 6.3                 | 2                 | 1000                                 | -55 to +125°C               |
| NFM18PC105R0J3 | 1.0 ±20%         | 6.3                 | 2                 | 500                                  | -55 to +105°C               |
| NFM18PC225B0J3 | 2.2 ±20%         | 6.3                 | 2                 | 200                                  | -40 to +85°C                |
| NFM18PC225B1A3 | 2.2 ±20%         | 10                  | 4                 | 200                                  | -40 to +85°C                |
| NFM18PS474R0J3 | 0.47 ±20%        | 6.3                 | 2                 | 1000                                 | -55 to +125°C               |
| NFM18PS105R0J3 | 1.0 ±20%         | 6.3                 | 2                 | 500                                  | -55 to +105°C               |
| NFM21PC104R1E3 | 0.1 ±20%         | 25                  | 2                 | 1000                                 | -55 to +125°C               |
| NFM21PC224R1C3 | 0.22 ±20%        | 16                  | 2                 | 1000                                 | -55 to +125°C               |
| NFM21PC474R1C3 | 0.47 ±20%        | 16                  | 2                 | 1000                                 | -55 to +125°C               |
| NFM21PC105B1A3 | 1.0 ±20%         | 10                  | 4                 | 500                                  | -40 to +85°C                |
| NFM21PC105B1C3 | 1.0 ±20%         | 16                  | 4                 | 500                                  | -40 to +85°C                |
| NFM21PC225B0J3 | 2.2 ±20%         | 6.3                 | 4                 | 200                                  | -40 to +85°C                |
| NFM21PC475B1A3 | 4.7 ±20%         | 10                  | 6                 | 100                                  | -40 to +85°C                |
| NFM3DPC223R1H3 | 0.022 ±20%       | 50                  | 2                 | 1000                                 | -55 to +125°C               |
| NFM31PC276B0J3 | 27 ±20%          | 6.3                 | 6                 | 20                                   | -40 to +85°C                |
| NFM41PC204F1H3 | 0.2 80/-20%      | 50                  | 2                 | 1000                                 | -55 to +85°C                |
| NFM41PC155B1E3 | 1.5 ±20%         | 25                  | 6                 | 300                                  | -55 to +85°C                |
| NFM55PC155F1H4 | 1.5 80/-20%      | 50                  | 6                 | 100                                  | -55 to +85°C                |

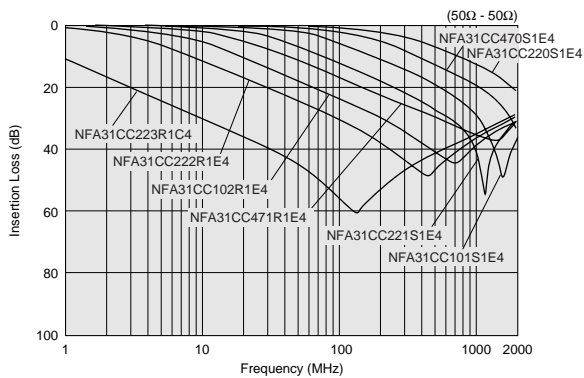
# EMIFIL<sup>®</sup> (Capacitor Type)

Array

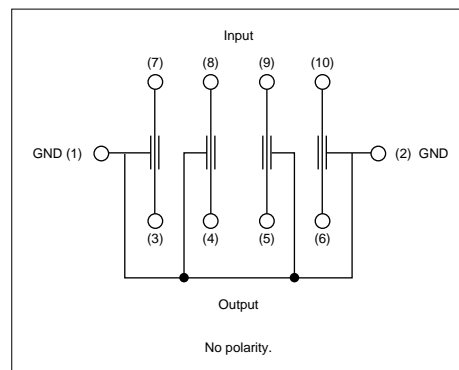
● NFA31C Series (1206)



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFA31CC220S1E4 | 22 ±20%          | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC470S1E4 | 47 ±20%          | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC101S1E4 | 100 ±20%         | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC221S1E4 | 220 ±20%         | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC471R1E4 | 470 ±20%         | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC102R1E4 | 1000 ±20%        | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC222R1E4 | 2200 ±20%        | 25                  | 200                | 1000                                 | -40 to +85°C                |
| NFA31CC223R1C4 | 22000 ±20%       | 16                  | 200                | 1000                                 | -40 to +85°C                |

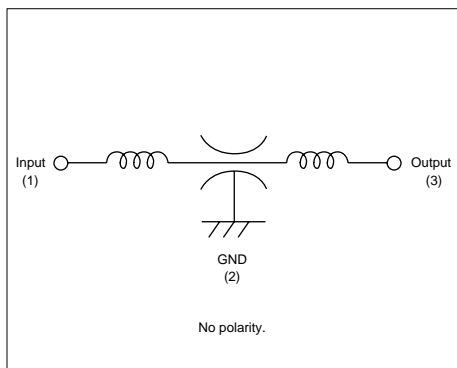
Number of Circuit: 4

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# EMIFIL® (LC Combined)

Feed Through Type

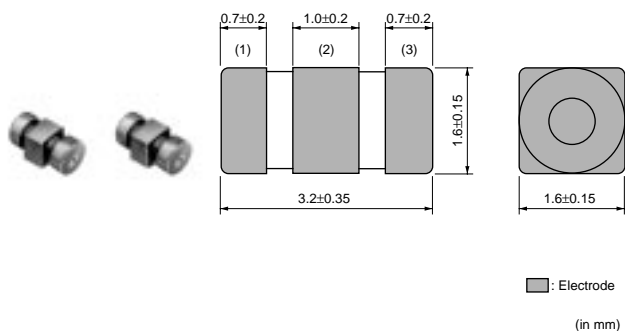
Equivalent Circuit



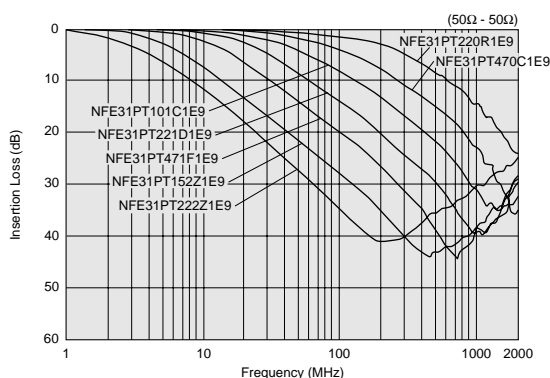
Noise Suppression Products/EMI Suppression Filters

2

● NFE31P Series (1206)

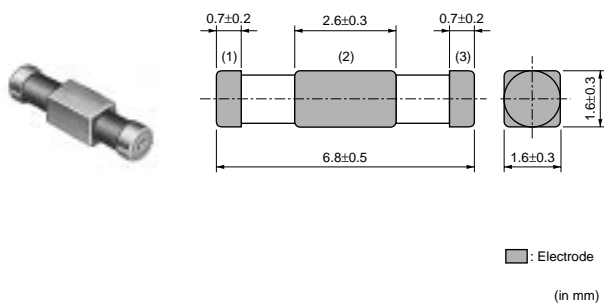


Insertion Loss Characteristics (Main Items)

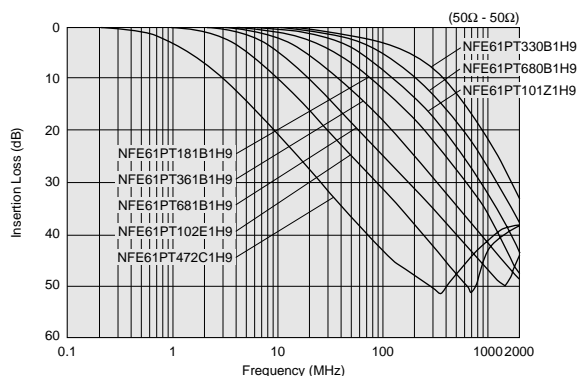


| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|-------------------|--------------------------------------|-----------------------------|
| NFE31PT220R1E9 | 22 ±30%          | 25                  | 6                 | 1000                                 | -40 to +85°C                |
| NFE31PT470C1E9 | 47 50/-20%       | 25                  | 6                 | 1000                                 | -40 to +85°C                |
| NFE31PT101C1E9 | 100 80/-20%      | 25                  | 6                 | 1000                                 | -40 to +85°C                |
| NFE31PT221D1E9 | 220 50/-20%      | 25                  | 6                 | 1000                                 | -40 to +85°C                |
| NFE31PT471F1E9 | 470 50/-20%      | 25                  | 6                 | 1000                                 | -40 to +85°C                |
| NFE31PT152Z1E9 | 1500 50/-20%     | 25                  | 6                 | 1000                                 | -40 to +85°C                |
| NFE31PT222Z1E9 | 2200 ±50%        | 25                  | 6                 | 1000                                 | -40 to +85°C                |

● NFE61P Series (2606)



Insertion Loss Characteristics (Main Items)



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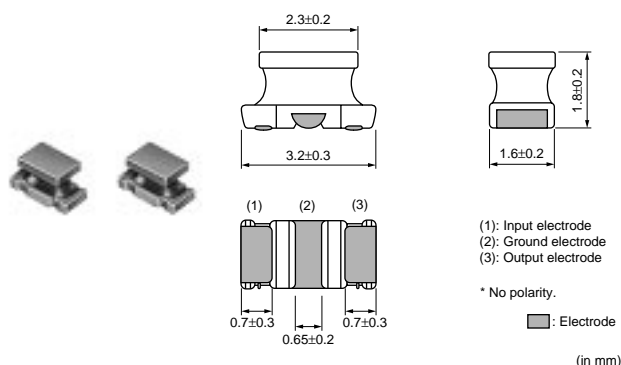


| Part Number    | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|---------------------|-------------------|--------------------------------------|-----------------------------|
| NFE61PT330B1H9 | 33 ±30%          | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT680B1H9 | 68 ±30%          | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT101Z1H9 | 100 ±30%         | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT181B1H9 | 180 ±30%         | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT361B1H9 | 360 ±20%         | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT681B1H9 | 680 ±30%         | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT102E1H9 | 1000 80/-20%     | 50                  | 2                 | 1000                                 | -25 to +85°C                |
| NFE61PT472C1H9 | 4700 80/-20%     | 50                  | 2                 | 1000                                 | -25 to +85°C                |

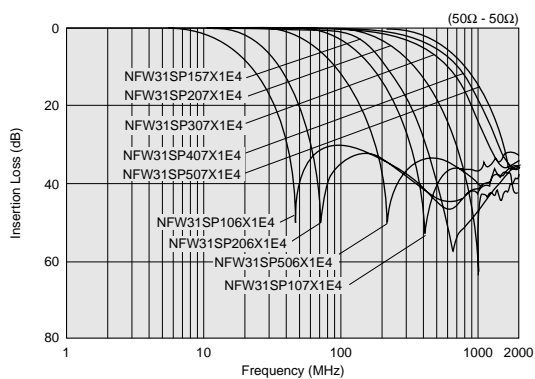
## EMIFIL® (LC Combined)

Wire Wound Type

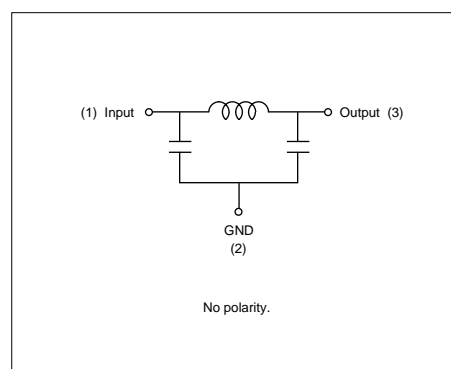
● for Signal Line NFW31S Series (1206)



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number    | Nominal Cut-off Freq. (MHz) | Insertion Loss at 10MHz (dB) | Insertion Loss at 20MHz (dB) | Insertion Loss at 50MHz (dB) | Insertion Loss at 100MHz (dB) | Insertion Loss at 150MHz (dB) | Insertion Loss at 200MHz (dB) | Insertion Loss at 300MHz (dB) | Insertion Loss at 400MHz (dB) | Insertion Loss at 500MHz (dB) | Insertion Loss at 1000MHz (dB) |
|----------------|-----------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
| NFW31SP106X1E4 | 10                          | 6 max.                       | 5 min.                       | 25 min.                      | 25 min.                       | -                             | 25 min.                       | -                             | -                             | 30 min.                       | 30 min.                        |
| NFW31SP206X1E4 | 20                          | -                            | 6 max.                       | 5 min.                       | 25 min.                       | -                             | 25 min.                       | -                             | -                             | 30 min.                       | 30 min.                        |
| NFW31SP506X1E4 | 50                          | -                            | -                            | 6 max.                       | 10 min.                       | -                             | 30 min.                       | -                             | -                             | 30 min.                       | 30 min.                        |
| NFW31SP107X1E4 | 100                         | -                            | -                            | -                            | 6 max.                        | -                             | 5 min.                        | -                             | -                             | 20 min.                       | 30 min.                        |
| NFW31SP157X1E4 | 150                         | -                            | -                            | -                            | -                             | 6 max.                        | -                             | 10 min.                       | 20 min.                       | 30 min.                       | 30 min.                        |
| NFW31SP207X1E4 | 200                         | -                            | -                            | -                            | -                             | -                             | 6 max.                        | -                             | -                             | 10 min.                       | 30 min.                        |
| NFW31SP307X1E4 | 300                         | -                            | -                            | -                            | -                             | -                             | -                             | 6 max.                        | -                             | 5 min.                        | 15 min.                        |
| NFW31SP407X1E4 | 400                         | -                            | -                            | -                            | -                             | -                             | -                             | -                             | 6 max.                        | -                             | 10 min.                        |
| NFW31SP507X1E4 | 500                         | -                            | -                            | -                            | -                             | -                             | -                             | -                             | -                             | 6 max.                        | 10 min.                        |

Rated Current: 200mA    Rated Voltage: 25Vdc    Operating Temperature Range: -40 to 85°C

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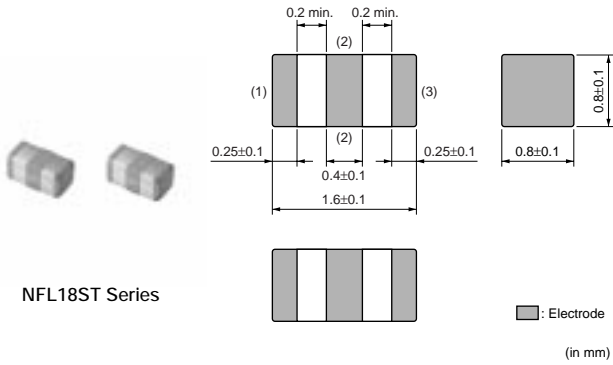
# EMIFIL® (LC Combined)

Multilayer Type

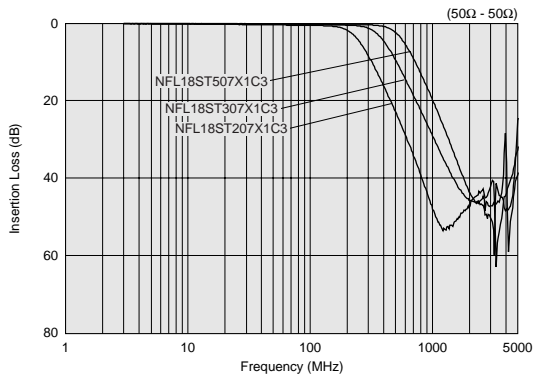
● NFL18S Series (0603)

Noise Suppression Products/EMI Suppression Filters

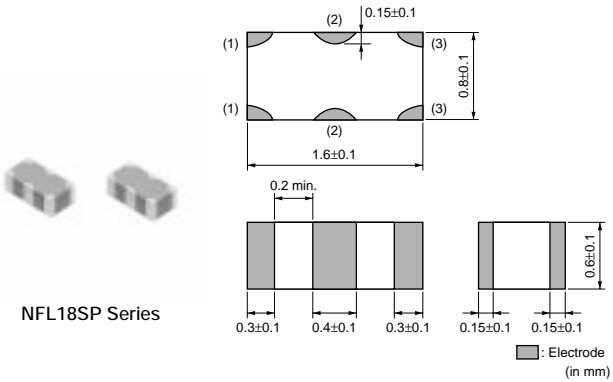
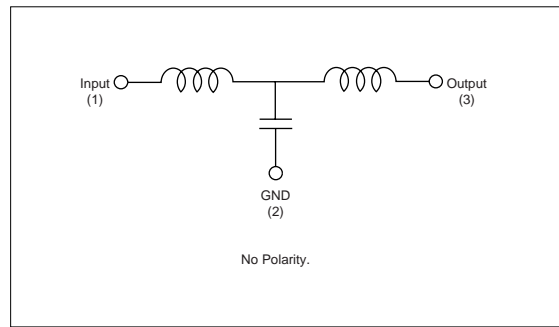
2



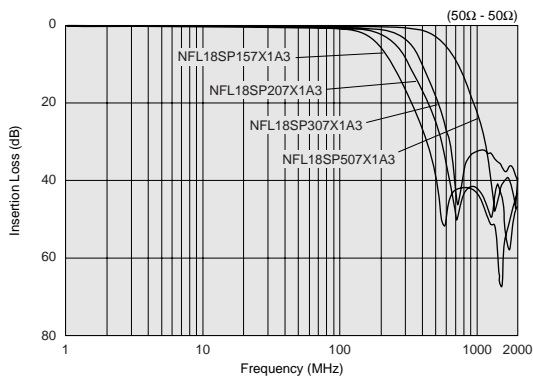
Insertion Loss Characteristics (Main Items)



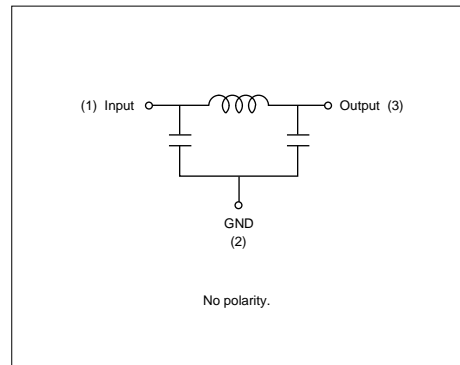
Equivalent Circuit



Insertion Loss Characteristics (Main Items)



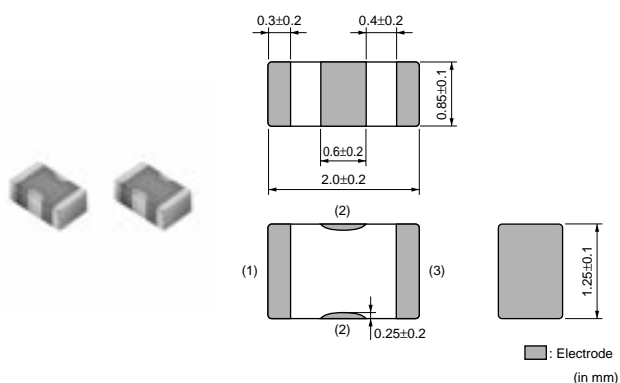
Equivalent Circuit



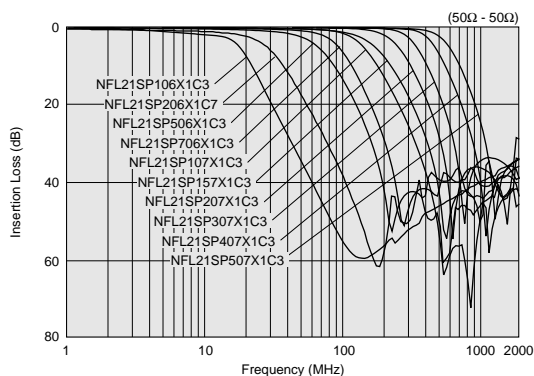
| Part Number    | Cut-off Frequency (MHz) | Capacitance (pF) | Inductance (nH) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|-------------------------|------------------|-----------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFL18ST207X1C3 | 200                     | 25 ±20%          | 110 ±20%        | 16                  | 150                | 1000                                 | -55 to +125°C               |
| NFL18ST307X1C3 | 300                     | 18 ±20%          | 62 ±20%         | 16                  | 200                | 1000                                 | -55 to +125°C               |
| NFL18ST507X1C3 | 500                     | 10 ±20%          | 43 ±20%         | 16                  | 200                | 1000                                 | -55 to +125°C               |
| NFL18SP157X1A3 | 150                     | 34 ±20%          | 100 ±20%        | 10                  | 100                | 1000                                 | -55 to +125°C               |
| NFL18SP207X1A3 | 200                     | 24 ±20%          | 80 ±20%         | 10                  | 100                | 1000                                 | -55 to +125°C               |
| NFL18SP307X1A3 | 300                     | 19 ±20%          | 60 ±20%         | 10                  | 100                | 1000                                 | -55 to +125°C               |
| NFL18SP507X1A3 | 500                     | 11 ±20%          | 38 ±20%         | 10                  | 100                | 1000                                 | -55 to +125°C               |

Number of Circuits: 1

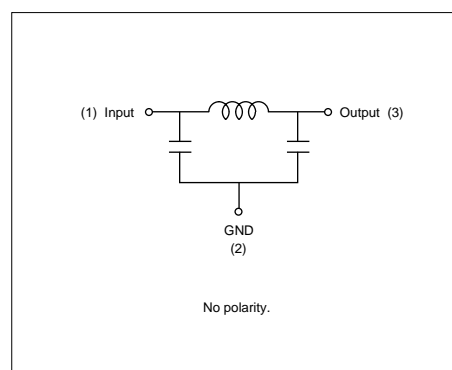
### ● NFL21S Series (0805)



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number    | Cut-off Frequency (MHz) | Capacitance (pF) | Inductance (nH) | Rated Voltage (Vdc) | Rated Current (mA) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|-------------------------|------------------|-----------------|---------------------|--------------------|--------------------------------------|-----------------------------|
| NFL21SP106X1C3 | 10                      | 670 ±20%         | 680 ±20%        | 16                  | 100                | 1000                                 | -55 to +125°C               |
| NFL21SP107X1C3 | 100                     | 44 ±20%          | 135 ±20%        | 16                  | 200                | 1000                                 | -55 to +125°C               |
| NFL21SP157X1C3 | 150                     | 28 ±20%          | 128 ±20%        | 16                  | 200                | 1000                                 | -55 to +125°C               |
| NFL21SP206X1C7 | 20                      | 240 ±20%         | 700 ±20%        | 16                  | 100                | 1000                                 | -55 to +125°C               |
| NFL21SP207X1C3 | 200                     | 22 ±20%          | 72 ±20%         | 16                  | 250                | 1000                                 | -55 to +125°C               |
| NFL21SP307X1C3 | 300                     | 19 ±10%          | 45 ±10%         | 16                  | 300                | 1000                                 | -55 to +125°C               |
| NFL21SP407X1C3 | 400                     | 16 ±10%          | 34 ±10%         | 16                  | 300                | 1000                                 | -55 to +125°C               |
| NFL21SP506X1C3 | 50                      | 84 ±20%          | 305 ±20%        | 16                  | 150                | 1000                                 | -55 to +125°C               |
| NFL21SP507X1C3 | 500                     | 12 ±10%          | 31 ±10%         | 16                  | 300                | 1000                                 | -55 to +125°C               |
| NFL21SP706X1C3 | 70                      | 76 ±20%          | 185 ±20%        | 16                  | 150                | 1000                                 | -55 to +125°C               |

Number of Circuits: 1

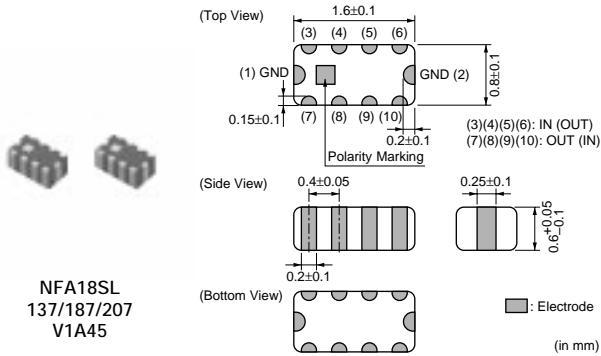
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# EMIFIL<sup>®</sup> (LC Combined)

Array

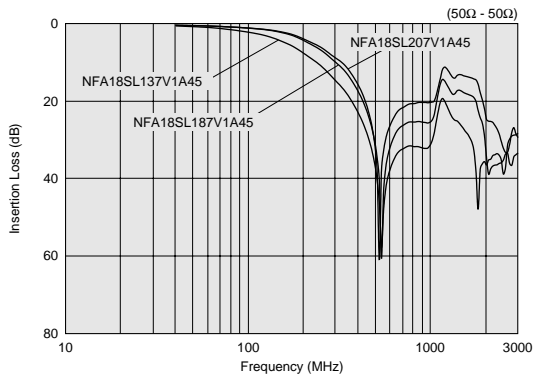
Noise Suppression Products/EMI Suppression Filters

● NFA18S Series (0603)

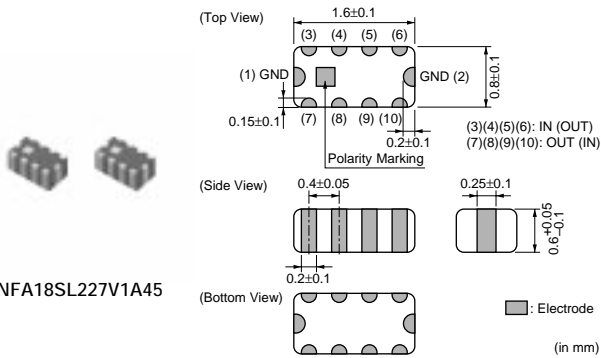
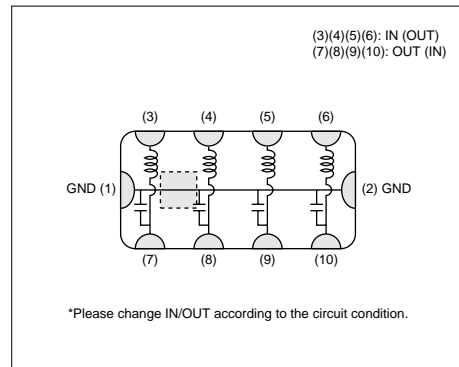


NFA18SL  
137/187/207  
V1A45

Insertion Loss Characteristics (Main Items)

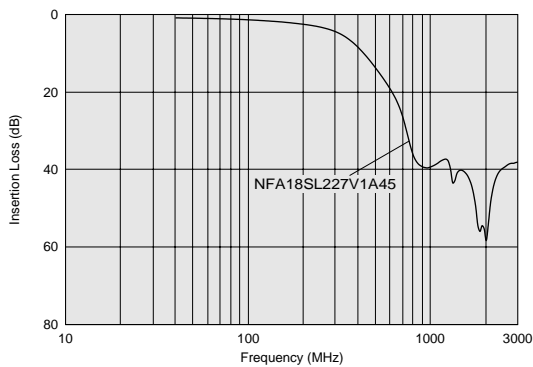


Equivalent Circuit

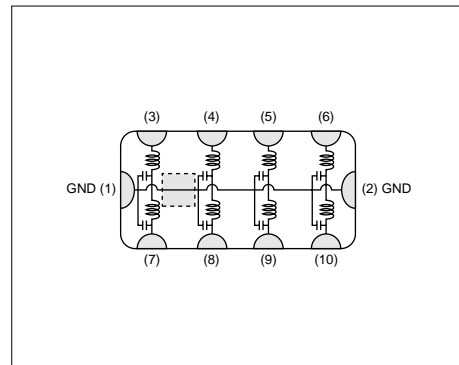


NFA18SL227V1A45

Insertion Loss Characteristics (Main Items)

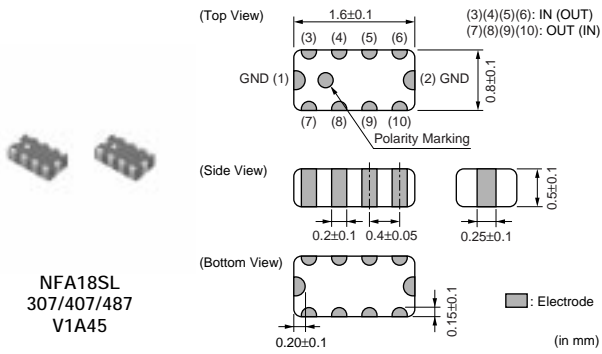


Equivalent Circuit

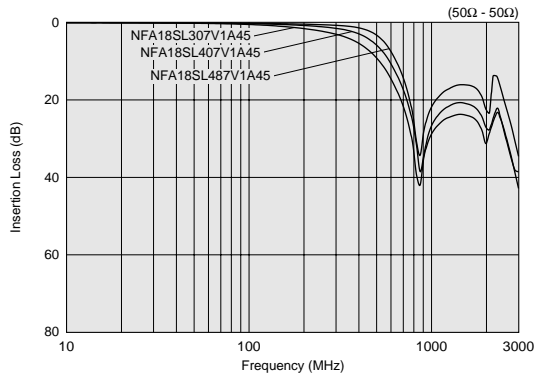


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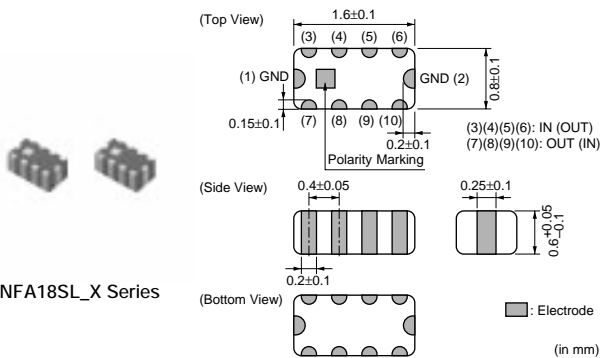
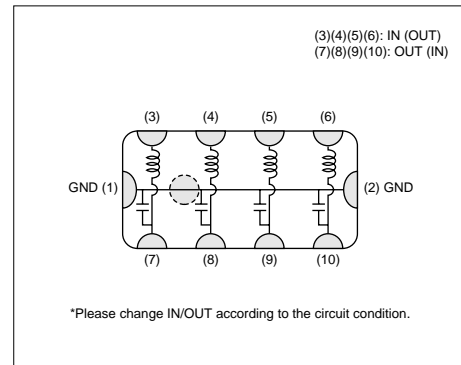
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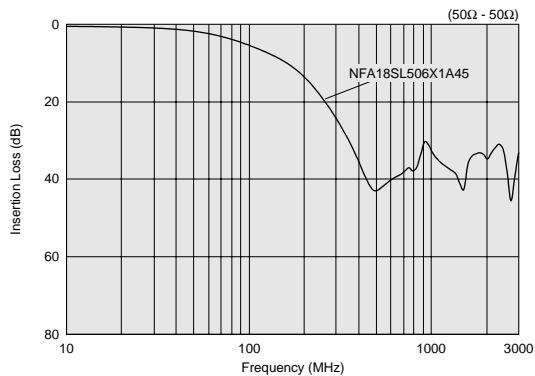
Insertion Loss Characteristics (Main Items)



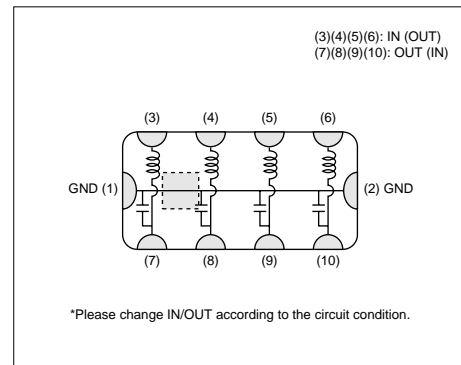
Equivalent Circuit



Insertion Loss Characteristics (Main Items)



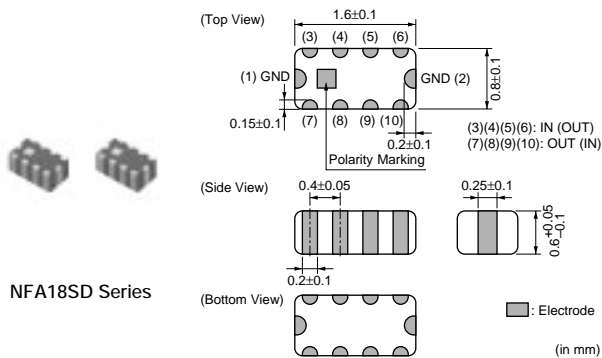
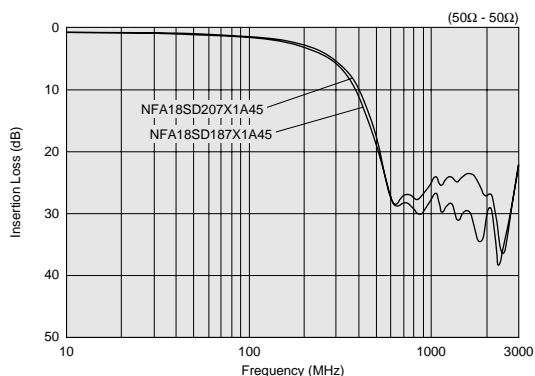
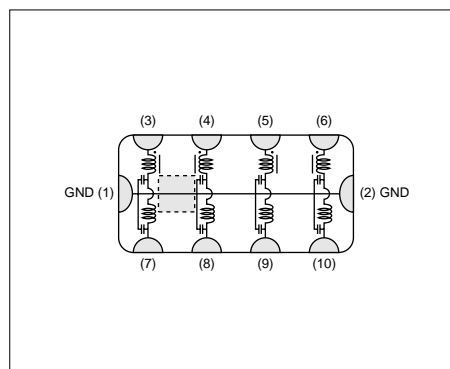
Equivalent Circuit



Continued on the following page.

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Continued from the preceding page.


**Insertion Loss Characteristics (Main Items)**

**Equivalent Circuit**

**NFA18SL\_V Series (0603)**

| Part Number     | Cut-off Frequency (MHz) | Insertion Loss at Cut-off Frequency (dB) | Insertion Loss at 470MHz (min.) (dB) | Insertion Loss at 800MHz (min.) (dB) | Insertion Loss at 900MHz (min.) (dB) | Insertion Loss at 1000MHz (min.) (dB) | Insertion Loss at 1500Hz (min.) (dB) | Insertion Loss at 2000MHz (min.) (dB) | Insulation Resistance (min.) (M ohm) | Rated Voltage (Vdc) | Rated Current (mA) | Withstand Voltage (Vdc) |
|-----------------|-------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------|--------------------|-------------------------|
| NFA18SL137V1A45 | 130                     | 6 max                                    | 25                                   | -                                    | 25                                   | -                                     | -                                    | -                                     | 1000                                 | 10                  | 50                 | 30                      |
| NFA18SL187V1A45 | 180                     | 6 max                                    | 20                                   | -                                    | 20                                   | -                                     | -                                    | -                                     | 1000                                 | 10                  | 50                 | 30                      |
| NFA18SL207V1A45 | 200                     | 6 max                                    | 15                                   | -                                    | 15                                   | -                                     | -                                    | -                                     | 1000                                 | 10                  | 50                 | 30                      |
| NFA18SL227V1A45 | 220                     | 6 max                                    | -                                    | -                                    | 30                                   | -                                     | -                                    | 30                                    | 1000                                 | 10                  | 25                 | 30                      |
| NFA18SL307V1A45 | 300                     | 6 max                                    | -                                    | 20                                   | 20                                   | -                                     | -                                    | -                                     | 1000                                 | 10                  | 100                | 30                      |
| NFA18SL407V1A45 | 400                     | 6 max                                    | -                                    | 18                                   | 18                                   | -                                     | -                                    | -                                     | 1000                                 | 10                  | 100                | 30                      |
| NFA18SL487V1A45 | 480                     | 6 max                                    | -                                    | 15                                   | 15                                   | -                                     | -                                    | -                                     | 1000                                 | 10                  | 100                | 30                      |

Number of Circuits: 4

Operating Temperature Range: -40°C to +85°C (NFA18SL137/187/207/227V1A45), -55°C to +125°C (NFA18SL307/407/487V1A45)

**NFA18S\_X Series (0603)**

| Part Number     | Cut-off Frequency (MHz) | Insertion Loss at Cut-off Frequency (dB) | Insertion Loss at 470MHz (min.) (dB) | Insertion Loss at 800MHz (min.) (dB) | Insertion Loss at 900MHz (min.) (dB) | Insertion Loss at 1000MHz (min.) (dB) | Insertion Loss at 1500Hz (min.) (dB) | Insertion Loss at 2000MHz (min.) (dB) | Insulation Resistance (min.) (M ohm) | Rated Voltage (Vdc) | Rated Current (mA) | Withstand Voltage (Vdc) |
|-----------------|-------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------|--------------------|-------------------------|
| NFA18SL506X1A45 | 50                      | 6 max                                    | -                                    | -                                    | -                                    | 25                                    | -                                    | -                                     | 1000                                 | 10                  | 25                 | 30                      |

Number of Circuits: 4

Operating Temperature Range: -40°C to +85°C

**NFA18SD Series (0603)**

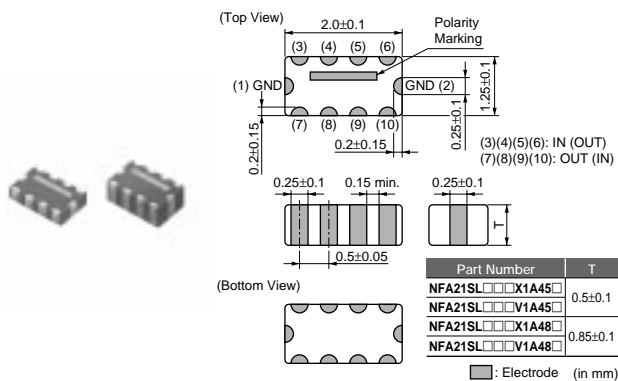
| Part Number     | Cut-off Frequency (MHz) | Insertion Loss at Cut-off Frequency (dB) | Insertion Loss at 470MHz (min.) (dB) | Insertion Loss at 800MHz (min.) (dB) | Insertion Loss at 900MHz (min.) (dB) | Insertion Loss at 1000MHz (min.) (dB) | Insertion Loss at 1500Hz (min.) (dB) | Insertion Loss at 2000MHz (min.) (dB) | Insulation Resistance (min.) (M ohm) | Rated Voltage (Vdc) | Rated Current (mA) | Withstand Voltage (Vdc) |
|-----------------|-------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|---------------------|--------------------|-------------------------|
| NFA18SD187X1A45 | 180                     | 6 max                                    | -                                    | -                                    | 20                                   | -                                     | 20                                   | 20                                    | 1000                                 | 10                  | 25                 | 30                      |
| NFA18SD207X1A45 | 200                     | 6 max                                    | -                                    | -                                    | 20                                   | -                                     | 20                                   | 20                                    | 1000                                 | 10                  | 25                 | 30                      |

Number of Circuits: 4

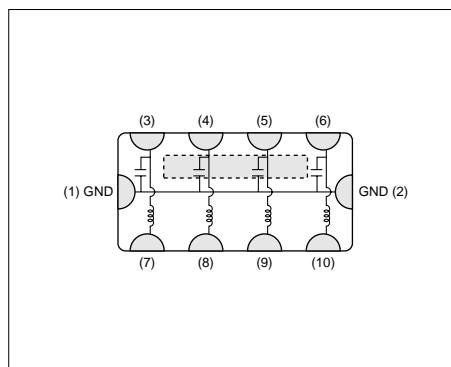
Operating Temperature Range: -40°C to +85°C

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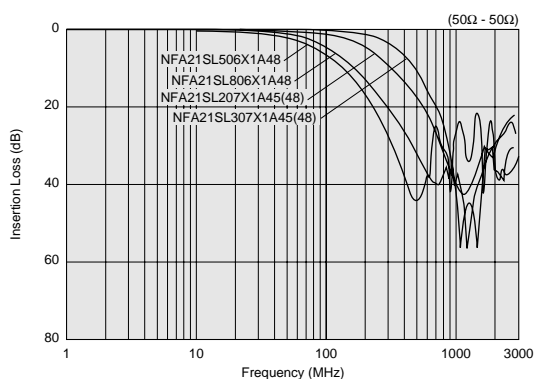
## ● NFA21S Series (0805)



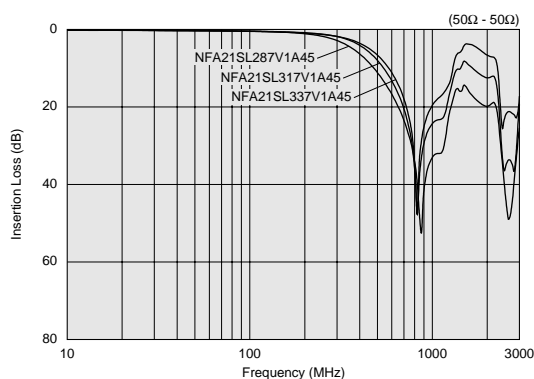
### Equivalent Circuit



### Insertion Loss Characteristics (Main Items)



### Insertion Loss Characteristics (Main Items)



| Part Number     | Cut-off Frequency (MHz) | Insertion Loss at Cut-off Frequency (dB) | Insertion Loss at 500MHz (min.) (dB) | Insertion Loss at 800MHz (min.) (dB) | Insertion Loss at 900MHz (min.) (dB) | Insertion Loss at 1000MHz (min.) (dB) | Insertion Loss at 1500Hz (min.) | Insertion Loss at 2000MHz (min.) | Insulation Resistance (min.) (M ohm) | Rated Voltage (Vdc) | Rated Current (mA) | Withstand Voltage (Vdc) |
|-----------------|-------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|---------------------------------|----------------------------------|--------------------------------------|---------------------|--------------------|-------------------------|
| NFA21SL506X1A48 | 50                      | 0 to 6                                   | 30                                   | -                                    | -                                    | 20                                    | -                               | -                                | 1000                                 | 10                  | 20                 | 30                      |
| NFA21SL806X1A48 | 80                      | 2 to 7                                   | 25                                   | -                                    | -                                    | 25                                    | -                               | -                                | 1000                                 | 10                  | 20                 | 30                      |
| NFA21SL207X1A45 | 200                     | 2 to 7                                   | 13                                   | 25                                   | -                                    | 25                                    | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL207X1A48 | 200                     | 2 to 7                                   | 13                                   | 25                                   | -                                    | 25                                    | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL307X1A45 | 300                     | 2 to 7                                   | 7                                    | 20                                   | -                                    | 25                                    | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL307X1A48 | 300                     | 2 to 7                                   | 7                                    | 20                                   | -                                    | 25                                    | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL287V1A45 | 280                     | 6 max                                    | -                                    | 25                                   | 25                                   | -                                     | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL287V1A48 | 280                     | 6 max                                    | -                                    | 25                                   | 25                                   | -                                     | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL317V1A45 | 310                     | 6 max                                    | -                                    | 20                                   | 20                                   | -                                     | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL317V1A48 | 310                     | 6 max                                    | -                                    | 20                                   | 20                                   | -                                     | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL337V1A45 | 330                     | 6 max                                    | -                                    | 15                                   | 15                                   | -                                     | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |
| NFA21SL337V1A48 | 330                     | 6 max                                    | -                                    | 20                                   | 20                                   | -                                     | -                               | -                                | 1000                                 | 10                  | 100                | 30                      |

Number of Circuits: 4

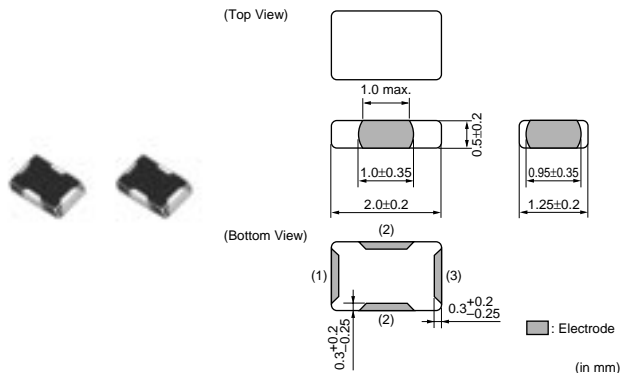
Operating Temperature Range: -55°C to +125°C

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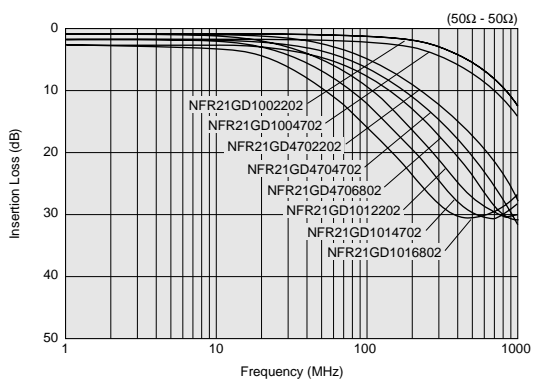
# EMIFIL® (RC Combined)

Single Circuit Type

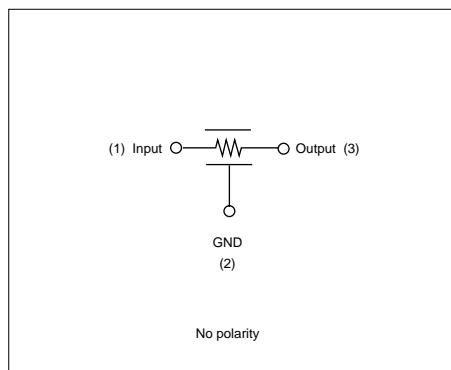
● NFR21G Series (0805)



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number    | Capacitance (pF) | Resistance (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|------------------|--------------------|---------------------|--------------------------------------|-----------------------------|
| NFR21GD1002202 | 10 ±20%          | 22 ±30%          | 50                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD1004702 | 10 ±20%          | 47 ±30%          | 35                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD4702202 | 47 ±20%          | 22 ±30%          | 50                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD4704702 | 47 ±20%          | 47 ±30%          | 35                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD4706802 | 47 ±20%          | 68 ±30%          | 30                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD4701012 | 47 ±20%          | 100 ±30%         | 25                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD1012202 | 100 ±20%         | 22 ±30%          | 50                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD1014702 | 100 ±20%         | 47 ±30%          | 35                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD1016802 | 100 ±20%         | 68 ±30%          | 30                 | 50                  | 1000                                 | -40 to +85°C                |
| NFR21GD1011012 | 100 ±20%         | 100 ±30%         | 25                 | 50                  | 1000                                 | -40 to +85°C                |

Number of Circuit: 1

Noise Suppression Products/EMI Suppression Filters

2

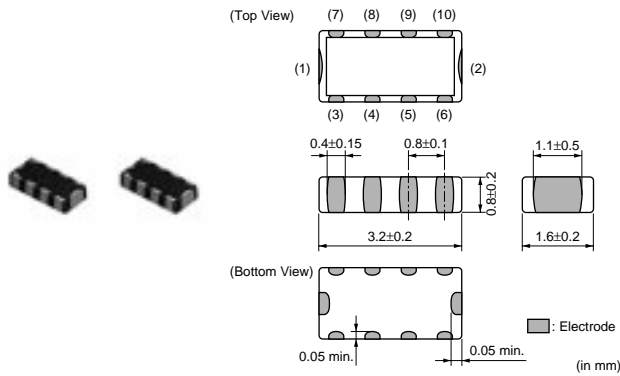
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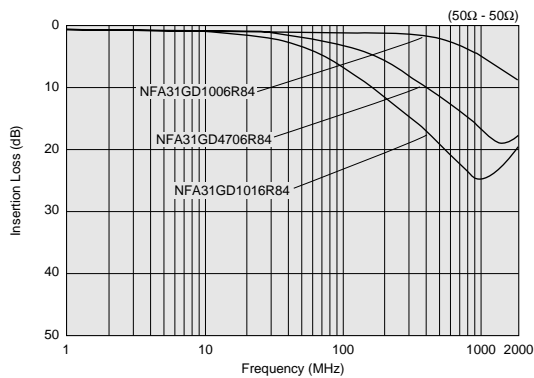
# EMIFIL<sup>®</sup> (RC Combined)

Array

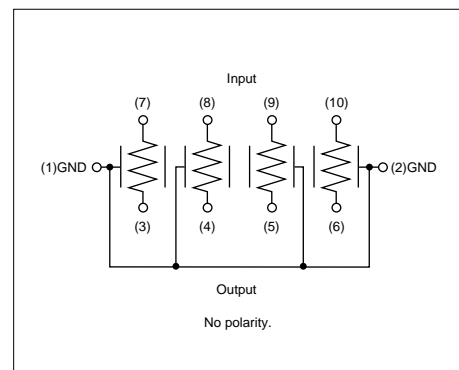
● NFA31G Series (1206)



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number    | Capacitance (pF) | Resistance (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Operating Temperature Range |
|----------------|------------------|------------------|--------------------|---------------------|--------------------------------------|-----------------------------|
| NFA31GD1006R84 | 10 ±20%          | 6.8 ±40%         | 50                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD1004704 | 10 ±20%          | 47 ±30%          | 20                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD1001014 | 10 ±20%          | 100 ±30%         | 15                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD4706R84 | 47 ±20%          | 6.8 ±40%         | 50                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD4703304 | 47 ±20%          | 33 ±30%          | 20                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD4704704 | 47 ±20%          | 47 ±30%          | 20                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD4701014 | 47 ±20%          | 100 ±30%         | 15                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD1016R84 | 100 ±20%         | 6.8 ±40%         | 50                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD1014704 | 100 ±20%         | 47 ±30%          | 20                 | 6                   | 1000                                 | -40 to +85°C                |
| NFA31GD1011014 | 100 ±20%         | 100 ±30%         | 15                 | 6                   | 1000                                 | -40 to +85°C                |

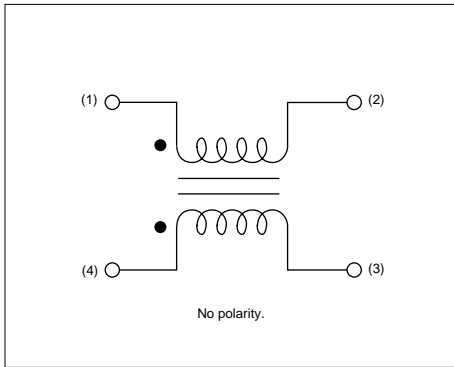
Number of Circuit: 4

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# Common Mode Choke Coil

Film Type

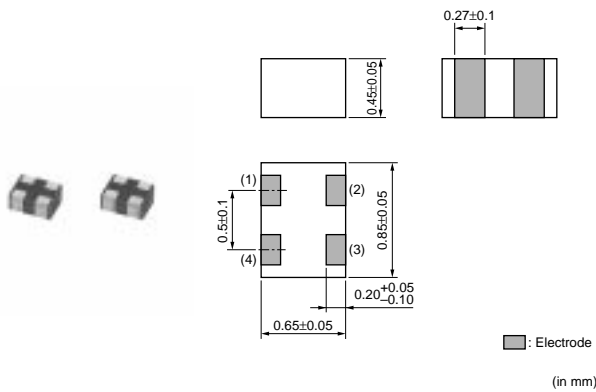
Equivalent Circuit



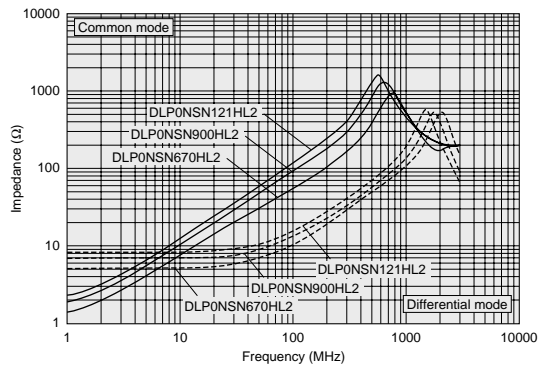
Noise Suppression Products/EMI Suppression Filters

2

● DLP0NS Series (03025)



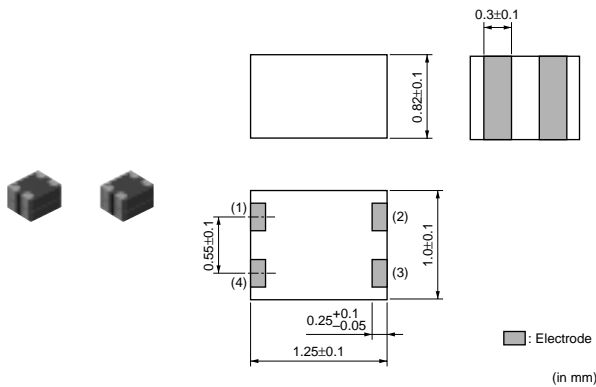
Impedance-Frequency Characteristics (Main Items)



| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLP0NSN670HL2 | 67 ±20%   | 110                | 5                   | 100                                  | 12.5                    | 2.4 ±25%            |
| DLP0NSN900HL2 | 90 ±20%   | 100                | 5                   | 100                                  | 12.5                    | 3.0 ±25%            |
| DLP0NSN121HL2 | 120 ±20%  | 90                 | 5                   | 100                                  | 12.5                    | 3.8 ±25%            |

Operating Temperature Range: -40 to +85°C

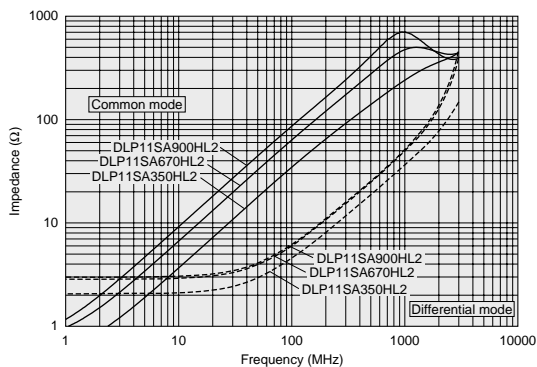
● DLP11S Series (0504)



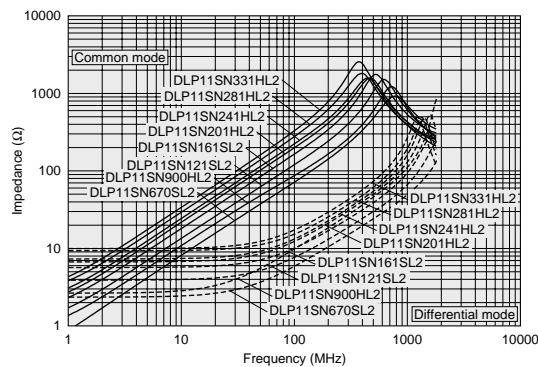
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### Impedance-Frequency Characteristics (Main Items)



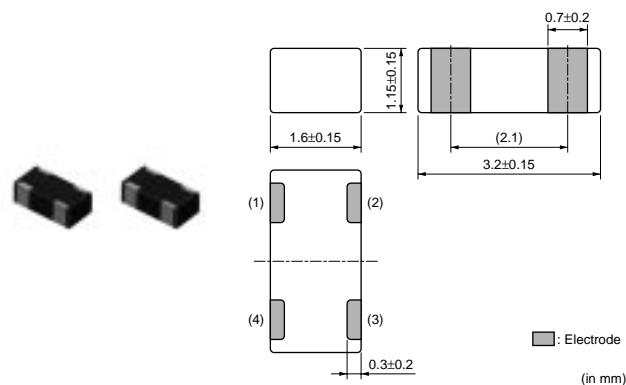
### Impedance-Frequency Characteristics (Main Items)



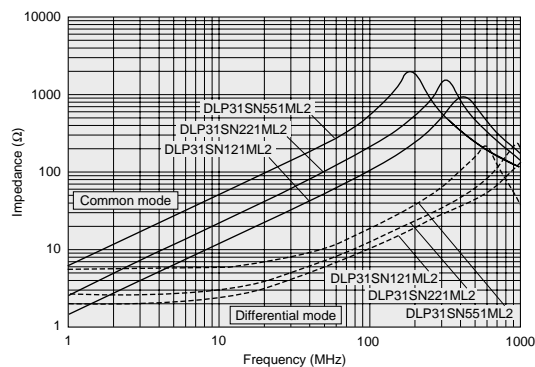
| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLP11SN670SL2 | 67 ±20%   | 180                | 5                   | 100                                  | 12.5                    | 1.3 ±25%            |
| DLP11SN121SL2 | 120 ±20%  | 140                | 5                   | 100                                  | 12.5                    | 2.0 ±25%            |
| DLP11SN161SL2 | 160 ±20%  | 120                | 5                   | 100                                  | 12.5                    | 2.7 ±25%            |
| DLP11SN900HL2 | 90 ±20%   | 150                | 5                   | 100                                  | 12.5                    | 1.5 ±25%            |
| DLP11SN201HL2 | 200 ±20%  | 110                | 5                   | 100                                  | 12.5                    | 3.1 ±25%            |
| DLP11SN241HL2 | 240 ±20%  | 100                | 5                   | 100                                  | 12.5                    | 3.5 ±25%            |
| DLP11SN281HL2 | 280 ±20%  | 90                 | 5                   | 100                                  | 12.5                    | 4.2 ±25%            |
| DLP11SN331HL2 | 330 ±20%  | 80                 | 5                   | 100                                  | 12.5                    | 4.9 ±25%            |
| DLP11SA350HL2 | 35 ±20%   | 170                | 5                   | 100                                  | 12.5                    | 0.9 ±25%            |
| DLP11SA670HL2 | 67 ±20%   | 150                | 5                   | 100                                  | 12.5                    | 1.2 ±25%            |
| DLP11SA900HL2 | 90 ±20%   | 150                | 5                   | 100                                  | 12.5                    | 1.4 ±25%            |

Operating Temperature Range: -40 to +85°C

## ● DLP31S Series (1206)



### Impedance-Frequency Characteristics (Main Items)



| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLP31SN121ML2 | 120 ±20%  | 100                | 16                  | 100                                  | 40                      | 2.0 max.            |
| DLP31SN221ML2 | 220 ±20%  | 100                | 16                  | 100                                  | 40                      | 2.5 max.            |
| DLP31SN551ML2 | 550 ±20%  | 100                | 16                  | 100                                  | 40                      | 3.6 max.            |

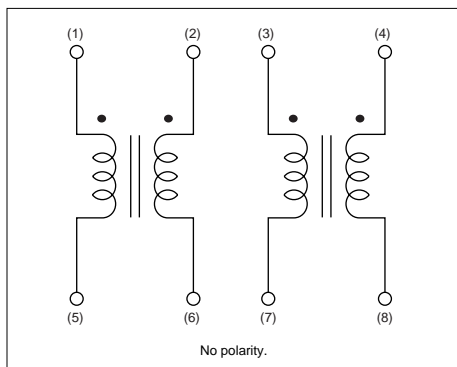
Operating Temperature Range: -40 to +85°C

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# Common Mode Choke Coil

Film Type (Array)

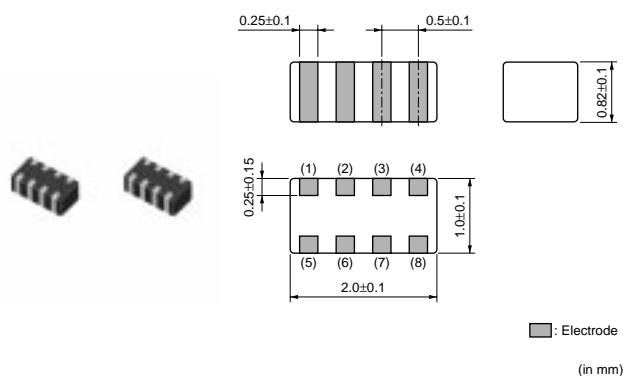
Equivalent Circuit



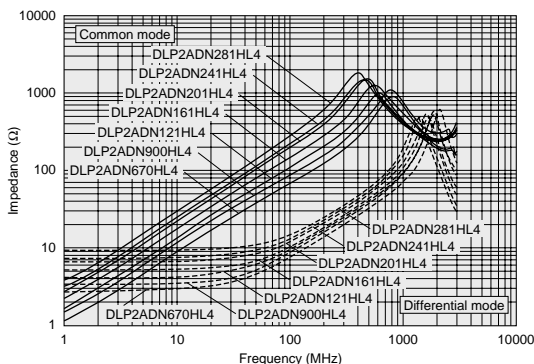
Noise Suppression Products/EMI Suppression Filters

2

● DLP2AD Series (0804)



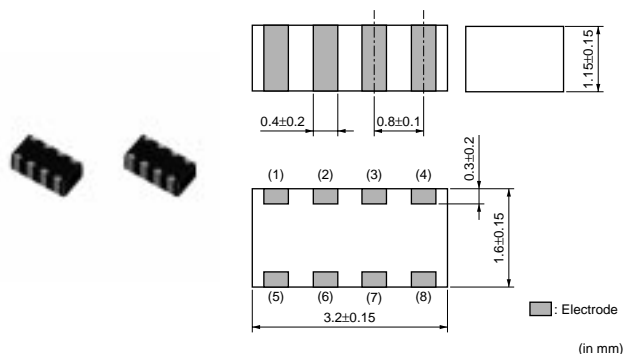
Impedance-Frequency Characteristics (Main Items)



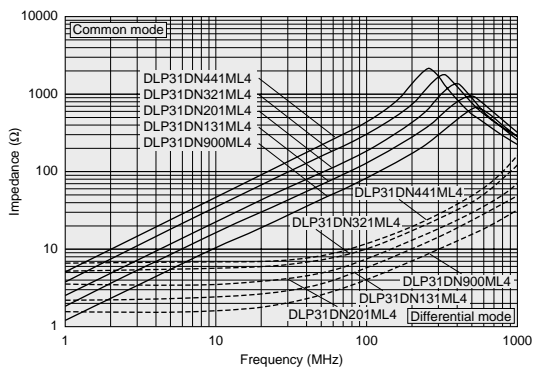
| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLP2ADN670HL4 | 67 ±20%   | 140                | 5                   | 100                                  | 12.5                    | 1.3 ±25%            |
| DLP2ADN900HL4 | 90 ±20%   | 130                | 5                   | 100                                  | 12.5                    | 1.7 ±25%            |
| DLP2ADN121HL4 | 120 ±20%  | 120                | 5                   | 100                                  | 12.5                    | 2.0 ±25%            |
| DLP2ADN161HL4 | 160 ±20%  | 100                | 5                   | 100                                  | 12.5                    | 2.5 ±25%            |
| DLP2ADN201HL4 | 200 ±20%  | 90                 | 5                   | 100                                  | 12.5                    | 3.2 ±25%            |
| DLP2ADN241HL4 | 240 ±20%  | 80                 | 5                   | 100                                  | 12.5                    | 3.8 ±25%            |
| DLP2ADN281HL4 | 280 ±20%  | 80                 | 5                   | 100                                  | 12.5                    | 4.6 ±25%            |

Operating Temperature Range: -40 to +85°C  
Number of Circuit: 2

● DLP31D Series (1206)



Impedance-Frequency Characteristics (Main Items)



| Part Number          | Common Mode Impedance<br>(at 100MHz/20 degree C)<br>(ohm) | Rated Current<br>(mA) | Rated Voltage<br>(Vdc) | Insulation Resistance (min.)<br>(M ohm) | Withstand Voltage<br>(Vdc) | DC Resistance<br>(ohm) |
|----------------------|---|-----------------------|------------------------|---|----------------------------|------------------------|
| <b>DLP31DN900ML4</b> | 90 ±20%   | 160                   | 10                     | 100                                     | 25                         | 1.1 max.               |
| <b>DLP31DN131ML4</b> | 130 ±20%  | 120                   | 10                     | 100                                     | 25                         | 1.6 max.               |
| <b>DLP31DN201ML4</b> | 200 ±20%  | 100                   | 10                     | 100                                     | 25                         | 2.2 max.               |
| <b>DLP31DN321ML4</b> | 320 ±20%  | 80                    | 10                     | 100                                     | 25                         | 3.5 max.               |
| <b>DLP31DN441ML4</b> | 440 ±20%  | 70                    | 10                     | 100                                     | 25                         | 4.3 max.               |

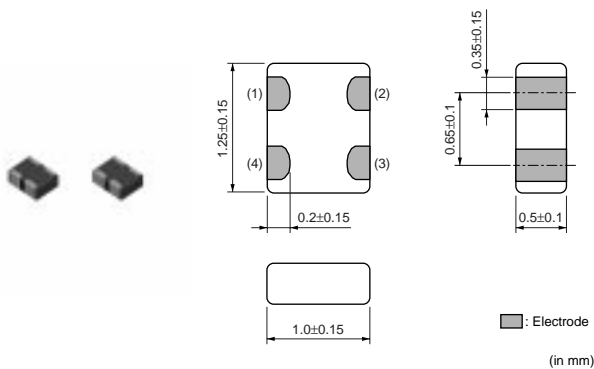
Operating Temperature Range: -40 to +85°C

Number of Circuit: 2

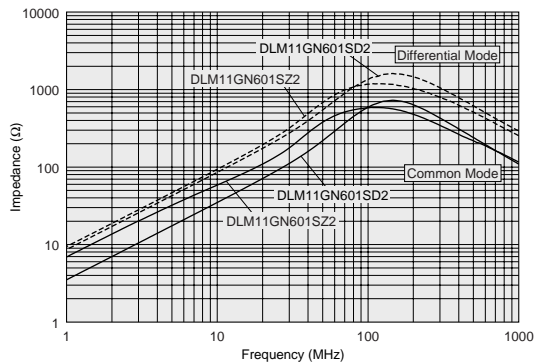
## Common Mode Choke Coil

Multilayer Type

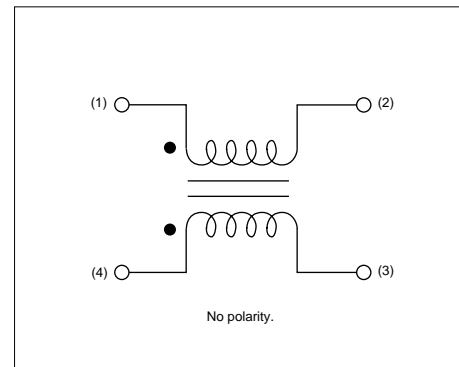
### ● DLM11G Series



Impedance-Frequency Characteristics (Main Items)



Equivalent Circuit

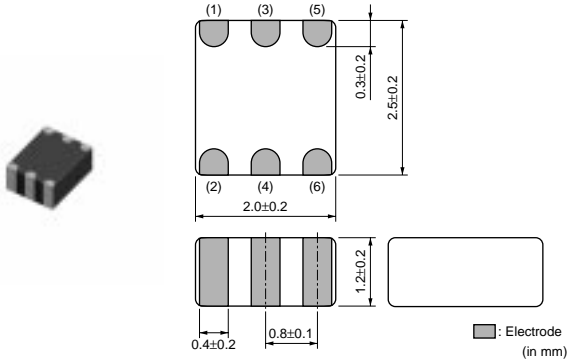


| Part Number          | Common Mode Impedance<br>(at 100MHz/20 degree C)<br>(ohm) | Rated Current<br>(mA) | Rated Voltage<br>(Vdc) | Insulation Resistance (min.)<br>(M ohm) | Withstand Voltage<br>(Vdc) | DC Resistance<br>(ohm) |
|----------------------|---|-----------------------|------------------------|---|----------------------------|------------------------|
| <b>DLM11GN601SD2</b> | 600 ±25%  | 100                   | 5                      | 100                                     | 25                         | 0.8 max.               |
| <b>DLM11GN601SZ2</b> | 600 ±25%  | 100                   | 5                      | 100                                     | 25                         | 0.8 max.               |

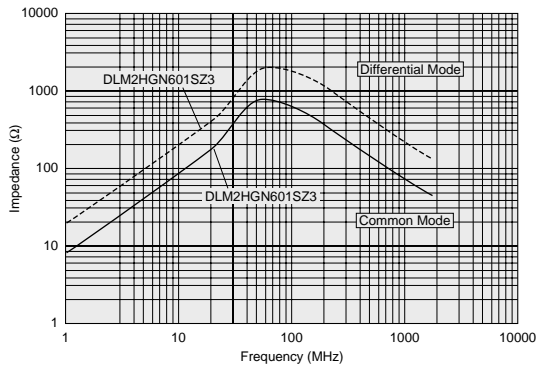
Operating Temperature Range: -40 to +85°C

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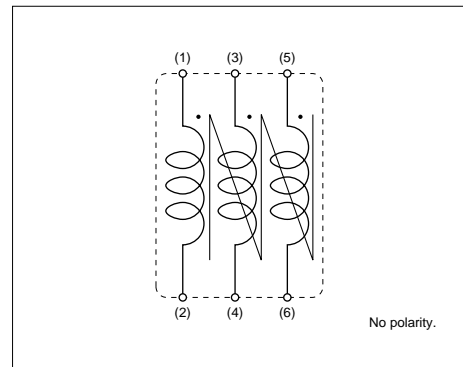
● DLM2HG Series



Impedance-Frequency Characteristics (Main Items)



Equivalent Circuit



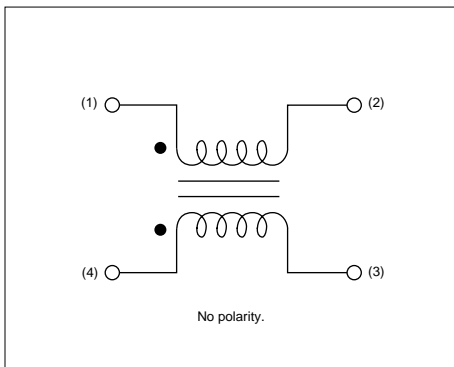
| Part Number          | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|----------------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| <b>DLM2HGN601SZ3</b> | 600 ±25%  | 100                | 16                  | 100                                  | 100                     | 0.40 max.           |

Operating Temperature Range: -40 to +85°C

## Common Mode Choke Coil

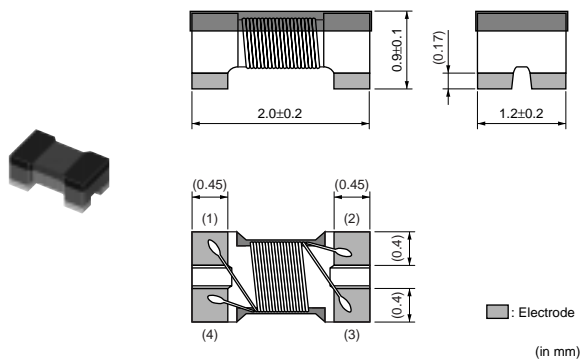
Wire Wound Type

Equivalent Circuit

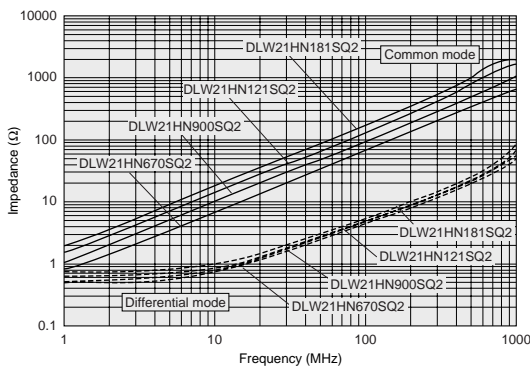


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## DLW21H Series (0805)



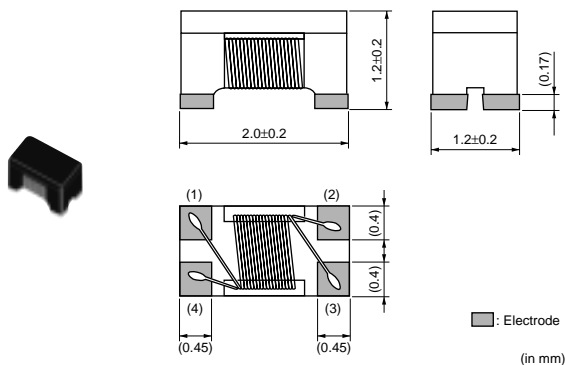
Impedance-Frequency Characteristics (Main Items)



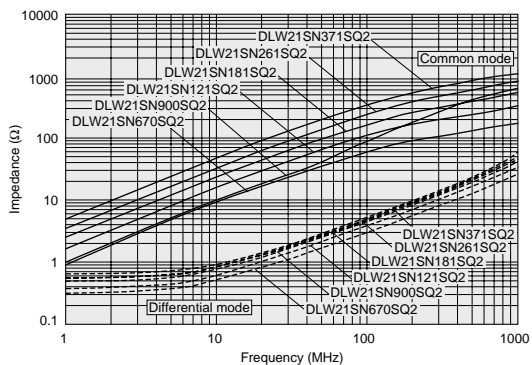
| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLW21HN670SQ2 | 67 ±25%   | 330                | 50                  | 10                                   | 125                     | 0.35 max.           |
| DLW21HN900SQ2 | 90 ±25%   | 330                | 50                  | 10                                   | 125                     | 0.35 max.           |
| DLW21HN121SQ2 | 120 ±25%  | 280                | 50                  | 10                                   | 125                     | 0.45 max.           |
| DLW21HN181SQ2 | 180 ±25%  | 250                | 50                  | 10                                   | 125                     | 0.50 max.           |

Operating Temperature Range: -40 to +85°C

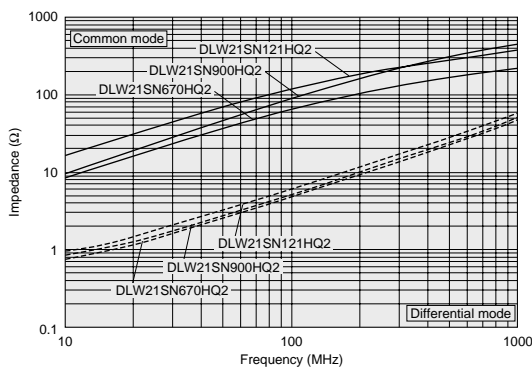
## DLW21S Series (0805)



Impedance-Frequency Characteristics (Main Items)



Impedance-Frequency Characteristics (Main Items)



| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLW21SN670SQ2 | 67 ±25%   | 400                | 50                  | 10                                   | 125                     | 0.25 max.           |
| DLW21SN900SQ2 | 90 ±25%   | 330                | 50                  | 10                                   | 125                     | 0.35 max.           |
| DLW21SN121SQ2 | 120 ±25%  | 370                | 50                  | 10                                   | 125                     | 0.30 max.           |
| DLW21SN181SQ2 | 180 ±25%  | 330                | 50                  | 10                                   | 125                     | 0.35 max.           |
| DLW21SN261SQ2 | 260 ±25%  | 300                | 50                  | 10                                   | 125                     | 0.40 max.           |
| DLW21SN371SQ2 | 370 ±25%  | 280                | 50                  | 10                                   | 125                     | 0.45 max.           |

Continued on the following page.

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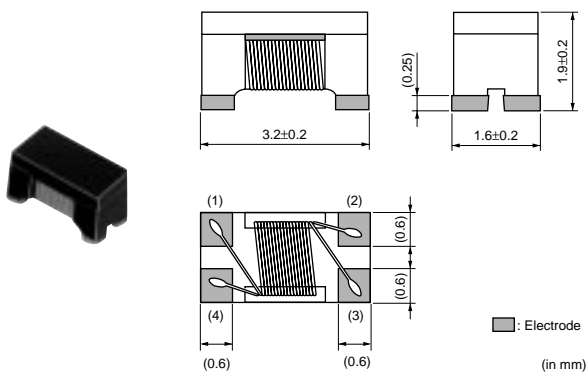
Continued from the preceding page.

| Part Number          | Common Mode Impedance<br>(at 100MHz/20 degree C)<br>(ohm) | Rated Current<br>(mA) | Rated Voltage<br>(Vdc) | Insulation Resistance (min.)<br>(M ohm) | Withstand Voltage<br>(Vdc) | DC Resistance<br>(ohm) |
|----------------------|---|-----------------------|------------------------|---|----------------------------|------------------------|
| <b>DLW21SN670HQ2</b> | 67 ±25%   | 320                   | 20                     | 10                                      | 50                         | 0.31 max.              |
| <b>DLW21SN900HQ2</b> | 90 ±25%   | 280                   | 20                     | 10                                      | 50                         | 0.41 max.              |
| <b>DLW21SN121HQ2</b> | 120 ±25%  | 280                   | 20                     | 10                                      | 50                         | 0.41 max.              |
| <b>DLW21SR670HQ2</b> | 67 ±25%   | 400                   | 20                     | 10                                      | 50                         | 0.25 max.              |

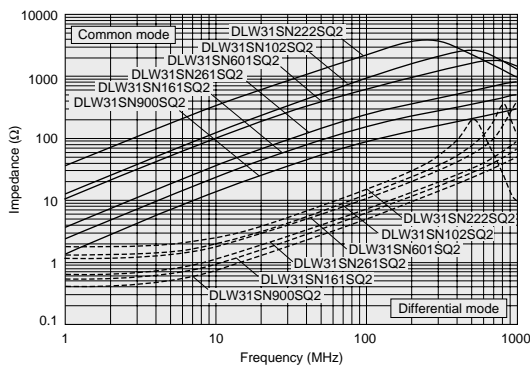
Operating Temperature Range: -40 to +85°C

Noise Suppression Products/EMI Suppression Filters

## DLW31S Series (1206)



Impedance-Frequency Characteristics (Main Items)



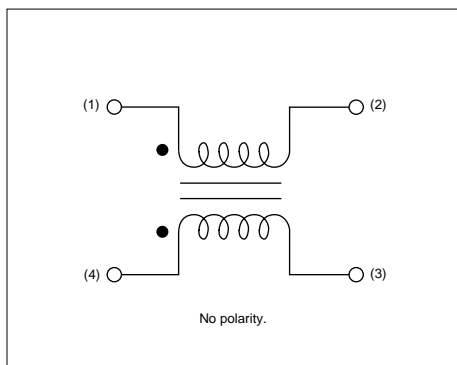
| Part Number          | Common Mode Impedance<br>(at 100MHz/20 degree C)<br>(ohm) | Rated Current<br>(mA) | Rated Voltage<br>(Vdc) | Insulation Resistance (min.)<br>(M ohm) | Withstand Voltage<br>(Vdc) | DC Resistance<br>(ohm) |
|----------------------|---|-----------------------|------------------------|---|----------------------------|------------------------|
| <b>DLW31SN900SQ2</b> | 90 ±25%   | 370                   | 50                     | 10                                      | 125                        | 0.3 max.               |
| <b>DLW31SN161SQ2</b> | 160 ±25%  | 340                   | 50                     | 10                                      | 125                        | 0.4 max.               |
| <b>DLW31SN261SQ2</b> | 260 ±25%  | 310                   | 50                     | 10                                      | 125                        | 0.5 max.               |
| <b>DLW31SN601SQ2</b> | 600 ±25%  | 260                   | 50                     | 10                                      | 125                        | 0.8 max.               |
| <b>DLW31SN102SQ2</b> | 1000 ±25%   | 230                   | 50                     | 10                                      | 125                        | 1.0 max.               |
| <b>DLW31SN222SQ2</b> | 2200 ±25%   | 200                   | 50                     | 10                                      | 125                        | 1.2 max.               |

Operating Temperature Range: -40 to +85°C

## Common Mode Choke Coil

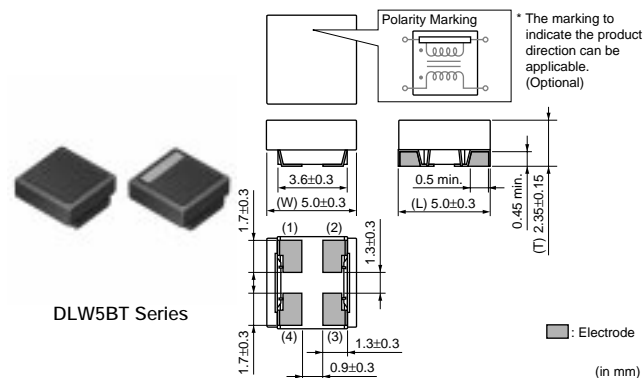
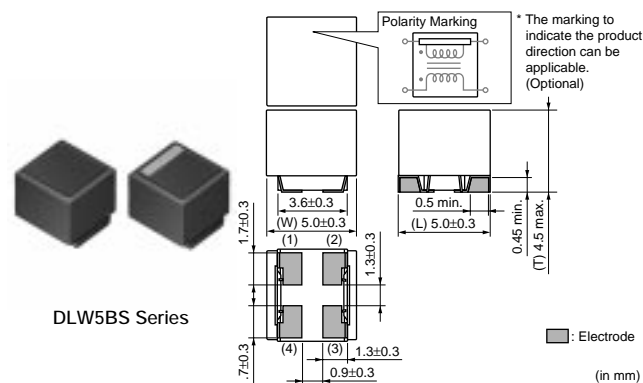
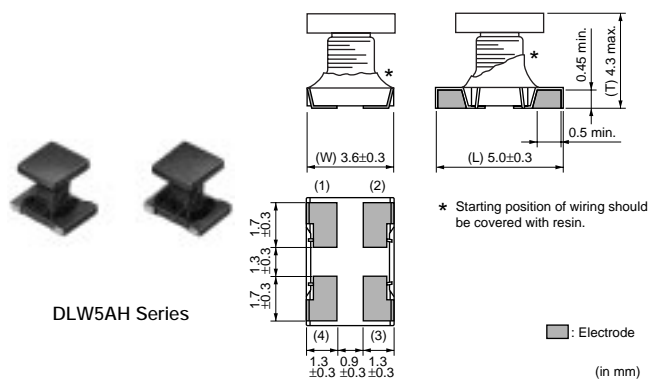
Wire Wound Type for Large Current

Equivalent Circuit

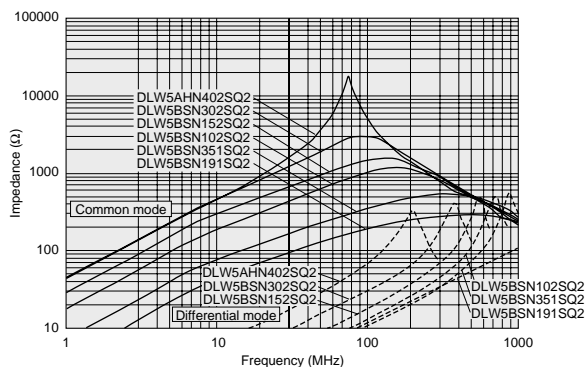




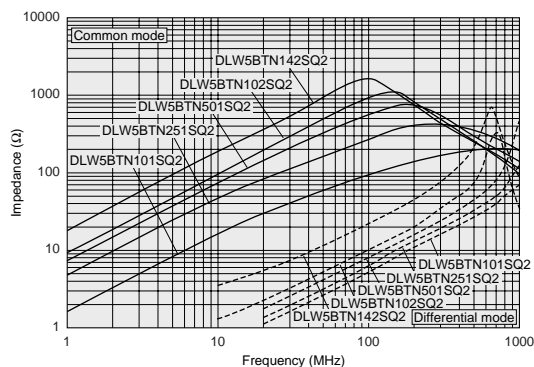
## ● DLW5AH (2014) /DLW5BS (2020) /DLW5BT (2020) Series



### Impedance-Frequency Characteristics (Main Items)



### Impedance-Frequency Characteristics (Main Items)



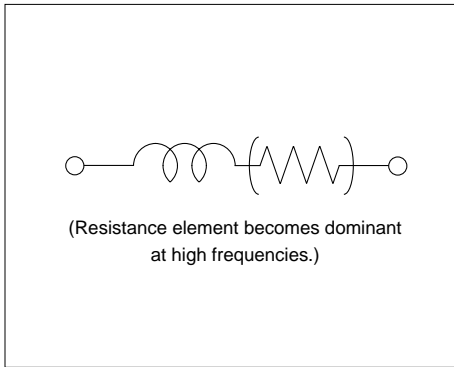
| Part Number   | Common Mode Impedance (at 100MHz/20 degree C) (ohm) | Rated Current (mA) | Rated Voltage (Vdc) | Insulation Resistance (min.) (M ohm) | Withstand Voltage (Vdc) | DC Resistance (ohm) |
|---------------|---|--------------------|---------------------|--------------------------------------|-------------------------|---------------------|
| DLW5AHN402SQ2 | 4000 (Typ.)   | 200                | 50                  | 10                                   | 125                     | 3.0 max.            |
| DLW5BSN191SQ2 | 190 (Typ.)  | 5000               | 50                  | 10                                   | 125                     | 0.02 max.           |
| DLW5BSN351SQ2 | 350 (Typ.)  | 2000               | 50                  | 10                                   | 125                     | 0.04 max.           |
| DLW5BSN102SQ2 | 1000 (Typ.)   | 1500               | 50                  | 10                                   | 125                     | 0.06 max.           |
| DLW5BSN152SQ2 | 1500 (Typ.)   | 1000               | 50                  | 10                                   | 125                     | 0.1 max.            |
| DLW5BSN302SQ2 | 3000 (Typ.)   | 500                | 50                  | 10                                   | 125                     | 0.3 max.            |
| DLW5BTN101SQ2 | 100 (Typ.)  | 6000               | 50                  | 10                                   | 125                     | 0.009 ±40%          |
| DLW5BTN251SQ2 | 250 (Typ.)  | 5000               | 50                  | 10                                   | 125                     | 0.014 ±40%          |
| DLW5BTN501SQ2 | 500 (Typ.)  | 4000               | 50                  | 10                                   | 125                     | 0.019 ±40%          |
| DLW5BTN102SQ2 | 1000 (Typ.)   | 2000               | 50                  | 10                                   | 125                     | 0.024 ±40%          |
| DLW5BTN142SQ2 | 1400 (Typ.)   | 1500               | 50                  | 10                                   | 125                     | 0.040 ±40%          |

Operating Temperature Range: -25 to +85°C

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# Leaded EMIFIL<sup>®</sup> (Inductor Type)

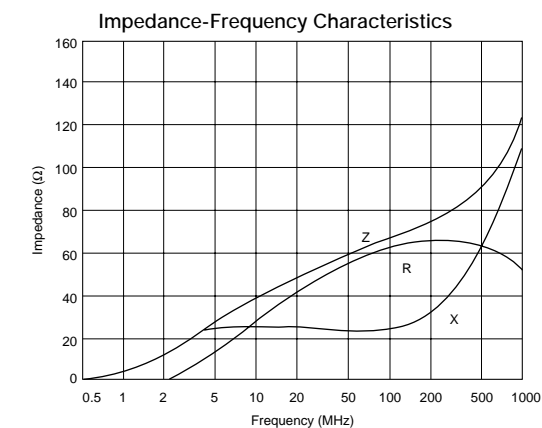
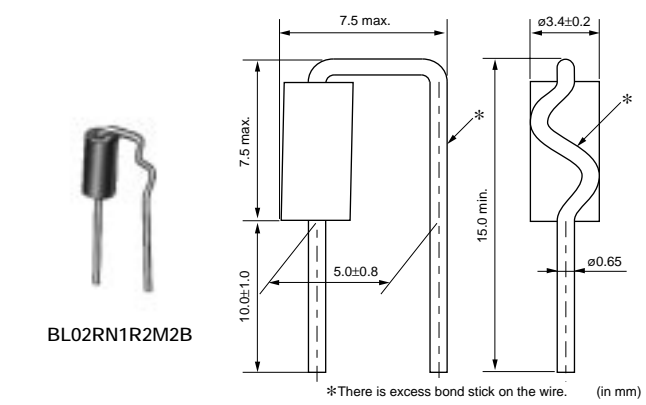
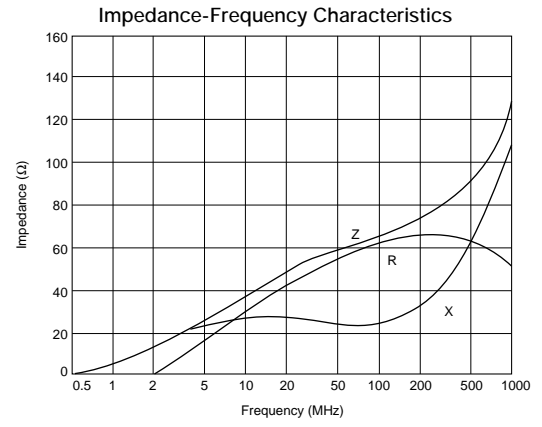
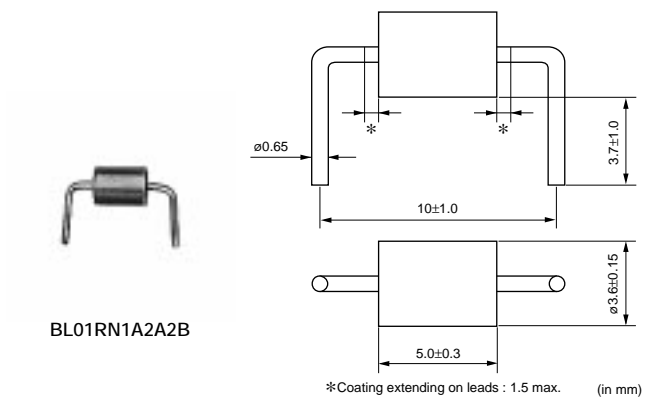
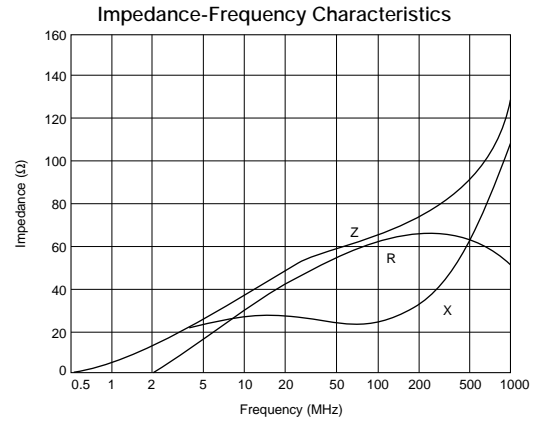
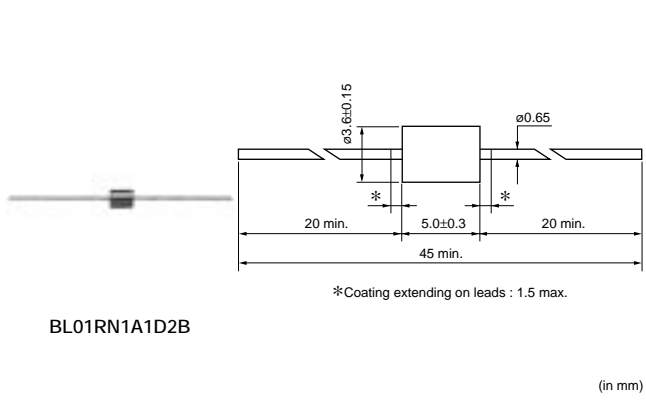
## Equivalent Circuit



Noise Suppression Products/EMI Suppression Filters

2

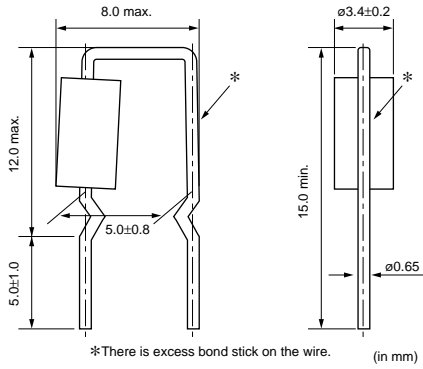
### ● Ferrite Beads Inductors BL01/BL02/BL03 Series



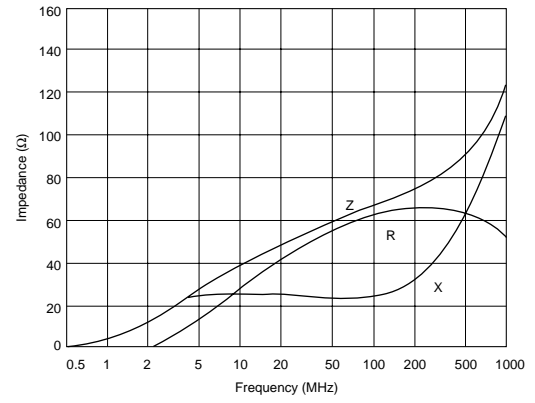
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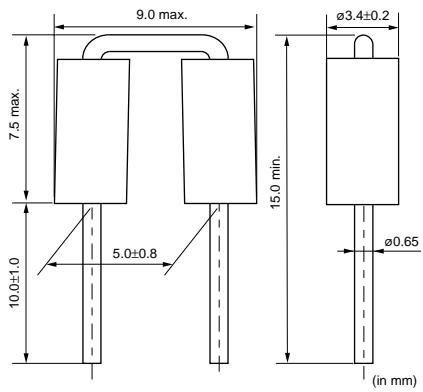
BL02RN1R3J2B



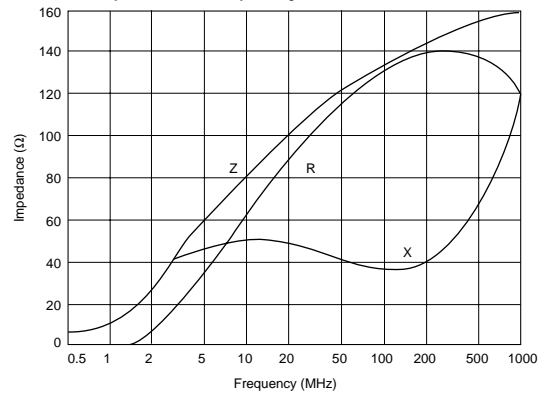
Impedance-Frequency Characteristics



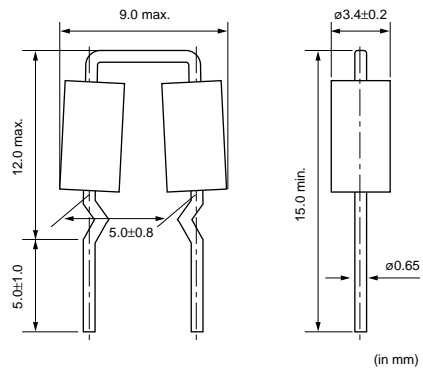
BL02RN2R1M2B



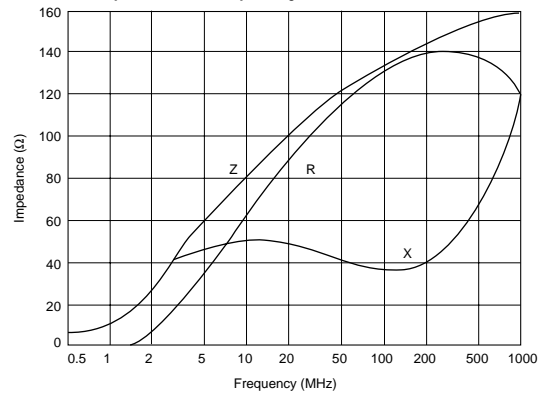
Impedance-Frequency Characteristics



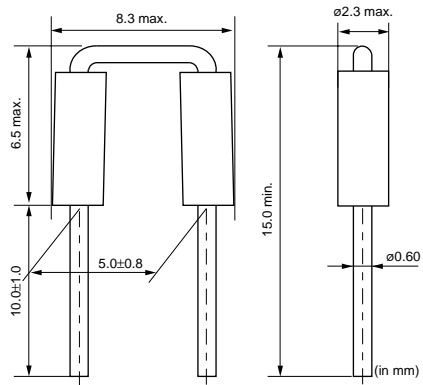
BL02RN2R3J2B



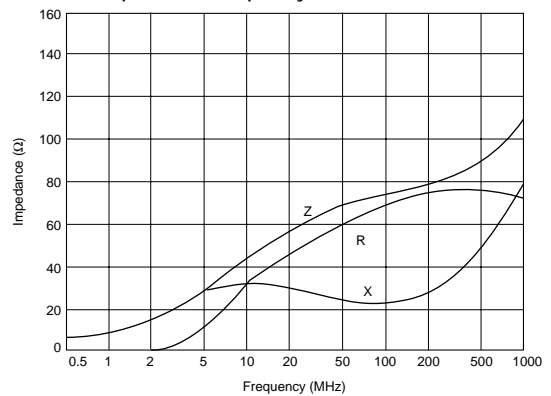
Impedance-Frequency Characteristics



BL03RN2R1M1B



Impedance-Frequency Characteristics



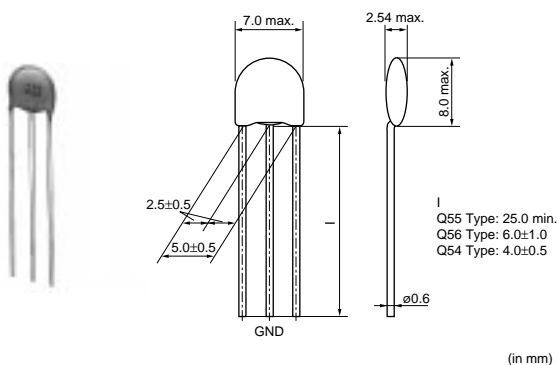
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| Part Number  | Rated Current (A) | Operating Temperature Range |
|--------------|-------------------|-----------------------------|
| BL01RN1A1D2B | 7                 | -40 to +85°C                |
| BL01RN1A1E1A | 6                 | -40 to +85°C                |
| BL01RN1A1F1J | 6                 | -40 to +85°C                |
| BL01RN1A2A2B | 7                 | -40 to +85°C                |
| BL02RN1R2M2B | 7                 | -40 to +85°C                |
| BL02RN1R2N1A | 6                 | -40 to +85°C                |
| BL02RN1R2P1A | 6                 | -40 to +85°C                |
| BL02RN1R2Q1A | 6                 | -40 to +85°C                |
| BL02RN1R3J2B | 7                 | -40 to +85°C                |
| BL02RN1R3N1A | 6                 | -40 to +85°C                |
| BL02RN2R1M2B | 7                 | -40 to +85°C                |
| BL02RN2R1N1A | 6                 | -40 to +85°C                |
| BL02RN2R1P1A | 6                 | -40 to +85°C                |
| BL02RN2R1Q1A | 6                 | -40 to +85°C                |
| BL02RN2R3J2B | 7                 | -40 to +85°C                |
| BL02RN2R3N1A | 6                 | -40 to +85°C                |
| BL03RN2R1M1B | 6                 | -40 to +85°C                |
| BL03RN2R1N1A | 6                 | -40 to +85°C                |
| BL03RN2R1P1A | 6                 | -40 to +85°C                |
| BL03RN2R1Q1A | 6                 | -40 to +85°C                |

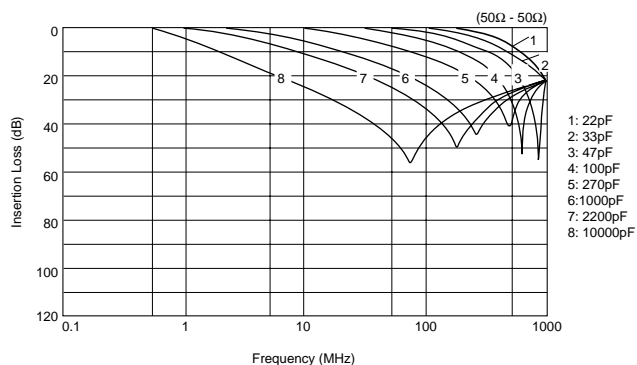
## Leaded EMIFIL<sup>®</sup> (Capacitor Type)

### Small Type

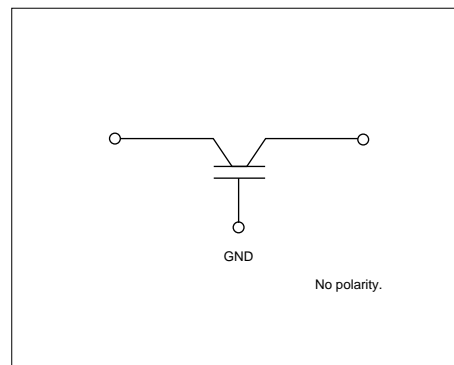
#### ● DSN6 Series



Insertion Loss Characteristics (Main Items)



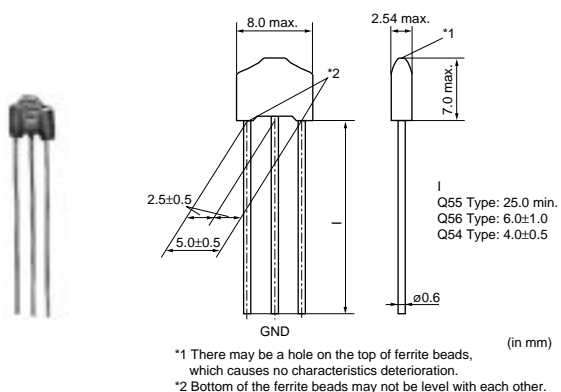
Equivalent Circuit



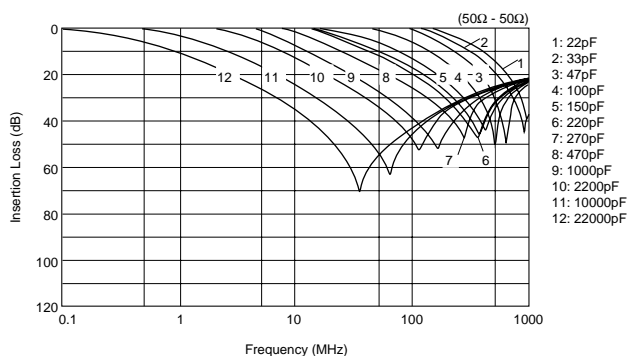
| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DSN6NC51H220 | 22 ±20%          | 50                  | 6                 | -25 to +85°C                |
| DSN6NC51H330 | 33 ±20%          | 50                  | 6                 | -25 to +85°C                |
| DSN6NC51H470 | 47 ±20%          | 50                  | 6                 | -25 to +85°C                |
| DSN6NC51H101 | 100 ±20%         | 50                  | 6                 | -25 to +85°C                |
| DSN6NC51H271 | 270 ±20%         | 50                  | 6                 | -25 to +85°C                |
| DSN6NC51H102 | 1000 ±20%        | 50                  | 6                 | -25 to +85°C                |
| DSN6NC51H222 | 2200 ±20%        | 50                  | 6                 | -25 to +85°C                |
| DSN6NZ81H103 | 10000 80/-20%    | 50                  | 6                 | -25 to +85°C                |

Please refer to Part Numbering instruction for type and length of lead.

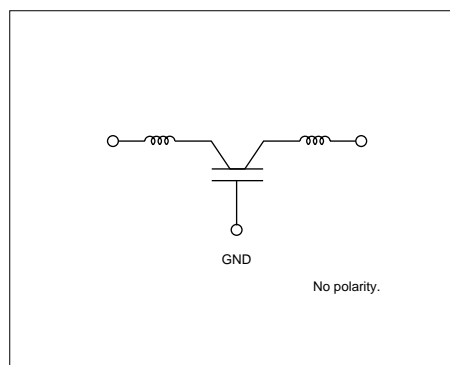
### ● Built-in Ferrite Beads DSS6 Series Straight Type



Insertion Loss Characteristics (Main Items)



Equivalent Circuit

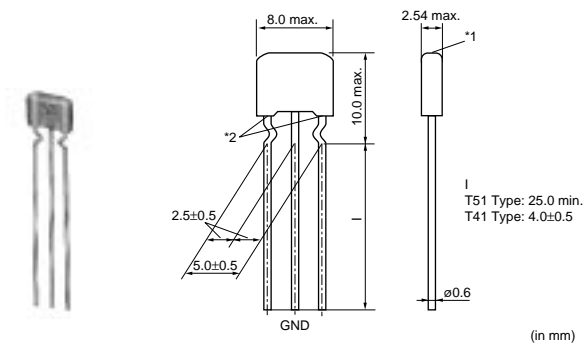


| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DSS6NC52A220 | 22 ±20%          | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A330 | 33 ±20%          | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A470 | 47 ±20%          | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A101 | 100 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A151 | 150 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A221 | 220 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A271 | 270 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A471 | 470 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A102 | 1000 ±20%        | 100                 | 6                 | -25 to +85°C                |
| DSS6NE52A222 | 2200 80/-20%     | 100                 | 6                 | -25 to +85°C                |
| DSS6NZ82A103 | 10000 ±30%       | 100                 | 6                 | -25 to +85°C                |
| DSS6NF31C223 | 22000 80/-20%    | 16                  | 6                 | -25 to +85°C                |

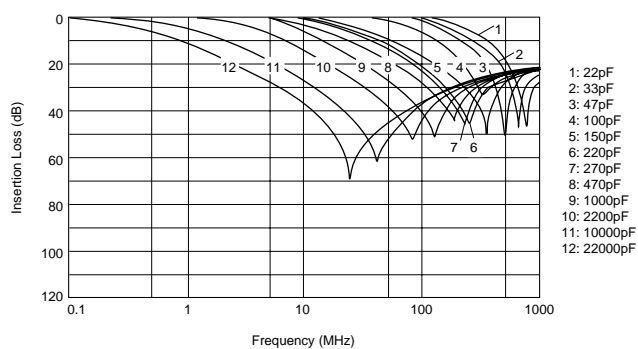
Please refer to Part Numbering instruction for type and length of lead.

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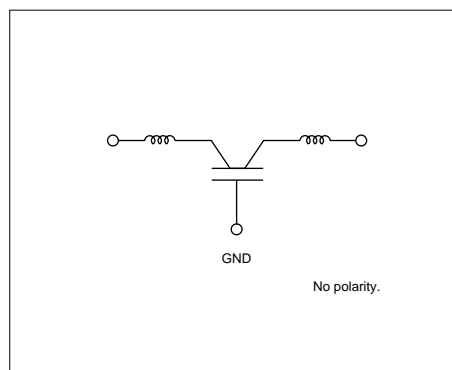
● Built-in Ferrite Beads DSS6 Series Incrimp Type



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



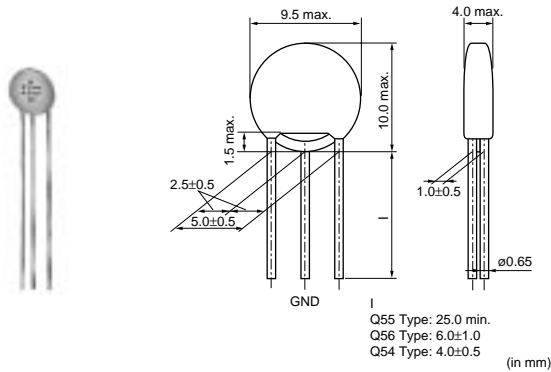
| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DSS6NC52A220 | 22 ±20%          | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A330 | 33 ±20%          | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A470 | 47 ±20%          | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A101 | 100 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A151 | 150 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A221 | 220 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A271 | 270 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A471 | 470 ±20%         | 100                 | 6                 | -25 to +85°C                |
| DSS6NC52A102 | 1000 ±20%        | 100                 | 6                 | -25 to +85°C                |
| DSS6NE52A222 | 2200 80/-20%     | 100                 | 6                 | -25 to +85°C                |
| DSS6NZ82A103 | 10000 ±30%       | 100                 | 6                 | -25 to +85°C                |
| DSS6NF31C223 | 22000 80/-20%    | 16                  | 6                 | -25 to +85°C                |

Please refer to Part Numbering instruction for type and length of lead.

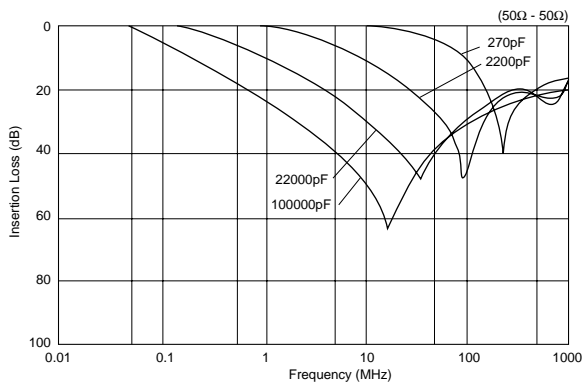
# Leaded EMIFIL<sup>®</sup> (Capacitor Type)

Standard Type

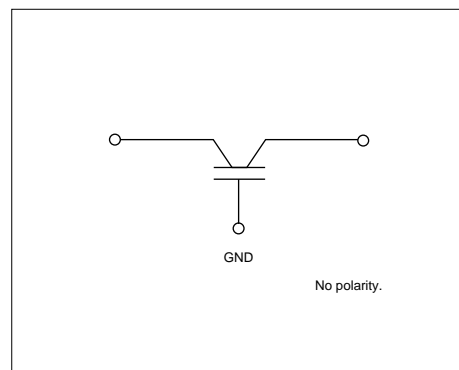
● DSN9 Series



Insertion Loss Characteristics (Main Items)



Equivalent Circuit



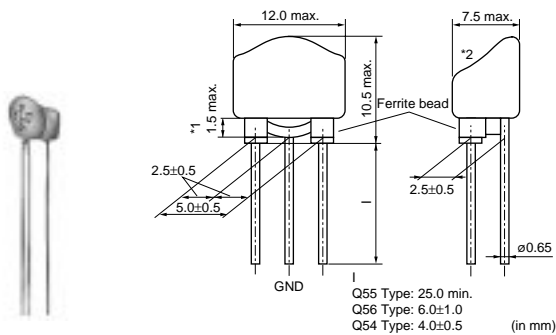
| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DSN9NC52A271 | 270 ±20%         | 100                 | 7                 | -25 to +85°C                |
| DSN9NC52A222 | 2200 ±20%        | 100                 | 7                 | -25 to +85°C                |
| DSN9NC51H223 | 22000 50/-20%    | 50                  | 7                 | -25 to +85°C                |
| DSN9NC51C104 | 100000 ±20%      | 16                  | 7                 | -25 to +85°C                |

Rated current is 6A for taping type and its lead diameter is phi 0.6mm and three terminal in line arrangement.

Rated current is 7A for bulk type.

Please refer to Part Numbering instruction for type and length of lead.

● Built-in Ferrite Beads DSS9 Series



\*1 Coating extending on leads does not exceed the tangent line. Exposed electrode, if any, is covered by solder, etc.

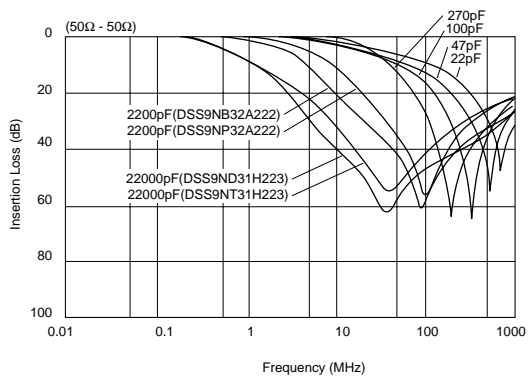
\*2 There should not be the exposure of the ferrite bead if a hole is in top of filter, the ferrite bead should not be exposed.

Continued on the following page.

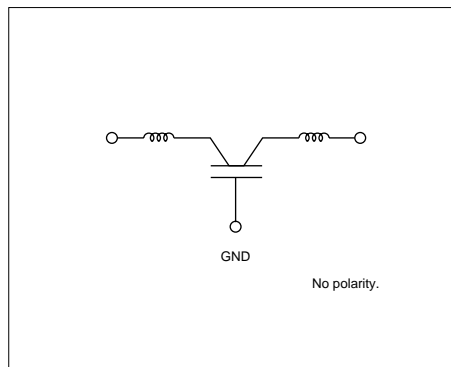
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Continued from the preceding page.

Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DSS9NC52A220 | 22 ±20%          | 100                 | 7                 | -25 to +85°C                |
| DSS9NC52A470 | 47 ±20%          | 100                 | 7                 | -25 to +85°C                |
| DSS9NC52A101 | 100 ±20%         | 100                 | 7                 | -25 to +85°C                |
| DSS9NC52A271 | 270 ±20%         | 100                 | 7                 | -25 to +85°C                |
| DSS9NC52A222 | 2200 ±20%        | 100                 | 7                 | -25 to +85°C                |
| DSS9NP32A222 | 2200 ±20%        | 100                 | 7                 | -25 to +85°C                |
| DSS9NC51H223 | 22000 50/-20%    | 50                  | 7                 | -25 to +85°C                |
| DSS9NT31H223 | 22000 50/-20%    | 50                  | 7                 | -25 to +85°C                |

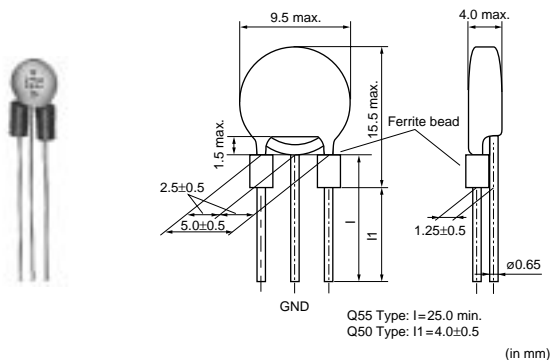
Rated current is 6A for taping type and its lead diameter is phi 0.6mm and three terminal in line arrangement.

Rated current is 7A for bulk type.

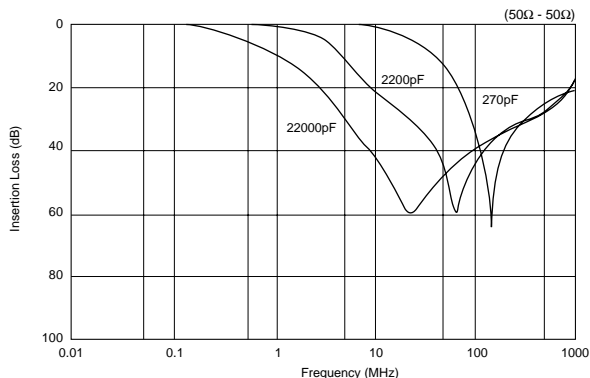
DSS9NP32A222/DSS9NT31H223 are low distortion types for audio IF circuits.

Please refer to Part Numbering instruction for type and length of lead.

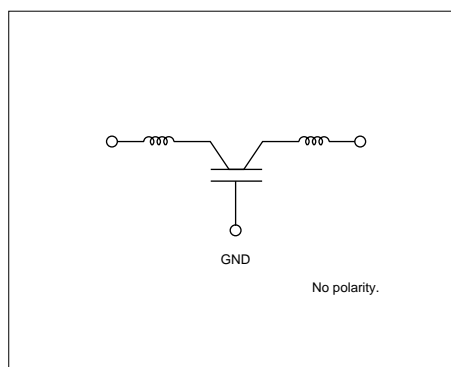
● With Ferrite Beads DST9 Series



Insertion Loss Characteristics (Main Items)



Equivalent Circuit





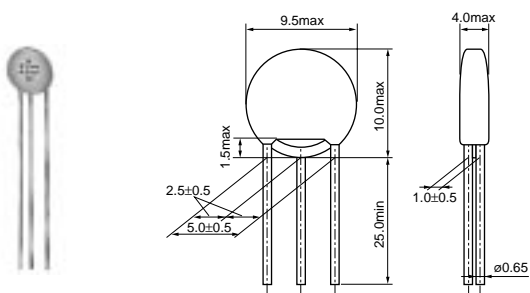
| Part Number         | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|---------------------|------------------|---------------------|-------------------|-----------------------------|
| <b>DST9NC52A271</b> | 270 ±20%         | 100                 | 7                 | -25 to +85°C                |
| <b>DST9NC52A222</b> | 2200 ±20%        | 100                 | 7                 | -25 to +85°C                |
| <b>DST9NC51H223</b> | 22000 50/-20%    | 50                  | 7                 | -25 to +85°C                |

Rated current is 6A for taping type and its lead diameter is phi 0.6mm and three terminal in line arrangement.  
Rated current is 7A for bulk type.  
Please refer to Part Numbering instruction for type and length of lead.

## Leaded EMIFIL<sup>®</sup> (Capacitor Type)

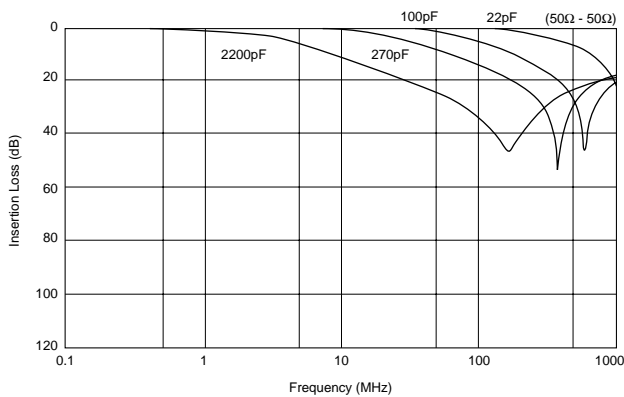
### Heavy-duty Type

#### ● DSN9H Series

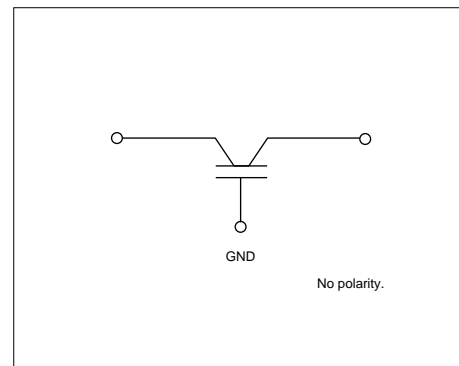


(in mm)

Insertion Loss Characteristics (Main Items)



Equivalent Circuit

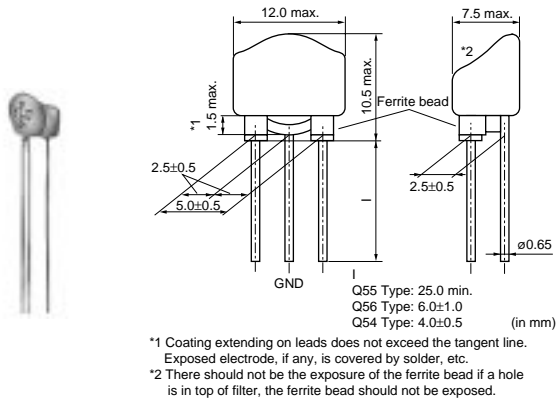


| Part Number         | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|---------------------|------------------|---------------------|-------------------|-----------------------------|
| <b>DSN9HB32E220</b> | 22 ±20%          | 250                 | 6                 | -40 to +105°C               |
| <b>DSN9HB32E101</b> | 100 ±20%         | 250                 | 6                 | -40 to +105°C               |
| <b>DSN9HB32E271</b> | 270 ±20%         | 250                 | 6                 | -40 to +105°C               |
| <b>DSN9HB32E222</b> | 2200 ±20%        | 250                 | 6                 | -40 to +105°C               |

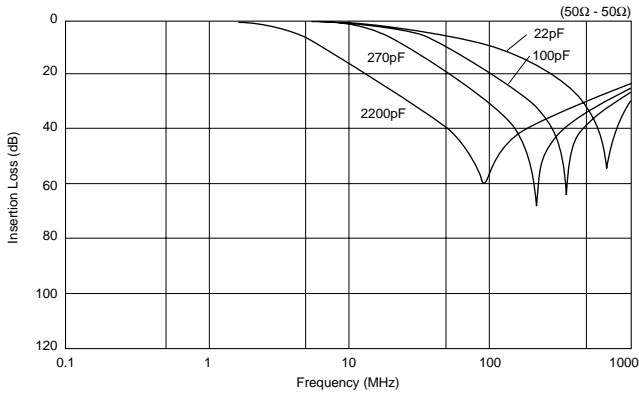
Diameter of Lead is 0.6mm for taping type. Taping type is three terminal in line arrangement.

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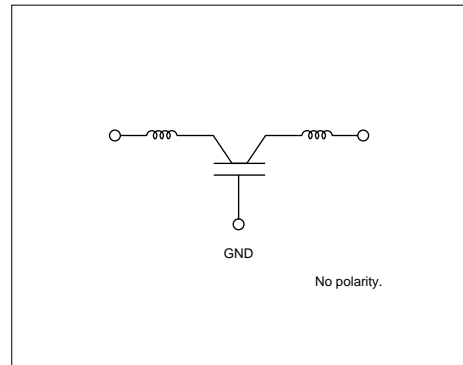
● Built-in Ferrite Beads DSS9H Series



Insertion Loss Characteristics (Main Items)



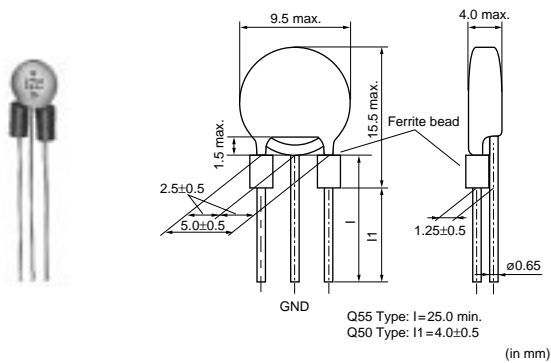
Equivalent Circuit



| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DSS9HB32E220 | 22 ±20%          | 250                 | 6                 | -40 to +105°C               |
| DSS9HB32E101 | 100 ±20%         | 250                 | 6                 | -40 to +105°C               |
| DSS9HB32E271 | 270 ±20%         | 250                 | 6                 | -40 to +105°C               |
| DSS9HB32E222 | 2200 ±20%        | 250                 | 6                 | -40 to +105°C               |

Diameter of Lead is 0.6mm for taping type. Taping type is three terminal in line arrangement.

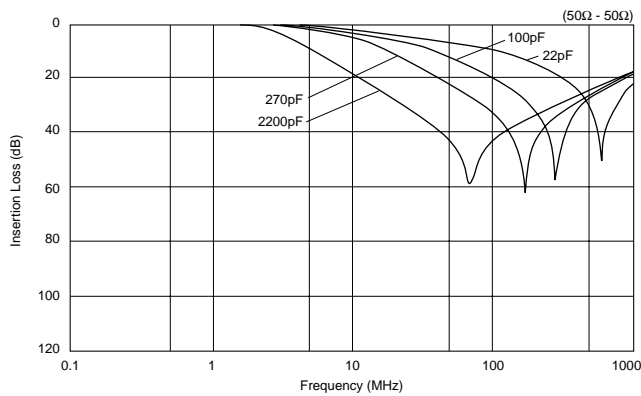
● With Ferrite Beads DST9H Series



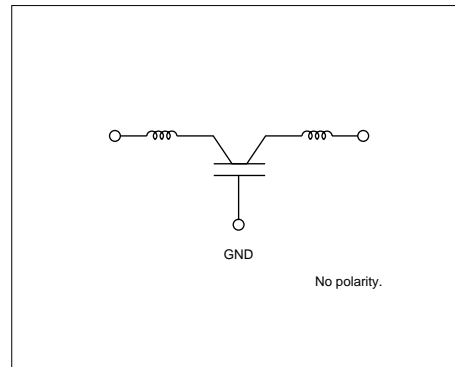
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Continued from the preceding page.

Insertion Loss Characteristics (Main Items)



Equivalent Circuit



| Part Number  | Capacitance (pF) | Rated Voltage (Vdc) | Rated Current (A) | Operating Temperature Range |
|--------------|------------------|---------------------|-------------------|-----------------------------|
| DST9HB32E220 | 22 ±20%          | 250                 | 6                 | -40 to +105°C               |
| DST9HB32E101 | 100 ±20%         | 250                 | 6                 | -40 to +105°C               |
| DST9HB32E271 | 270 ±20%         | 250                 | 6                 | -40 to +105°C               |
| DST9HB32E222 | 2200 ±20%        | 250                 | 6                 | -40 to +105°C               |

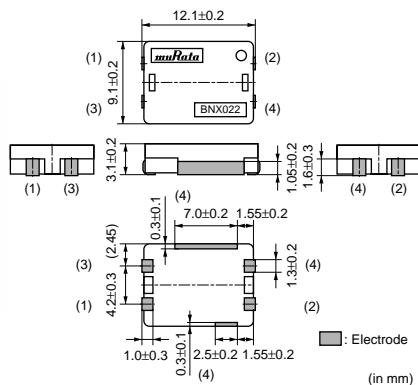
Diameter of Lead is 0.6mm for taping type. Taping type is three terminal in line arrangement.

## Block Type EMIFIL® (LC Combined)

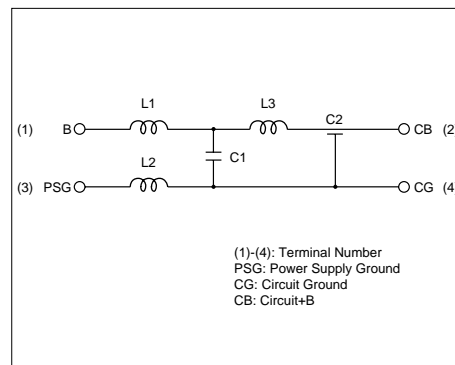
SMD Type



BNX022/023



Equivalent Circuit



| Part Number | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Rated Current (A) | Insulation Resistance (min.) (M ohm) | Insertion Loss  |
|-------------|---------------------|-------------------------|-------------------|--------------------------------------|---|
| BNX022-01   | 50                  | 125                     | 10                | 500                                  | 1MHz to 1GHz:35dB min. (20 to 25 degrees C line impedance=50 ohm) |
| BNX023-01   | 100                 | 250                     | 15                | 500                                  | 1MHz to 1GHz:35dB min. (20 to 25 degrees C line impedance=50 ohm) |

Operating Temperature Range: -40 to +125°C

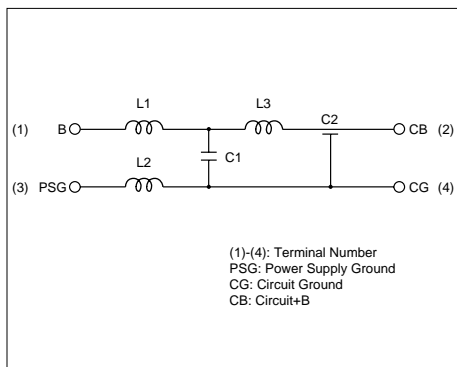
In operating temperatures exceeding +85°C, derating of current is necessary.

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# Block Type EMIFIL® (LC Combined)

Lead Type

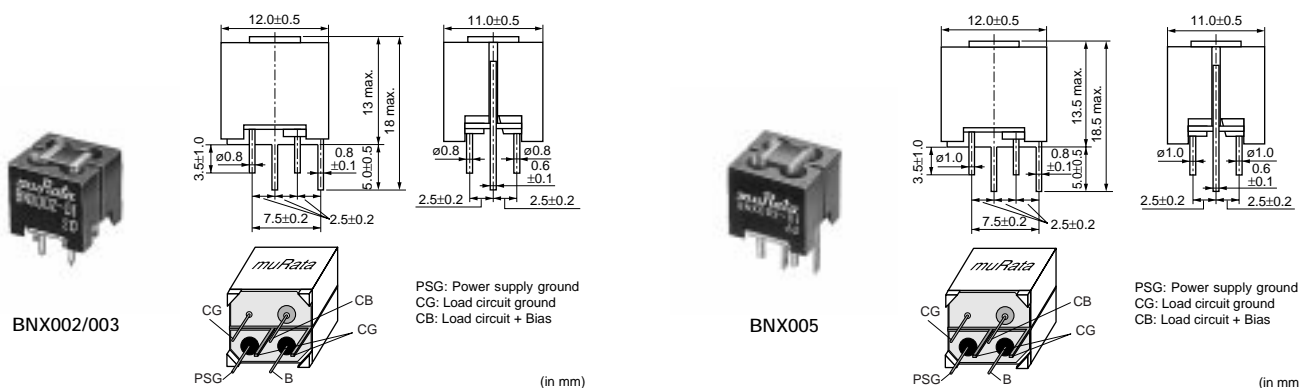
Equivalent Circuit



Noise Suppression Products/EMI Suppression Filters

2

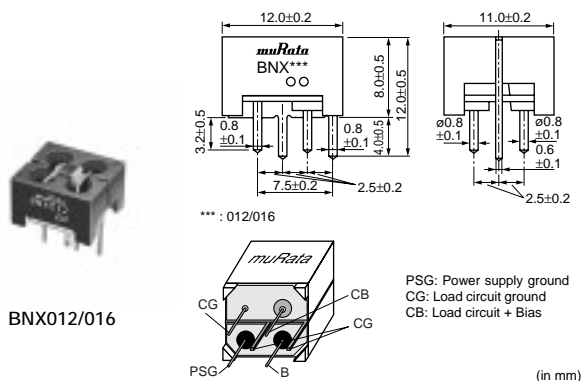
● Lead Type



| Part Number      | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Rated Current (A) | Insulation Resistance (min.) (M ohm) | Insertion Loss  |
|------------------|---------------------|-------------------------|-------------------|--------------------------------------|---|
| <b>BNX002-01</b> | 50                  | 125                     | 10                | 100                                  | 1MHz to 1GHz:40dB min. (20 to 25 degrees C line impedance=50 ohm) |
| <b>BNX003-01</b> | 150                 | 375                     | 10                | 100                                  | 5MHz to 1GHz:40dB min. (20 to 25 degrees C line impedance=50 ohm) |
| <b>BNX005-01</b> | 50                  | 125                     | 15                | 100                                  | 1MHz to 1GHz:40dB min. (20 to 25 degrees C line impedance=50 ohm) |

Operating Temperature Range: -30 to +85°C

● Lead Type Low Profile



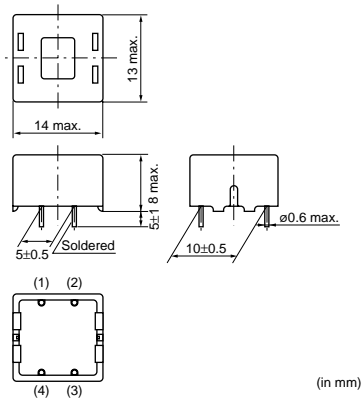
| Part Number      | Rated Voltage (Vdc) | Withstand Voltage (Vdc) | Rated Current (A) | Insulation Resistance (min.) (M ohm) | Insertion Loss  |
|------------------|---------------------|-------------------------|-------------------|--------------------------------------|---|
| <b>BNX012-01</b> | 50                  | 125                     | 15                | 500                                  | 1MHz to 1GHz:40dB min. (20 to 25 degrees C line impedance=50 ohm)   |
| <b>BNX016-01</b> | 25                  | 62.5                    | 15                | 50                                   | 100kHz to 1GHz:40dB min. (20 to 25 degrees C line impedance=50 ohm) |

Operating Temperature Range: -40 to +125°C

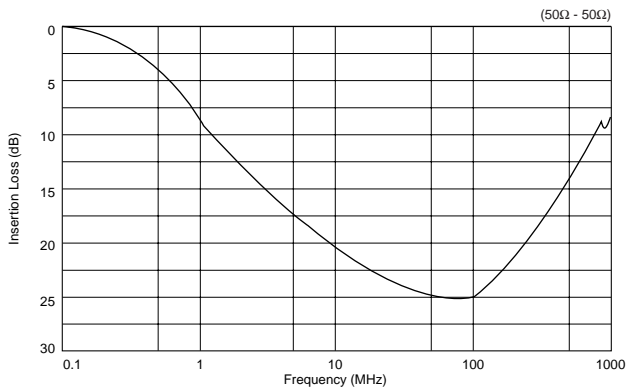
In operating temperatures exceeding +85°C, derating of current is necessary.

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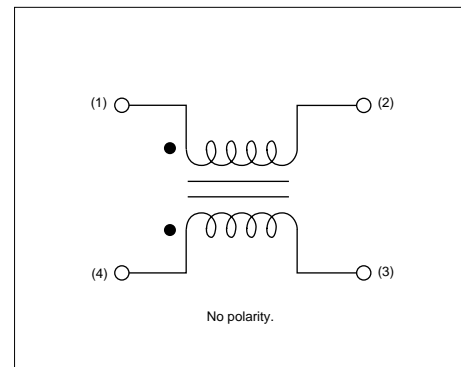
# Leaded Common Mode Choke Coil



Insertion Loss Characteristics



Equivalent Circuit



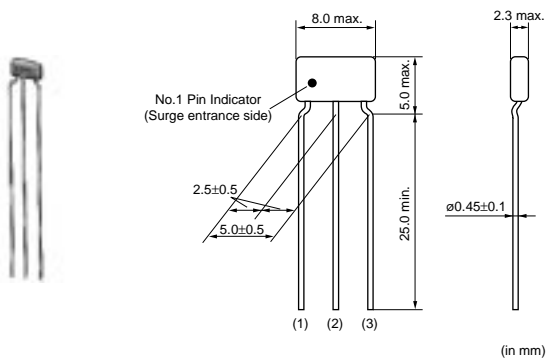
| Part Number     | Inductance (μH) | Rated Current (A) | Rated Voltage (Vdc) | Withstand Voltage (Vdc) |
|-----------------|-----------------|-------------------|---------------------|-------------------------|
| PLT09HN2003R0P1 | 20 min.         | 3                 | 50                  | 125                     |

Operating Temperature Range: -40 to +85°C

# EMIGUARD® (EMIFIL® with Varistor Function)

## Lead Type EMIGUARD®

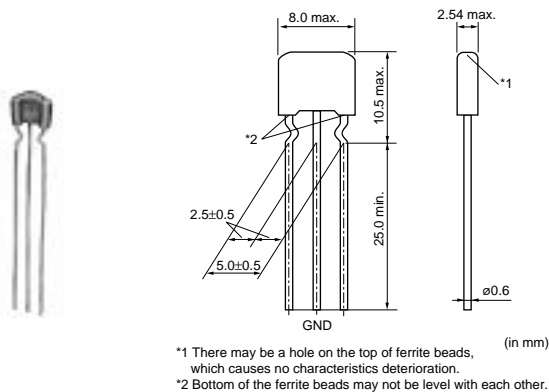
● For Semiconductor Protection VFR3V Series



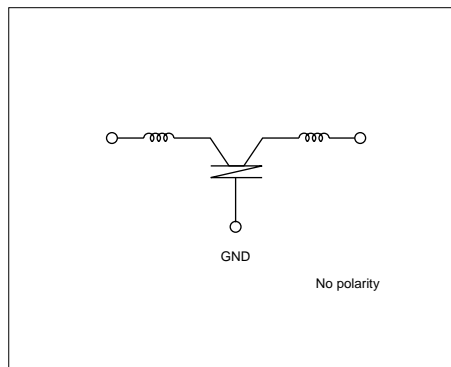
| Part Number      | Rated Voltage (Vdc) | Varistor Voltage (Vdc) | Capacitance (pF) | Rated Current (mA) | Peak Pulse Current (A) | Operating Temperature Range |
|------------------|---------------------|------------------------|------------------|--------------------|------------------------|-----------------------------|
| VFR3VD31E131T51B | 25                  | 50 ±20%                | 130 ±20%         | 20                 | 30                     | -25 to 85°C                 |
| VFR3VD31E131U31A | 25                  | 50 ±20%                | 130 ±20%         | 20                 | 30                     | -25 to 85°C                 |

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## ● For Signal Line VFS6V Series

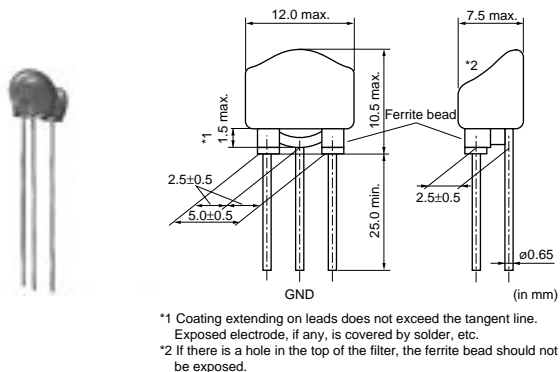


Equivalent Circuit

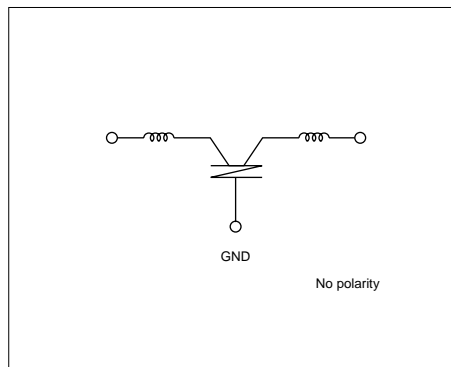


| Part Number      | Rated Voltage (Vdc) | Varistor Voltage (Vdc) | Capacitance (pF) | Rated Current (A) | Peak Pulse Current (A) | Operating Temperature Range |
|------------------|---------------------|------------------------|------------------|-------------------|------------------------|-----------------------------|
| VFS6VD81E221T51B | 25                  | 50 ±20%                | 220 ±20%         | 6                 | 100                    | -40 to 105°C                |
| VFS6VD81E221U31A | 25                  | 50 ±20%                | 220 ±20%         | 6                 | 100                    | -40 to 105°C                |

## ● For Large Current VFS9V Series



Equivalent Circuit

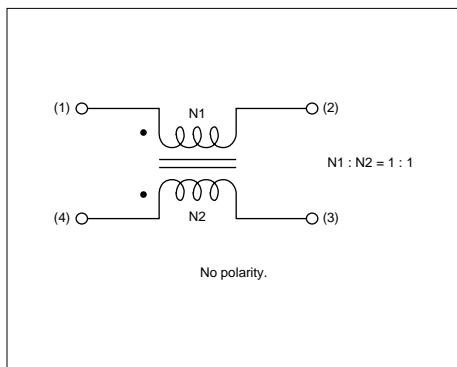


| Part Number      | Rated Voltage (Vdc) | Varistor Voltage (Vdc) | Capacitance (pF) | Rated Current (A) | Operating Temperature Range |
|------------------|---------------------|------------------------|------------------|-------------------|-----------------------------|
| VFS9VD31B223Q55B | 12                  | 22 ±20%                | 22000 +50/-20%   | 7                 | -40 to 100°C                |
| VFS9VD31B223Q91J | 12                  | 22 ±20%                | 22000 +50/-20%   | 6                 | -40 to 100°C                |
| VFS9VD31B223Q92J | 12                  | 22 ±20%                | 22000 +50/-20%   | 6                 | -40 to 100°C                |
| VFS9VD31B223Q93J | 12                  | 22 ±20%                | 22000 +50/-20%   | 6                 | -40 to 100°C                |

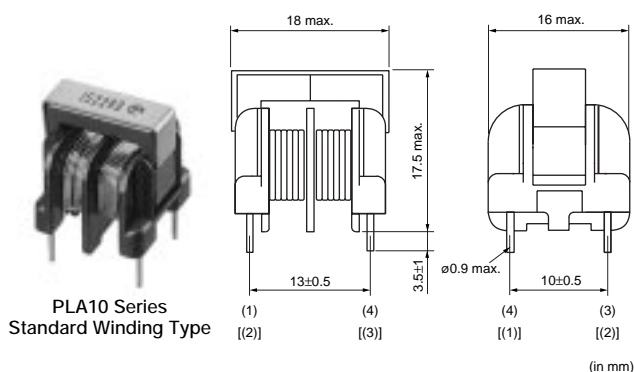
# AC Line Filters

## Common Mode Choke Coil

Equivalent Circuit



● PLA10 Series Standard Winding Type

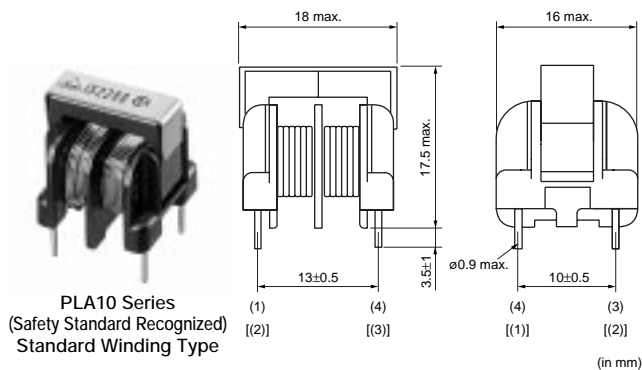


| Part Number     | Common Mode Inductance (min.) (mH) | Rated Current (A) | Rated Voltage (V) | Insulation Resistance (min.) (M ohm) |
|-----------------|------------------------------------|-------------------|-------------------|--------------------------------------|
| PLA10AN1522R0R2 | 1.5                                | 2.0               | 300               | 100                                  |
| PLA10AN1821R7R2 | 1.8                                | 1.7               | 300               | 100                                  |
| PLA10AN2221R5R2 | 2.2                                | 1.5               | 300               | 100                                  |
| PLA10AN3021R3R2 | 3.0                                | 1.3               | 300               | 100                                  |
| PLA10AN3521R2R2 | 3.5                                | 1.2               | 300               | 100                                  |
| PLA10AN5521R0R2 | 5.5                                | 1.0               | 300               | 100                                  |
| PLA10AN7420R8R2 | 7.4                                | 0.8               | 300               | 100                                  |
| PLA10AN1030R7R2 | 10.0                               | 0.7               | 300               | 100                                  |
| PLA10AN1230R6R2 | 12.0                               | 0.6               | 300               | 100                                  |
| PLA10AN2030R5R2 | 20.0                               | 0.5               | 300               | 100                                  |
| PLA10AN3030R4R2 | 30.0                               | 0.4               | 300               | 100                                  |
| PLA10AN4330R3R2 | 43.0                               | 0.3               | 300               | 100                                  |

Operating Temperature Range (Ambient Temperature Range + Winding Temperature Rise): -25°C to 120°C      Winding Temperature Rise (at Rated Current) (max.): 60K

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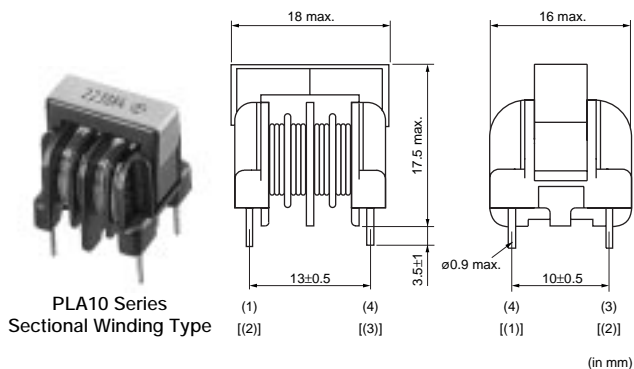
## ● PLA10 Series Standard Winding Type (Safety Standard Recognized - Safety Standards: EN60065)



| Part Number     | Common Mode Inductance<br>(min.)<br>(mH) | Rated Current<br>(A) | Rated Voltage<br>(V) | Insulation Resistance<br>(min.)<br>(M ohm) |
|-----------------|--|----------------------|----------------------|--|
| PLA10AS1522R0R2 | 1.5                                      | 2.0                  | 250                  | 100  |
| PLA10AS1821R7R2 | 1.8                                      | 1.7                  | 250                  | 100  |
| PLA10AS2221R5R2 | 2.2                                      | 1.5                  | 250                  | 100  |
| PLA10AS3021R3R2 | 3.0                                      | 1.3                  | 250                  | 100  |
| PLA10AS3521R2R2 | 3.5                                      | 1.2                  | 250                  | 100  |
| PLA10AS5521R0R2 | 5.5                                      | 1.0                  | 250                  | 100  |
| PLA10AS7420R8R2 | 7.4                                      | 0.8                  | 250                  | 100  |
| PLA10AS1030R7R2 | 10.0                                     | 0.7                  | 250                  | 100  |
| PLA10AS1230R6R2 | 12.0                                     | 0.6                  | 250                  | 100  |
| PLA10AS2030R5R2 | 20.0                                     | 0.5                  | 250                  | 100  |
| PLA10AS3030R4R2 | 30.0                                     | 0.4                  | 250                  | 100  |
| PLA10AS4330R3R2 | 43.0                                     | 0.3                  | 250                  | 100  |

Operating Temperature Range: -25°C to 60°C    Winding Temperature Rise (at Rated Current) (max.): 60K

## ● PLA10 Series Sectional Winding Type

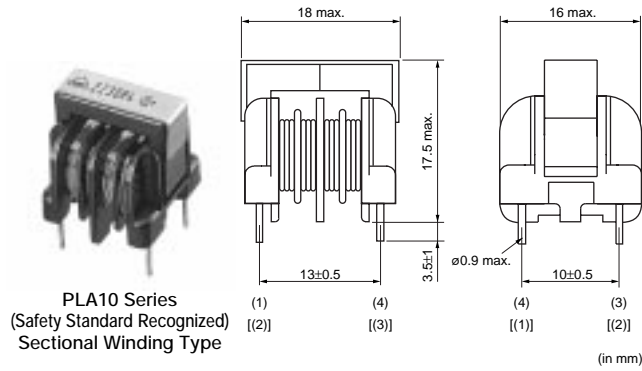


| Part Number     | Common Mode Inductance<br>(min.)<br>(mH) | Rated Current<br>(A) | Rated Voltage<br>(V) | Insulation Resistance<br>(min.)<br>(M ohm) |
|-----------------|--|----------------------|----------------------|--|
| PLA10AN9012R0D2 | 0.9                                      | 2.0                  | 300                  | 100  |
| PLA10AN1321R7D2 | 1.3                                      | 1.7                  | 300                  | 100  |
| PLA10AN1821R5D2 | 1.8                                      | 1.5                  | 300                  | 100  |
| PLA10AN2021R3D2 | 2.0                                      | 1.3                  | 300                  | 100  |
| PLA10AN3621R0D2 | 3.6                                      | 1.0                  | 300                  | 100  |
| PLA10AN7720R7D2 | 7.7                                      | 0.7                  | 300                  | 100  |
| PLA10AN1330R5D2 | 13.0                                     | 0.5                  | 300                  | 100  |
| PLA10AN2230R4D2 | 22.0                                     | 0.4                  | 300                  | 100  |
| PLA10AN3630R3D2 | 36.0                                     | 0.3                  | 300                  | 100  |

Operating Temperature Range (Ambient Temperature Range + Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K



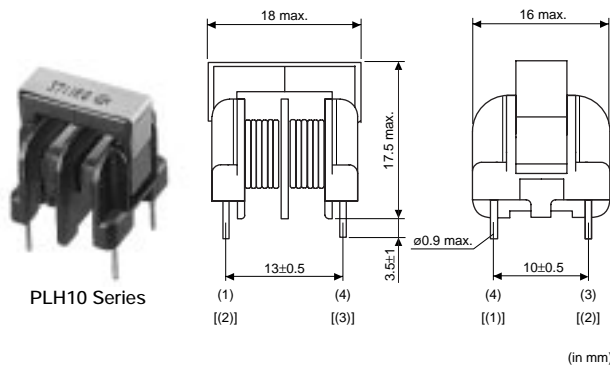
## ● PLA10 Series Sectional Winding Type (Safety Standard Recognized - Safety Standards: EN60065)



| Part Number     | Common Mode Inductance<br>(min.)<br>(mH) | Rated Current<br>(A) | Rated Voltage<br>(V) | Insulation Resistance<br>(min.)<br>(M ohm) |
|-----------------|--|----------------------|----------------------|--|
| PLA10AS9012R0D2 | 0.9                                      | 2.0                  | 250                  | 100  |
| PLA10AS1321R7D2 | 1.3                                      | 1.7                  | 250                  | 100  |
| PLA10AS1821R5D2 | 1.8                                      | 1.5                  | 250                  | 100  |
| PLA10AS2021R3D2 | 2.0                                      | 1.3                  | 250                  | 100  |
| PLA10AS3621R0D2 | 3.6                                      | 1.0                  | 250                  | 100  |
| PLA10AS7720R7D2 | 7.7                                      | 0.7                  | 250                  | 100  |
| PLA10AS1330R5D2 | 13.0                                     | 0.5                  | 250                  | 100  |
| PLA10AS2230R4D2 | 22.0                                     | 0.4                  | 250                  | 100  |
| PLA10AS3630R3D2 | 36.0                                     | 0.3                  | 250                  | 100  |

Operating Temperature Range: -25°C to 60°C    Winding Temperature Rise (at Rated Current) (max.): 60K

## ● PLH10 Series

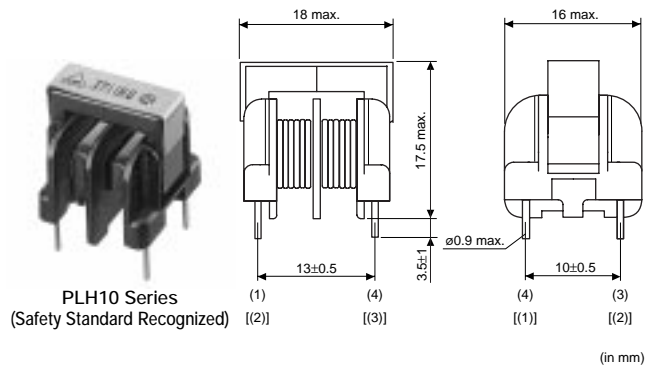


| Part Number     | Common Mode Inductance<br>(min.)<br>(μH) | Rated Current<br>(A) | Rated Voltage<br>(V) | Insulation Resistance<br>(min.)<br>(M ohm) |
|-----------------|--|----------------------|----------------------|--|
| PLH10AN7003R6P2 | 70                                       | 3.6                  | 300                  | 100  |
| PLH10AN1112R6P2 | 110                                      | 2.6                  | 300                  | 100  |
| PLH10AN1612R1P2 | 160                                      | 2.1                  | 300                  | 100  |
| PLH10AN2211R5P2 | 220                                      | 1.5                  | 300                  | 100  |
| PLH10AN2911R2P2 | 290                                      | 1.2                  | 300                  | 100  |
| PLH10AN3711R0P2 | 370                                      | 1.0                  | 300                  | 100  |

Operating Temperature Range (Ambient Temperature Range + Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

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● PLH10 Series (Safety Standard Recognized - Safety Standards: EN60065)



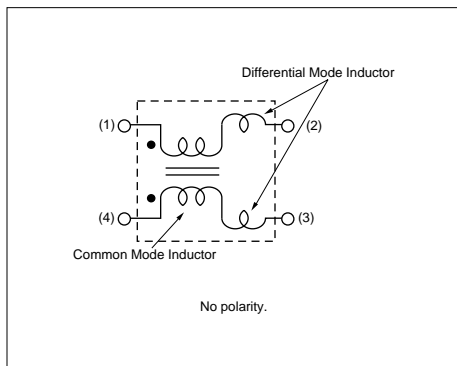
| Part Number     | Common Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (V) | Insulation Resistance (min.) (M ohm) |
|-----------------|------------------------------------|-------------------|-------------------|--------------------------------------|
| PLH10AS7003R6P2 | 70                                 | 3.6               | 250               | 100                                  |
| PLH10AS1112R6P2 | 110                                | 2.6               | 250               | 100                                  |
| PLH10AS1612R1P2 | 160                                | 2.1               | 250               | 100                                  |
| PLH10AS2211R5P2 | 220                                | 1.5               | 250               | 100                                  |
| PLH10AS2911R2P2 | 290                                | 1.2               | 250               | 100                                  |
| PLH10AS3711R0P2 | 370                                | 1.0               | 250               | 100                                  |

Operating Temperature Range: -25°C to 60°C    Winding Temperature Rise (at Rated Current) (max.): 60K

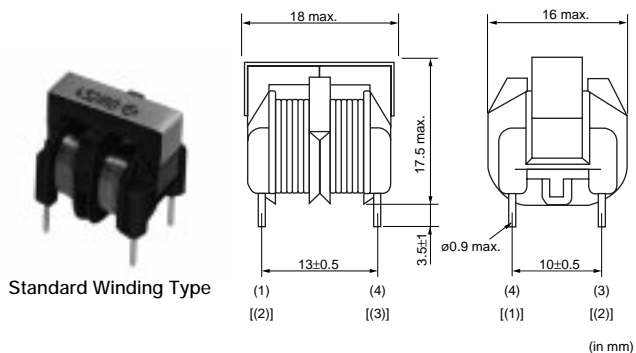
## AC Line Filters

### Hybrid Choke Coils

#### Equivalent Circuit



● PLY10 Series Standard Winding Type

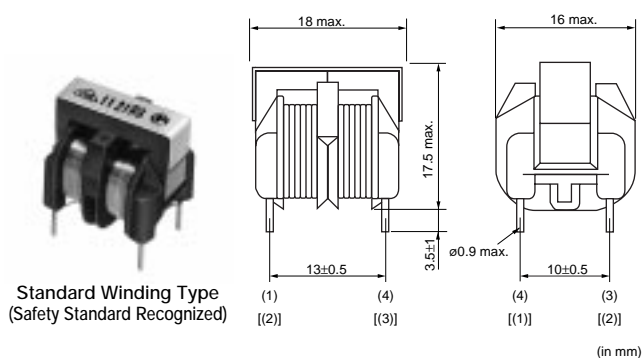


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| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY10AN9012R0R2 | 0.9                                | 65                                 | 2.0               | 300                 |
| PLY10AN1121R8R2 | 1.1                                | 90                                 | 1.8               | 300                 |
| PLY10AN1521R6R2 | 1.5                                | 110                                | 1.6               | 300                 |
| PLY10AN2121R4R2 | 2.1                                | 150                                | 1.4               | 300                 |
| PLY10AN2821R2R2 | 2.8                                | 190                                | 1.2               | 300                 |
| PLY10AN4321R0R2 | 4.3                                | 300                                | 1.0               | 300                 |
| PLY10AN6220R8R2 | 6.2                                | 400                                | 0.8               | 300                 |
| PLY10AN8720R7R2 | 8.7                                | 530                                | 0.7               | 300                 |
| PLY10AN9920R6R2 | 9.9                                | 690                                | 0.6               | 300                 |
| PLY10AN1430R5R2 | 14.0                               | 1000                               | 0.5               | 300                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

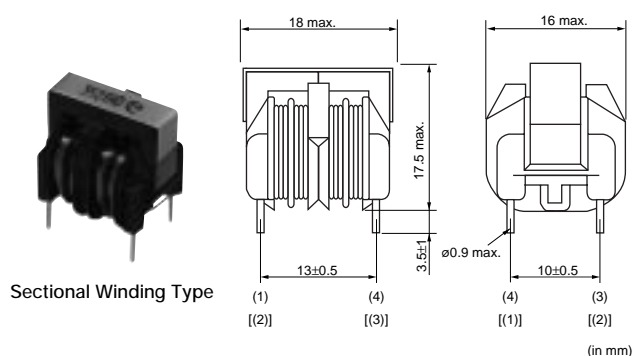
### ● PLY10 Series Standard Winding Type (Safety Standard Recognized - Safety Standards: EN60065)



| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY10AS9012R0R2 | 0.9                                | 65                                 | 2.0               | 300                 |
| PLY10AS1121R8R2 | 1.1                                | 90                                 | 1.8               | 300                 |
| PLY10AS1521R6R2 | 1.5                                | 110                                | 1.6               | 300                 |
| PLY10AS2121R4R2 | 2.1                                | 150                                | 1.4               | 300                 |
| PLY10AS2821R2R2 | 2.8                                | 190                                | 1.2               | 300                 |
| PLY10AS4321R0R2 | 4.3                                | 300                                | 1.0               | 300                 |
| PLY10AS6220R8R2 | 6.2                                | 400                                | 0.8               | 300                 |
| PLY10AS8720R7R2 | 8.7                                | 530                                | 0.7               | 300                 |
| PLY10AS9920R6R2 | 9.9                                | 690                                | 0.6               | 300                 |
| PLY10AS1430R5R2 | 14.0                               | 1000                               | 0.5               | 300                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

### ● PLY10 Series Sectional Winding Type

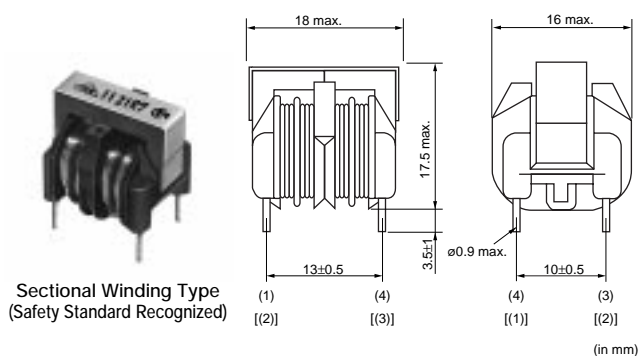


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| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY10AN7012R0D2 | 0.7                                | 50                                 | 2.0               | 300                 |
| PLY10AN1121R7D2 | 1.1                                | 65                                 | 1.7               | 300                 |
| PLY10AN1421R4D2 | 1.4                                | 110                                | 1.4               | 300                 |
| PLY10AN2321R2D2 | 2.3                                | 160                                | 1.2               | 300                 |
| PLY10AN3521R0D2 | 3.5                                | 240                                | 1.0               | 300                 |
| PLY10AN4420R8D2 | 4.4                                | 320                                | 0.8               | 300                 |
| PLY10AN8720R7D2 | 8.7                                | 500                                | 0.7               | 300                 |
| PLY10AN9720R6D2 | 9.7                                | 670                                | 0.6               | 300                 |
| PLY10AN1130R5D2 | 11.0                               | 840                                | 0.5               | 300                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

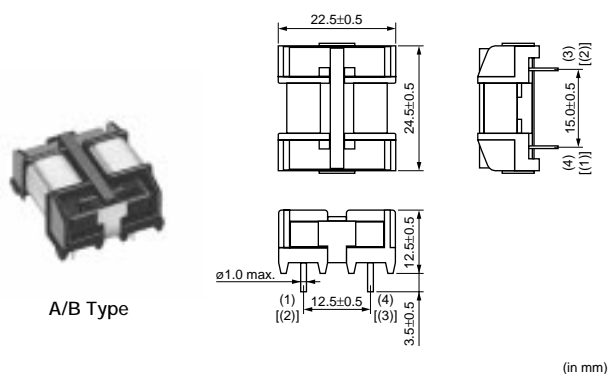
### ● PLY10 Series Sectional Winding Type (Safety Standard Recognized - Safety Standards: EN60065)



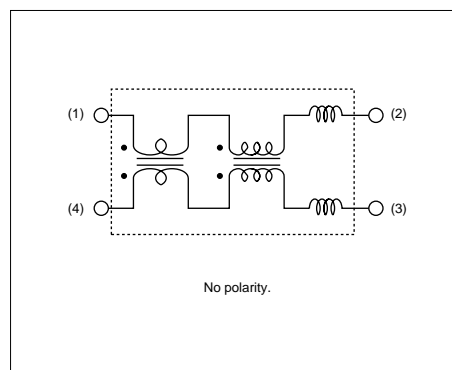
| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY10AS7012R0D2 | 0.7                                | 50                                 | 2.0               | 300                 |
| PLY10AS1121R7D2 | 1.1                                | 65                                 | 1.7               | 300                 |
| PLY10AS1421R4D2 | 1.4                                | 110                                | 1.4               | 300                 |
| PLY10AS2321R2D2 | 2.3                                | 160                                | 1.2               | 300                 |
| PLY10AS3521R0D2 | 3.5                                | 240                                | 1.0               | 300                 |
| PLY10AS4420R8D2 | 4.4                                | 320                                | 0.8               | 300                 |
| PLY10AS8720R7D2 | 8.7                                | 500                                | 0.7               | 300                 |
| PLY10AS9720R6D2 | 9.7                                | 670                                | 0.6               | 300                 |
| PLY10AS1130R5D2 | 11.0                               | 840                                | 0.5               | 300                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

### ● PLY17 Type



### Equivalent Circuit



**A Type**

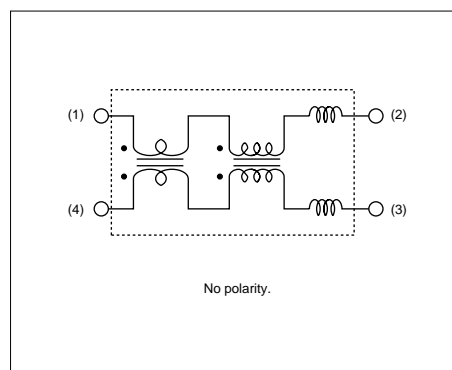
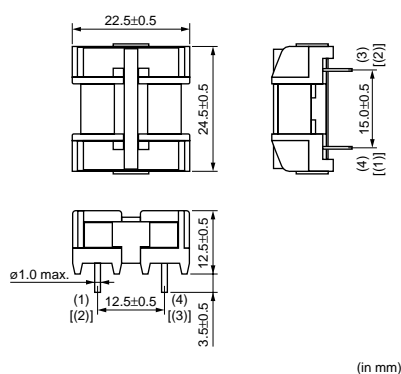
| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY17BN4912R4A2 | 0.49                               | 18                                 | 2.4               | 300                 |
| PLY17BN9612R0A2 | 0.96                               | 36                                 | 2.0               | 300                 |
| PLY17BN1023R0A2 | 1.0                                | 36                                 | 3.0               | 300                 |
| PLY17BN1121R8A2 | 1.1                                | 44                                 | 1.8               | 300                 |
| PLY17BN1721R5A2 | 1.7                                | 67                                 | 1.5               | 300                 |
| PLY17BN2921R2A2 | 2.9                                | 110                                | 1.2               | 300                 |
| PLY17BN3721R0A2 | 3.7                                | 140                                | 1.0               | 300                 |
| PLY17BN5620R8A2 | 5.6                                | 210                                | 0.8               | 300                 |
| PLY17BN7820R7A2 | 7.8                                | 290                                | 0.7               | 300                 |
| PLY17BN9320R6A2 | 9.3                                | 350                                | 0.6               | 300                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

**B Type**

| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY17BN4912R4B2 | 0.49                               | 24                                 | 2.4               | 300                 |
| PLY17BN9612R0B2 | 0.96                               | 47                                 | 2.0               | 300                 |
| PLY17BN1023R0B2 | 1.0                                | 47                                 | 3.0               | 300                 |
| PLY17BN1121R8B2 | 1.1                                | 58                                 | 1.8               | 300                 |
| PLY17BN1721R5B2 | 1.7                                | 88                                 | 1.5               | 300                 |
| PLY17BN2921R2B2 | 2.9                                | 140                                | 1.2               | 300                 |
| PLY17BN3721R0B2 | 3.7                                | 180                                | 1.0               | 300                 |
| PLY17BN5620R8B2 | 5.6                                | 280                                | 0.8               | 300                 |
| PLY17BN7820R7B2 | 7.8                                | 390                                | 0.7               | 300                 |
| PLY17BN9320R6B2 | 9.3                                | 460                                | 0.6               | 300                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

**● PLY17 Series (Safety Standard Recognized - Safety Standards: EN60065)**
**Equivalent Circuit**

**A Type**

| Part Number     | Common Mode Inductance (min.) (mH) | Normal Mode Inductance (min.) (μH) | Rated Current (A) | Rated Voltage (Vac) |
|-----------------|------------------------------------|------------------------------------|-------------------|---------------------|
| PLY17BS4912R4A2 | 0.49                               | 18                                 | 2.4               | 250                 |
| PLY17BS9612R0A2 | 0.96                               | 36                                 | 2.0               | 250                 |
| PLY17BS1023R0A2 | 1.0                                | 36                                 | 3.0               | 250                 |
| PLY17BS1121R8A2 | 1.1                                | 44                                 | 1.8               | 250                 |
| PLY17BS1721R5A2 | 1.7                                | 67                                 | 1.5               | 250                 |
| PLY17BS2921R2A2 | 2.9                                | 110                                | 1.2               | 250                 |
| PLY17BS3721R0A2 | 3.7                                | 140                                | 1.0               | 250                 |
| PLY17BS5620R8A2 | 5.6                                | 210                                | 0.8               | 250                 |
| PLY17BS7820R7A2 | 7.8                                | 290                                | 0.7               | 250                 |
| PLY17BS9320R6A2 | 9.3                                | 350                                | 0.6               | 250                 |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C    Winding Temperature Rise (at Rated Current) (max.): 60K

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**B Type**

| Part Number     | Common Mode Inductance<br>(min.)<br>(mH) | Normal Mode Inductance<br>(min.)<br>(μH) | Rated Current<br>(A) | Rated Voltage<br>(Vac) |
|-----------------|--|--|----------------------|------------------------|
| PLY17BS4912R4B2 | 0.49                                     | 24                                       | 2.4                  | 250                    |
| PLY17BS9612R0B2 | 0.96                                     | 47                                       | 2.0                  | 250                    |
| PLY17BS1023R0B2 | 1.0                                      | 47                                       | 3.0                  | 250                    |
| PLY17BS1121R8B2 | 1.1                                      | 58                                       | 1.8                  | 250                    |
| PLY17BS1721R5B2 | 1.7                                      | 88                                       | 1.5                  | 250                    |
| PLY17BS2921R2B2 | 2.9                                      | 140                                      | 1.2                  | 250                    |
| PLY17BS3721R0B2 | 3.7                                      | 180                                      | 1.0                  | 250                    |
| PLY17BS5620R8B2 | 5.6                                      | 280                                      | 0.8                  | 250                    |
| PLY17BS7820R7B2 | 7.8                                      | 390                                      | 0.7                  | 250                    |
| PLY17BS9320R6B2 | 9.3                                      | 460                                      | 0.6                  | 250                    |

Operating Temperature Range (Ambient Temperature Range+Winding Temperature Rise): -25°C to 120°C Winding Temperature Rise (at Rated Current) (max.): 60K

## Microwave Absorber



EA10 Series



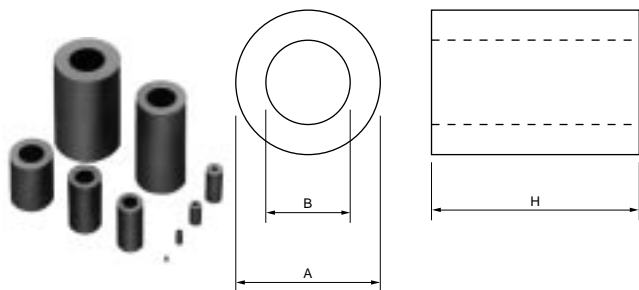
EA20/21/22/30 Series

| Part Number | Applicable Frequency<br>(Typ.) | Thickness<br>(Typ.)<br>(mm) | Flame Resistance | Halogen      | Operating Temperature Range |
|-------------|--------------------------------|-----------------------------|------------------|--------------|-----------------------------|
| EA1026A100  | 20.0GHz                        | 1.0                         | UL94V-0          | Halogen Free | -40 to +80°C                |
| EA1026A160  | 11.5GHz                        | 1.6                         | UL94V-0          | Halogen Free | -40 to +80°C                |
| EA1026A180  | 10.0GHz                        | 1.8                         | UL94V-0          | Halogen Free | -40 to +80°C                |
| EA1046A180  | 5.8GHz                         | 1.8                         | UL94V-0          | Halogen Free | -40 to +80°C                |
| EA1075A270  | 2.5GHz                         | 2.7                         | UL94V-0          | Halogen Free | -40 to +80°C                |
| EA2070A020  | 0.1 to 3.0GHz                  | 0.20                        | -                | Halogen Free | -40 to +120°C               |
| EA2070A050  | 0.1 to 3.0GHz                  | 0.50                        | -                | Halogen Free | -40 to +120°C               |
| EA2070A100  | 0.1 to 3.0GHz                  | 1.00                        | -                | Halogen Free | -40 to +120°C               |
| EA2070B005  | 0.1 to 3.0GHz                  | 0.05                        | -                | Halogen Free | -40 to +120°C               |
| EA2070B010  | 0.1 to 3.0GHz                  | 0.10                        | -                | Halogen Free | -40 to +120°C               |
| EA2070B013  | 0.1 to 3.0GHz                  | 0.13                        | -                | Halogen Free | -40 to +120°C               |
| EA2070B020  | 0.1 to 3.0GHz                  | 0.20                        | -                | Halogen Free | -40 to +120°C               |
| EA2070B050  | 0.1 to 3.0GHz                  | 0.50                        | -                | Halogen Free | -40 to +120°C               |
| EA2100A020  | 0.1 to 3.0GHz                  | 0.20                        | UL94V-0          | -            | -40 to +120°C               |
| EA2100A050  | 0.1 to 3.0GHz                  | 0.50                        | UL94V-0          | -            | -40 to +120°C               |
| EA2100A100  | 0.1 to 3.0GHz                  | 1.00                        | UL94V-0          | -            | -40 to +120°C               |
| EA2100B020  | 0.1 to 3.0GHz                  | 0.20                        | UL94V-0          | -            | -40 to +120°C               |
| EA2100B050  | 0.1 to 3.0GHz                  | 0.50                        | UL94V-0          | -            | -40 to +120°C               |
| EA2100B100  | 0.1 to 3.0GHz                  | 1.00                        | UL94V-0          | -            | -40 to +120°C               |
| EA3008U025  | 0.1 to 3.0GHz                  | 0.25                        | UL94V-0          | Halogen Free | -40 to +120°C               |
| EA3008U035  | 0.1 to 3.0GHz                  | 0.35                        | UL94V-0          | Halogen Free | -40 to +120°C               |
| EA3008U050  | 0.1 to 3.0GHz                  | 0.50                        | UL94V-0          | Halogen Free | -40 to +120°C               |
| EA3008U100  | 0.1 to 3.0GHz                  | 1.00                        | UL94V-0          | Halogen Free | -40 to +120°C               |
| EA3008U250  | 0.1 to 3.0GHz                  | 2.50                        | UL94V-0          | Halogen Free | -40 to +120°C               |

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## Ferrite Core for EMI Suppression

Beads Core



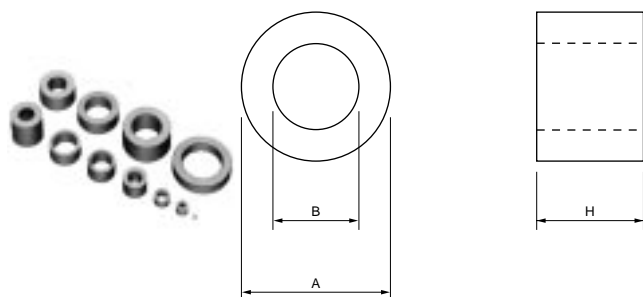
| Part Number      | Phi A: Outer Dimension (mm) | Phi B: Inner Dimension (mm) | H: Length Dimension (mm) | Impedance at 100MHz (1 turn) (ohm) | Note             |
|------------------|-----------------------------|-----------------------------|--------------------------|------------------------------------|------------------|
| FSRH021049RNB01B | 1.95                        | 1.02                        | 4.9                      | 34                                 | -                |
| FSRH030060RNB00B | 3.36                        | 1.1                         | 6.0                      | 74                                 | -                |
| FSRH041D85RNB00B | 3.6                         | 1.0                         | 4.85                     | 66                                 | -                |
| FSRH044C00RNB00B | 3.6                         | 1.5                         | 3.0                      | 40                                 | -                |
| FSRH044040RNB00B | 3.6                         | 1.5                         | 4.0                      | 50                                 | -                |
| FSRH044050RNB00B | 3.6                         | 1.5                         | 5.0                      | 53                                 | -                |
| FSRH050050RN000B | 4.7                         | 1.4                         | 5.0                      | 64                                 | -                |
| FSRH050100RN000B | 4.7                         | 1.4                         | 10.0                     | 120                                | -                |
| FSRH060080RN001B | 5.5                         | 2.7                         | 8.0                      | 64                                 | -                |
| FSRH070080RN000B | 7.0                         | 4.0                         | 8.0                      | 59                                 | -                |
| FSRH070140RN000B | 7.0                         | 4.0                         | 14.0                     | 82                                 | -                |
| FSRH074140RNF00B | 7.0                         | 4.0                         | 14.0                     | 93                                 | Division Type    |
| FSRH090100RN000B | 9.0                         | 5.0                         | 10.0                     | 72                                 | For USB/IEEE1394 |
| FSRH090160RN000B | 9.0                         | 5.0                         | 16.0                     | 100                                | For USB/IEEE1394 |
| FSRH090200RN000T | 9.0                         | 5.0                         | 20.0                     | 135                                | For USB/IEEE1394 |
| FSRH091100RN000B | 9.0                         | 4.3                         | 10.0                     | 94                                 | For USB/IEEE1394 |
| FSRH091160RN000T | 9.0                         | 4.3                         | 16.0                     | 145                                | For USB/IEEE1394 |
| FSRH100150RTB00T | 10.0                        | 6.0                         | 15.0                     | 92                                 | For USB/IEEE1394 |
| FSRH120150RT000T | 12.0                        | 7.0                         | 15.0                     | 90                                 | For USB/IEEE1394 |
| FSRH120200RT000T | 12.0                        | 7.0                         | 20.0                     | 120                                | For USB/IEEE1394 |
| FSRH120285RT000T | 12.0                        | 7.0                         | 28.5                     | 175                                | For USB/IEEE1394 |
| FSRH121150RT000T | 12.0                        | 5.6                         | 15.0                     | 130                                | For USB/IEEE1394 |
| FSRH121200RT000T | 12.0                        | 5.6                         | 20.0                     | 170                                | For USB/IEEE1394 |
| FSRH121250RT000T | 12.0                        | 5.6                         | 25.0                     | 223                                | For USB/IEEE1394 |
| FSRH142150RX000T | 14.0                        | 8.0                         | 15.0                     | 97                                 | -                |
| FSRH142200RX000T | 14.0                        | 8.0                         | 20.0                     | 127                                | -                |
| FSRH142280RX000T | 14.0                        | 8.0                         | 28.0                     | 170                                | -                |
| FSRH162200RN000T | 16.3                        | 8.3                         | 20.0                     | 162                                | -                |
| FSRH162280RN000T | 16.3                        | 8.3                         | 28.0                     | 225                                | -                |
| FSRH190285RT000T | 19.0                        | 10.0                        | 28.5                     | 200                                | -                |

# Ferrite Core for EMI Suppression

## Ring Core

Noise Suppression Products/EMI Suppression Filters

2



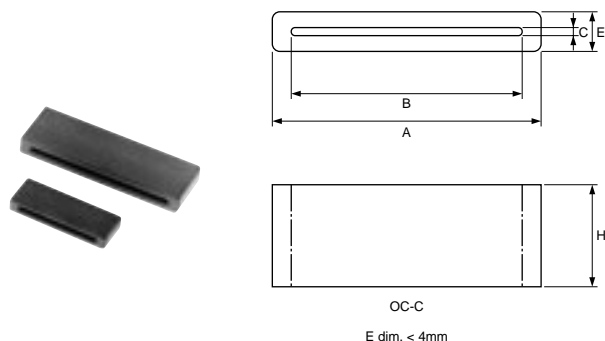
| Part Number      | Phi A: Outer Dimension (mm) | Phi B: Inner Dimension (mm) | H: Length Dimension (mm) | Impedance at 100MHz (3 turns) (ohm) | Note             |
|------------------|-----------------------------|-----------------------------|--------------------------|-------------------------------------|------------------|
| FSRB041020RNB00B | 3.6                         | 1.0                         | 2.0                      | 267                                 | -                |
| FSRB044020RNB00B | 3.6                         | 1.5                         | 2.0                      | 178                                 | -                |
| FSRB060040RNB00B | 5.5                         | 2.7                         | 4.0                      | 290                                 | -                |
| FSRB071040RNB00B | 7.0                         | 4.0                         | 4.0                      | 222                                 | -                |
| FSRB090060RNB00B | 9.0                         | 5.0                         | 6.0                      | 356                                 | For USB/IEEE1394 |
| FSRB090080RNB00B | 9.0                         | 5.0                         | 8.0                      | 466                                 | For USB/IEEE1394 |
| FSRB091060RNB00B | 9.0                         | 4.3                         | 6.0                      | 451                                 | For USB/IEEE1394 |
| FSRB091080RNB00B | 9.0                         | 4.3                         | 8.0                      | 582                                 | For USB/IEEE1394 |
| FSRB100030RTB00B | 10.0                        | 6.0                         | 3.0                      | 170                                 | For USB/IEEE1394 |
| FSRB100060RTB00B | 10.0                        | 6.0                         | 6.0                      | 316                                 | For USB/IEEE1394 |
| FSRB100080RTB00B | 10.0                        | 6.0                         | 8.0                      | 388                                 | For USB/IEEE1394 |
| FSRB100100RTB00B | 10.0                        | 6.0                         | 10.0                     | 475                                 | For USB/IEEE1394 |
| FSRB120050RTB00T | 12.0                        | 7.0                         | 5.0                      | 264                                 | For USB/IEEE1394 |
| FSRB120060RTB00T | 12.0                        | 7.0                         | 6.0                      | 310                                 | For USB/IEEE1394 |
| FSRB120080RTB00T | 12.0                        | 7.0                         | 8.0                      | 400                                 | For USB/IEEE1394 |
| FSRB120100RTB00T | 12.0                        | 7.0                         | 10.0                     | 450                                 | For USB/IEEE1394 |
| FSRB121060RTB00T | 12.0                        | 5.6                         | 6.0                      | 406                                 | For USB/IEEE1394 |
| FSRB121080RTB00T | 12.0                        | 5.6                         | 8.0                      | 490                                 | For USB/IEEE1394 |
| FSRB121100RTB00T | 12.0                        | 5.6                         | 10.0                     | 535                                 | For USB/IEEE1394 |
| FSRB140080RNB00T | 14.0                        | 10.0                        | 8.0                      | 340                                 | -                |
| FSRB140140RNB00T | 14.0                        | 10.0                        | 14.0                     | 450                                 | -                |
| FSRB142060RXB00T | 14.0                        | 8.0                         | 6.0                      | 325                                 | -                |
| FSRB142080RXB00T | 14.0                        | 8.0                         | 8.0                      | 415                                 | -                |
| FSRB142100RXB00T | 14.0                        | 8.0                         | 10.0                     | 492                                 | -                |
| FSRB143140RNB00T | 14.0                        | 11.0                        | 14.0                     | 364                                 | -                |
| FSRB160G75RN000T | 16.0                        | 12.0                        | 7.75                     | 247                                 | -                |
| FSRB162030RNB00T | 16.3                        | 8.3                         | 3.0                      | 230                                 | -                |
| FSRB162050RN000T | 16.3                        | 8.3                         | 5.0                      | 310                                 | -                |
| FSRB162100RNB00T | 16.3                        | 8.3                         | 10.0                     | 557                                 | -                |
| FSRB162160RN000T | 16.3                        | 8.3                         | 16.0                     | 640                                 | -                |
| FSRB190060RTB00T | 19.0                        | 10.0                        | 6.0                      | 360                                 | -                |
| FSRB190100RT000T | 19.0                        | 10.0                        | 10.0                     | 480                                 | -                |
| FSRB190180RT000T | 19.0                        | 10.0                        | 18.0                     | 619                                 | -                |
| FSRB221080RNB00T | 22.0                        | 14.0                        | 8.0                      | 360                                 | -                |
| FSRB250120RT000T | 25.0                        | 15.0                        | 12.0                     | 470                                 | -                |
| FSRB300080RT000T | 30.0                        | 20.0                        | 8.0                      | 300                                 | -                |



## Ferrite Core for EMI Suppression

## Flat Cables

## ● Thin Type



| Part Number      | A: Outer Dimension (mm) | B: Inner Dimension (mm) | H: Length Dimension (mm) | E: Width Dimension (mm) | C: Gap Dimension (mm) | Impedance at 100MHz (ohm) | Number of Turn | Note            |
|------------------|-------------------------|-------------------------|--------------------------|-------------------------|-----------------------|---------------------------|----------------|-----------------|
| FSRC080030RTB00B | 8.0                     | 6.0                     | 3.0                      | 2.7                     | 0.7                   | 28                        | 1              | Thin Type       |
| FSRC080060RTB00B | 8.0                     | 6.0                     | 6.0                      | 2.7                     | 0.7                   | 39                        | 1              | Thin Type       |
| FSRC080090RTB00B | 8.0                     | 6.0                     | 9.0                      | 2.7                     | 0.7                   | 51                        | 1              | Thin Type       |
| FSRC080120RTB00B | 8.0                     | 6.0                     | 12.0                     | 2.7                     | 0.7                   | 63                        | 1              | Thin Type       |
| FSRC100030RTB00B | 10.0                    | 8.0                     | 3.0                      | 1.85                    | 0.7                   | 24                        | 1              | Ultra Thin Type |
| FSRC100040RTB00B | 10.0                    | 8.0                     | 4.0                      | 1.85                    | 0.7                   | 25                        | 1              | Ultra Thin Type |
| FSRC100050RTB00B | 10.0                    | 8.0                     | 5.0                      | 1.85                    | 0.7                   | 27                        | 1              | Ultra Thin Type |
| FSRC100060RTB00B | 10.0                    | 8.0                     | 6.0                      | 1.85                    | 0.7                   | 30                        | 1              | Ultra Thin Type |
| FSRC120020RXB00B | 11.5                    | 8.0                     | 2.0                      | 3.0                     | 0.7                   | 24                        | 1              | Thin Type       |
| FSRC120050RXB00B | 11.5                    | 8.0                     | 5.0                      | 3.0                     | 0.7                   | 35                        | 1              | Thin Type       |
| FSRC120060RXB00B | 11.5                    | 8.0                     | 6.0                      | 3.0                     | 0.7                   | 36                        | 1              | Thin Type       |
| FSRC120090RXB00B | 11.5                    | 8.0                     | 9.0                      | 3.0                     | 0.7                   | 48                        | 1              | Thin Type       |
| FSRC120120RXB00B | 11.5                    | 8.0                     | 12.0                     | 3.0                     | 0.7                   | 59                        | 1              | Thin Type       |
| FSRC150030RTB00B | 15.6                    | 13.6                    | 3.0                      | 1.85                    | 0.7                   | 25                        | 1              | Ultra Thin Type |
| FSRC150040RTB00B | 15.6                    | 13.6                    | 4.0                      | 1.85                    | 0.7                   | 28                        | 1              | Ultra Thin Type |
| FSRC150050RTB00B | 15.6                    | 13.6                    | 5.0                      | 1.85                    | 0.7                   | 29                        | 1              | Ultra Thin Type |
| FSRC150060RTB00B | 15.6                    | 13.6                    | 6.0                      | 1.85                    | 0.7                   | 30                        | 1              | Ultra Thin Type |
| FSRC160040RTB00T | 15.6                    | 13.6                    | 4.0                      | 2.8                     | 0.7                   | 26                        | 1              | Thin Type       |
| FSRC171030RTB00T | 17.0                    | 13.6                    | 3.0                      | 2.8                     | 0.7                   | 26                        | 1              | Thin Type       |
| FSRC171060RTB00T | 17.0                    | 13.6                    | 6.0                      | 2.8                     | 0.7                   | 37                        | 1              | Thin Type       |
| FSRC171090RTB00T | 17.0                    | 13.6                    | 9.0                      | 2.8                     | 0.7                   | 44                        | 1              | Thin Type       |
| FSRC171120RTB00T | 17.0                    | 13.6                    | 12.0                     | 2.8                     | 0.7                   | 53                        | 1              | Thin Type       |
| FSRC200120RTB00T | 20.0                    | 16.0                    | 12.0                     | 3.0                     | 0.8                   | 60                        | 1              | Thin Type       |
| FSRC222060RX000T | 22.8                    | 18.7                    | 6.0                      | 2.8                     | 0.7                   | 37                        | 1              | Thin Type       |
| FSRC222090RX000T | 22.8                    | 18.7                    | 9.0                      | 2.8                     | 0.7                   | 46                        | 1              | Thin Type       |
| FSRC222120RX000T | 22.8                    | 18.7                    | 12.0                     | 2.8                     | 0.7                   | 53                        | 1              | Thin Type       |
| FSRC230060RTB00T | 22.7                    | 20.6                    | 6.0                      | 1.75                    | 0.6                   | 33                        | 1              | Ultra Thin Type |
| FSRC230090RTB00T | 22.7                    | 20.6                    | 9.0                      | 1.75                    | 0.6                   | 39                        | 1              | Ultra Thin Type |
| FSRC253060RT000T | 25.0                    | 21.0                    | 6.0                      | 3.0                     | 0.8                   | 41                        | 1              | Thin Type       |
| FSRC253090RT000T | 25.0                    | 21.0                    | 9.0                      | 3.0                     | 0.8                   | 48                        | 1              | Thin Type       |
| FSRC253120RT000T | 25.0                    | 21.0                    | 12.0                     | 3.0                     | 0.8                   | 56                        | 1              | Thin Type       |
| FSRC280060RX000T | 28.0                    | 24.0                    | 6.0                      | 3.5                     | 0.8                   | 39                        | 1              | Thin Type       |
| FSRC280090RX000T | 28.0                    | 24.0                    | 9.0                      | 3.5                     | 0.8                   | 46                        | 1              | Thin Type       |
| FSRC280120RX000T | 28.0                    | 24.0                    | 12.0                     | 3.5                     | 0.8                   | 56                        | 1              | Thin Type       |
| FSRC360060RX000T | 36.0                    | 32.0                    | 6.0                      | 3.5                     | 0.8                   | 40                        | 1              | Thin Type       |
| FSRC360090RX000T | 36.0                    | 32.0                    | 9.0                      | 3.5                     | 0.8                   | 47                        | 1              | Thin Type       |
| FSRC360120RX000T | 36.0                    | 32.0                    | 12.0                     | 3.5                     | 0.8                   | 56                        | 1              | Thin Type       |
| FSRC420060RX000T | 42.0                    | 38.0                    | 6.0                      | 2.8                     | 0.7                   | 42                        | 1              | Thin Type       |
| FSRC420090RX000T | 42.0                    | 38.0                    | 9.0                      | 2.8                     | 0.7                   | 48                        | 1              | Thin Type       |

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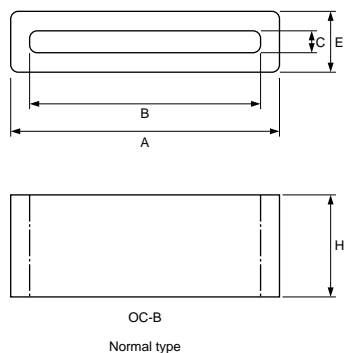
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| Part Number      | A: Outer Dimension (mm) | B: Inner Dimension (mm) | H: Length Dimension (mm) | E: Width Dimension (mm) | C: Gap Dimension (mm) | Impedance at 100MHz (ohm) | Number of Turn | Note      |
|------------------|-------------------------|-------------------------|--------------------------|-------------------------|-----------------------|---------------------------|----------------|-----------|
| FSRC420120RX000T | 42.0                    | 38.0                    | 12.0                     | 2.8                     | 0.7                   | 57                        | 1              | Thin Type |

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Noise Suppression Products/EMI Suppression Filters

● Standard Type



| Part Number      | A: Outer Dimension (mm) | B: Inner Dimension (mm) | H: Length Dimension (mm) | E: Width Dimension (mm) | C: Gap Dimension (mm) | Impedance at 100MHz (ohm) | Number of Turn | Note |
|------------------|-------------------------|-------------------------|--------------------------|-------------------------|-----------------------|---------------------------|----------------|------|
| FSRC140030RXB00T | 13.8                    | 9.6                     | 3.0                      | 5.0                     | 0.8                   | 30                        | 1              | -    |
| FSRC140040RXB00T | 13.8                    | 9.6                     | 4.0                      | 5.0                     | 0.8                   | 36                        | 1              | -    |
| FSRC140060RXB00T | 13.8                    | 9.6                     | 6.0                      | 5.0                     | 0.8                   | 44                        | 1              | -    |
| FSRC140090RXB00T | 13.8                    | 9.6                     | 9.0                      | 5.0                     | 0.8                   | 66                        | 1              | -    |
| FSRC140120RX000T | 13.8                    | 9.6                     | 12.0                     | 5.0                     | 0.8                   | 78                        | 1              | -    |
| FSRC140200RXB00T | 13.8                    | 9.6                     | 20.0                     | 5.0                     | 0.8                   | 126                       | 1              | -    |
| FSRC141060RXB00T | 13.8                    | 10.8                    | 6.0                      | 5.0                     | 1.3                   | 39                        | 1              | -    |
| FSRC141120RXB00T | 13.8                    | 10.8                    | 12.0                     | 5.0                     | 1.3                   | 62                        | 1              | -    |
| FSRC170030RTB00T | 17.0                    | 13.0                    | 3.0                      | 5.0                     | 0.8                   | 26                        | 1              | -    |
| FSRC170060RTB00T | 17.0                    | 13.0                    | 6.0                      | 5.0                     | 0.8                   | 37                        | 1              | -    |
| FSRC170090RTB00T | 17.0                    | 13.0                    | 9.0                      | 5.0                     | 0.8                   | 53                        | 1              | -    |
| FSRC170120RT000T | 17.0                    | 13.0                    | 12.0                     | 5.0                     | 0.8                   | 75                        | 1              | -    |
| FSRC170200RT000T | 17.0                    | 13.0                    | 20.0                     | 5.0                     | 0.8                   | 107                       | 1              | -    |
| FSRC192060RTB00T | 18.8                    | 14.6                    | 6.0                      | 5.9                     | 1.6                   | 35                        | 1              | -    |
| FSRC192090RTB00T | 18.8                    | 14.6                    | 9.0                      | 5.9                     | 1.6                   | 47                        | 1              | -    |
| FSRC192120RTB00T | 18.8                    | 14.6                    | 12.0                     | 5.9                     | 1.6                   | 58                        | 1              | -    |
| FSRC240150RX000T | 23.8                    | 18.8                    | 15.0                     | 6.3                     | 1.1                   | 76                        | 1              | -    |
| FSRC250070RT000T | 25.0                    | 21.0                    | 7.0                      | 5.0                     | 0.8                   | 45                        | 1              | -    |
| FSRC250120RT000T | 25.0                    | 21.0                    | 12.0                     | 5.0                     | 0.8                   | 70                        | 1              | -    |
| FSRC252050RT000T | 25.0                    | 21.0                    | 5.0                      | 5.0                     | 1.2                   | 35                        | 1              | -    |
| FSRC252060RT000T | 25.0                    | 21.0                    | 6.0                      | 5.0                     | 1.2                   | 39                        | 1              | -    |
| FSRC252090RT000T | 25.0                    | 21.0                    | 9.0                      | 5.0                     | 1.2                   | 47                        | 1              | -    |
| FSRC252120RT000T | 25.0                    | 21.0                    | 12.0                     | 5.0                     | 1.2                   | 55                        | 1              | -    |
| FSRC260060RT000T | 26.0                    | 22.0                    | 6.0                      | 5.0                     | 1.2                   | 38                        | 1              | -    |
| FSRC260090RT000T | 26.0                    | 22.0                    | 9.0                      | 5.0                     | 1.2                   | 49                        | 1              | -    |
| FSRC271113RN000T | 27.0                    | 22.25                   | 11.3                     | 8.05                    | 2.15                  | 55                        | 1              | -    |
| FSRC310060RN000T | 31.0                    | 27.0                    | 6.0                      | 5.0                     | 0.8                   | 47                        | 1              | -    |
| FSRC310090RN000T | 31.0                    | 27.0                    | 9.0                      | 5.0                     | 0.8                   | 58                        | 1              | -    |
| FSRC310120RN000T | 31.0                    | 27.0                    | 12.0                     | 5.0                     | 0.8                   | 70                        | 1              | -    |
| FSRC310200RN000T | 31.0                    | 27.0                    | 20.0                     | 5.0                     | 0.8                   | 102                       | 1              | -    |
| FSRC320080RT000T | 32.0                    | 27.8                    | 8.0                      | 6.5                     | 1.3                   | 45                        | 1              | -    |
| FSRC320120RT000T | 32.0                    | 27.8                    | 12.0                     | 6.5                     | 1.3                   | 60                        | 1              | -    |
| FSRC401120RT000T | 40.0                    | 35.0                    | 12.0                     | 4.5                     | 1.0                   | 65                        | 1              | -    |
| FSRC410150RN000T | 41.2                    | 35.0                    | 15.0                     | 7.7                     | 1.5                   | 70                        | 1              | -    |
| FSRC560120RT000T | 56.2                    | 52.2                    | 12.0                     | 4.8                     | 0.9                   | 70                        | 1              | -    |
| FSRC580060RT000T | 58.0                    | 52.8                    | 6.0                      | 6.7                     | 1.5                   | 46                        | 1              | -    |

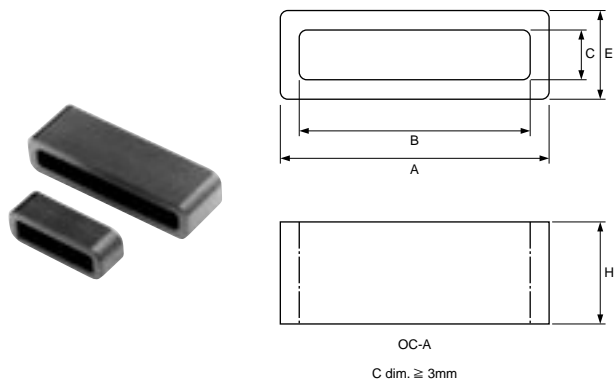
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| Part Number      | A: Outer Dimension (mm) | B: Inner Dimension (mm) | H: Length Dimension (mm) | E: Width Dimension (mm) | C: Gap Dimension (mm) | Impedance at 100MHz (ohm) | Number of Turn | Note          |
|------------------|-------------------------|-------------------------|--------------------------|-------------------------|-----------------------|---------------------------|----------------|---------------|
| FSRC580120RT000T | 58.0                    | 52.8                    | 12.0                     | 6.7                     | 1.5                   | 62                        | 1              | -             |
| FSRC581180RTF00T | 58.0                    | 52.8                    | 18.0                     | 6.2                     | 1.0                   | 95                        | 1              | Division Type |
| FSRC600100RN000T | 60.0                    | 48.0                    | 10.0                     | 12.0                    | 1.9                   | 69                        | 1              | -             |
| FSRC600127RN000T | 60.0                    | 48.0                    | 12.7                     | 12.0                    | 1.9                   | 72                        | 1              | -             |
| FSRC800127RTF30T | 80.0                    | 68.6                    | 12.7                     | 10.0                    | 2.6                   | 71                        | 1              | Division Type |

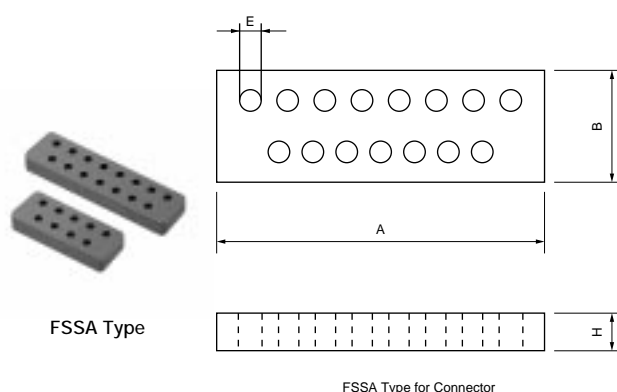
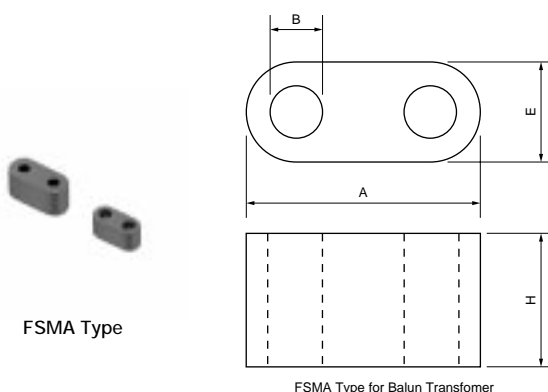
## Wide Type



| Part Number      | A: Outer Dimension (mm) | B: Inner Dimension (mm) | H: Length Dimension (mm) | E: Width Dimension (mm) | C: Gap Dimension (mm) | Impedance at 100MHz (ohm) | Number of Turn | Note                       |
|------------------|-------------------------|-------------------------|--------------------------|-------------------------|-----------------------|---------------------------|----------------|----------------------------|
| FSRC142150RTB00T | 14.0                    | 9.0                     | 15.0                     | 9.0                     | 4.0                   | 90                        | 1              | Wide Type                  |
| FSRC190060RTB00T | 19.0                    | 15.0                    | 6.0                      | 7.0                     | 3.5                   | 34                        | 1              | Wide Type                  |
| FSRC191085RT000T | 19.0                    | 13.0                    | 8.5                      | 18.0                    | 12.0                  | 44                        | 1              | for USB Connector (Type B) |
| FSRC321100RN000T | 32.0                    | 28.0                    | 10.0                     | 7.5                     | 3.5                   | 35                        | 1              | Wide Type                  |
| FSRC321150RN000T | 32.0                    | 28.0                    | 15.0                     | 7.5                     | 3.5                   | 47                        | 1              | Wide Type                  |
| FSRC440100RN000T | 44.0                    | 40.0                    | 10.0                     | 7.5                     | 3.8                   | 34                        | 1              | Wide Type                  |

## Ferrite Core for EMI Suppression

### Multi-hole Cores



| Part Number      | A: Outer Dimension (mm) | B, E: Hole Dimension (mm) | H: Length Dimension (mm) | B, E: Width Dimension (mm) | Impedance at 100MHz (ohm) | Note          |
|------------------|-------------------------|---------------------------|--------------------------|----------------------------|---------------------------|---------------|
| FSMA050020RLB00B | 5.20                    | 1.30                      | 2.00                     | 2.50                       | 21                        | -             |
| FSMA050020RTB00B | 5.20                    | 1.30                      | 2.00                     | 2.50                       | 20                        | -             |
| FSMA072020RLB00B | 6.50                    | 1.10                      | 2.00                     | 3.00                       | 23                        | -             |
| FSSA160025RN000T | 16.0                    | 1.15                      | 2.5                      | 6.4                        | 43                        | for Connector |
| FSSA240025RN000T | 24.0                    | 1.15                      | 2.5                      | 6.4                        | 45                        | for Connector |

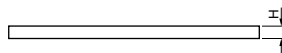
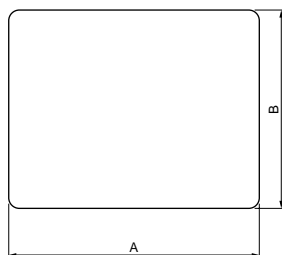
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# Ferrite Core for EMI Suppression

## Plate Cores

Noise Suppression Products/EMI Suppression Filters

2

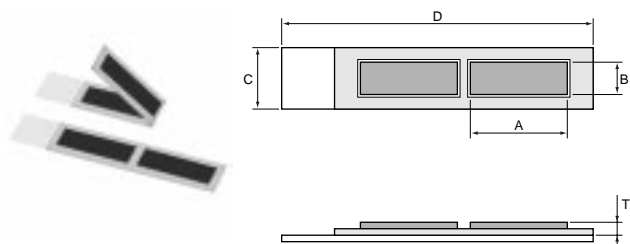


| Part Number      | A: Outer Dimension (mm) | B: Width Dimension (mm) | H: Thickness Dimension (mm) | Note |
|------------------|-------------------------|-------------------------|-----------------------------|------|
| FSSA100008RN000T | 10.0                    | 10.0                    | 0.8                         | -    |
| FSSA100010RN000T | 10.0                    | 10.0                    | 1.0                         | -    |
| FSSA100Z55RN000T | 10.0                    | 10.0                    | 0.55                        | -    |
| FSSA101005RN000T | 10.0                    | 5.0                     | 0.5                         | -    |
| FSSA130004RN000T | 13.0                    | 5.0                     | 0.4                         | -    |
| FSSA150015RN000T | 15.5                    | 15.5                    | 1.5                         | -    |
| FSSA151005RN000T | 15.0                    | 5.0                     | 0.5                         | -    |
| FSSA190010RN000T | 19.0                    | 6.0                     | 1.0                         | -    |
| FSSA202010RN000T | 20.0                    | 16.5                    | 1.0                         | -    |
| FSSA202015RN000T | 20.0                    | 16.5                    | 1.5                         | -    |
| FSSA203005RN000T | 20.0                    | 20.0                    | 0.5                         | -    |
| FSSA203010RN000T | 20.0                    | 20.0                    | 1.0                         | -    |
| FSSA203015RN000T | 20.0                    | 20.0                    | 1.5                         | -    |
| FSSA205007RN000T | 20.0                    | 7.0                     | 0.7                         | -    |
| FSSA220007RN000T | 22.0                    | 7.0                     | 0.7                         | -    |
| FSSA222011RT000T | 22.8                    | 16.5                    | 1.1                         | -    |
| FSSA230008RN000T | 23.0                    | 23.0                    | 0.8                         | -    |
| FSSA230010RN000T | 23.0                    | 23.0                    | 1.0                         | -    |
| FSSA230015RN000T | 23.0                    | 23.0                    | 1.5                         | -    |
| FSSA250004RN000T | 25.0                    | 7.0                     | 0.4                         | -    |
| FSSA270010RN000T | 27.0                    | 20.0                    | 1.0                         | -    |
| FSSA271010RN000T | 27.0                    | 27.0                    | 1.0                         | -    |
| FSSA271020RN000T | 27.0                    | 27.0                    | 2.0                         | -    |
| FSSA271050RN000T | 27.0                    | 27.0                    | 5.0                         | -    |
| FSSA272010RN000T | 27.0                    | 15.0                    | 1.0                         | -    |
| FSSA290005RN000T | 29.0                    | 5.0                     | 0.5                         | -    |
| FSSA300010RN000T | 30.0                    | 30.0                    | 1.0                         | -    |
| FSSA401010RN000T | 41.5                    | 10.0                    | 1.0                         | -    |
| FSSA450015RT000T | 45.0                    | 10.0                    | 1.5                         | -    |
| FSSA530015RT000T | 52.8                    | 28.5                    | 1.5                         | -    |
| FSSA600020RN000T | 60.5                    | 30.6                    | 2.0                         | -    |

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## Ferrite Core for EMI Suppression

Thin Type Sandwich Core



| Part Number             | A: Outer Dimension of Ferrite Core (mm) | B: Width Dimension (mm) | T: Thickness Dimension of Ferrite Core (mm) | C: Width of Adhesion Film (mm) | D: Length of Adhesion Film (mm) | Impedance at 100MHz (ohm) | Mass (g) | Note          |
|-------------------------|---|-------------------------|---|--------------------------------|---------------------------------|---------------------------|----------|---------------|
| <b>FSSA101005RNN00S</b> | 10.0                                    | 5.0                     | 0.5   | 9.5                            | 35.0                            | 28                        | 0.28     | -             |
| <b>FSSA101005RNN30S</b> | 10.0                                    | 5.0                     | 0.5   | 9.5                            | 35.0                            | 28                        | 0.28     | Tape: UL510FR |
| <b>FSSA151005RNN00S</b> | 15.0                                    | 5.0                     | 0.5   | 9.5                            | 45.0                            | 28                        | 0.43     | -             |
| <b>FSSA151005RNN30S</b> | 15.0                                    | 5.0                     | 0.5   | 9.5                            | 45.0                            | 28                        | 0.43     | Tape: UL510FR |
| <b>FSSA205007RNN00S</b> | 20.0                                    | 7.0                     | 0.7   | 13.5                           | 55.0                            | 34                        | 0.98     | -             |
| <b>FSSA205007RNN30S</b> | 20.0                                    | 7.0                     | 0.7   | 13.5                           | 55.0                            | 34                        | 0.98     | Tape: UL510FR |
| <b>FSSA220007RNN00S</b> | 22.0                                    | 7.0                     | 0.7   | 11.5                           | 59.0                            | 35                        | 1.17     | -             |
| <b>FSSA220007RNN30S</b> | 22.0                                    | 7.0                     | 0.7   | 11.5                           | 59.0                            | 35                        | 1.17     | Tape: UL510FR |
| <b>FSSA290005RNN00S</b> | 29.0                                    | 5.0                     | 0.5   | 9.5                            | 73.0                            | 29                        | 0.79     | -             |
| <b>FSSA290005RNN30S</b> | 29.0                                    | 5.0                     | 0.5   | 9.5                            | 73.0                            | 29                        | 0.79     | Tape: UL510FR |

# 3

## Inductors (Coils)

Chip Inductor (Chip Coil)

Balun

Coupler

● **Part Numbering**

**Chip Inductors (Chip Coils)**

(Part Number) 

|    |   |    |   |   |     |   |   |   |   |
|----|---|----|---|---|-----|---|---|---|---|
| LQ | H | 32 | M | N | 331 | K | 2 | 3 | L |
| ①  | ② | ③  | ④ | ⑤ | ⑥   | ⑦ | ⑧ | ⑨ | ⑩ |

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)
- ④ Applications and Characteristics

| Code | Series | Applications and Characteristics          |
|------|--------|---|
| H    | LQG    | Monolithic Air-core                       |
| N    | LQM    | for Resonant Circuit                      |
| D    |        | for Choke (Low-current DC Power Supplies) |
| F    | LQP    | for Choke (DC Power Supplies)             |
| M    |        | Film Type                                 |
| T    | LQW    | Film Type (Low DC Resistance Type)        |
| A    |        | High Q Type (UHF-SHF)                     |
| H    | LQH    | High Q Type (VHF-UHF)                     |
| N    |        | for Resonant Circuit                      |
| M    |        | for Resonant Circuit (Coating Type)       |
| D    |        | for Choke                                 |
| C    |        | for Choke (Coating Type)                  |
| S    |        | for Choke (Magnetically Shielded Type)    |
| H    |        | for High-frequency Resonant Circuit       |
| P    |        | LQM/LQH                                   |

- ⑤ Category
- ⑥ Inductance

Expressed by three-digit alphanumerics. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits. If inductance is less than 0.1μH, the inductance code is expressed by a combination of two figures and the capital letter "N", and the unit of inductance is nano-henry (nH). The capital letter "N" indicates the unit of "nH", and also expresses a decimal point. In this case, all figures are significant digits.

- ⑦ Inductance Tolerance
- ⑧ Features (Except LQH□□P/LQM□□P)

| Code | Features                                 | Series                  |
|------|--|-------------------------|
| 0    | Standard Type                            | LQG/LQP/LQW/LQM*1/LQH*2 |
| 1    | High-Q/<br>Low DC Resistance             | LQW15A/18A/2BH          |
|      | Standard Type                            | LQM21N                  |
| 2    | Standard Type                            | LQH32C/32M              |
| 3    | Low DC Resistance                        | LQH32C                  |
| 5    | Low Profile Type                         | LQH2MC/32C              |
| 7    | Large Current Type                       | LQM21F                  |
| 8    | Low DC Resistance<br>/Large Current Type |                         |

\*1 : Except LQM21N Series  
\*2 : Except LQH32 Series



⑨ Thickness (LQH□□P/LQM□□P only)

| Code | Dimensions (T) |
|------|----------------|
| C    | 0.5mm          |
| E    | 0.7mm          |
| 0    | 0.85mm         |
| G    | 0.9mm          |
| J    | 1.1mm          |
| M    | 1.4mm          |
| N    | 1.55mm         |
| P    | 1.65mm         |
| R    | 1.85mm         |

⑨ Electrode (Except LQH□□P/LQM□□P)

•Lead (Pb) Free

| Code | Electrode | Series                     |
|------|-----------|----------------------------|
| 0    | Sn        | LQG18H/LQP03T/LQW□□A/LQM   |
| 2    |           | LQG15H/LQP□□T/□□M/LQH2MC   |
| 3    | LF Solder | LQW□□H/LQH (Except LQH2MC) |
| 4    | Au        | LQP03T                     |

⑨ Specification (LQH□□P/LQM□□P only)

| Code | Specification |
|------|---------------|
| 0    | Standard Type |

⑩ Packaging

**Micro Chip Transformer**

(Part Number) 

|    |   |    |   |   |    |    |   |   |
|----|---|----|---|---|----|----|---|---|
| DX | P | 18 | B | N | 75 | 14 | T | L |
| ①  | ② | ③  | ④ | ⑤ | ⑥  | ⑦  | ⑧ | ⑨ |

- ① Product ID
- ② Structure
- ③ Dimensions (L×W)
- ④ Type of Transformer

| Code | Type of Transformer |
|------|---------------------|
| B    | Balun               |
| C    | Coupler             |

- ⑤ Category
- ⑥ Port Impedance

| Code | Port Impedance |
|------|----------------|
| 50   | 50Ω            |
| 75   | 75Ω            |



## ⑦ Characteristics (Balun)

| Code      | Impedance Ratio |
|-----------|-----------------|
| <b>11</b> | one to one      |
| <b>14</b> | one to four     |

## ⑦ Characteristics (Coupler)

| Code      | Coupling Loss |
|-----------|---------------|
| <b>10</b> | 10 dB         |
| <b>15</b> | 15 dB         |

## ⑧ Frequency Range

| Code     | Frequency Range   |
|----------|-------------------|
| <b>T</b> | 50MHz to 870MHz   |
| <b>H</b> | 470MHz to 702MHz  |
| <b>S</b> | 950MHz to 2150MHz |

## ⑨ Packaging



| Application          | Part Number                | Structure                        | Dimensions   |                           | Inductance Range (H)             |             |       |    |     |      |    |     |       |        |        |        |  |        |         |        |
|----------------------|----------------------------|----------------------------------|--------------|---------------------------|----------------------------------|-------------|-------|----|-----|------|----|-----|-------|--------|--------|--------|--|--------|---------|--------|
|                      |                            |                                  | (mm)         | EIA Code                  | 1n                               | 10n         | 100n  | 1μ | 10μ | 100μ | 1m | 10m |       |        |        |        |  |        |         |        |
| High Frequency Range | LQG15H                     | Multilayer                       | 1.0<br>±0.5  | 0402                      | 1.0nH                            |             |       |    |     |      |    |     | 270nH |        |        |        |  |        |         |        |
|                      | LQG18H                     |                                  | 1.6<br>±0.8  | 0603                      | 1.2nH                            |             |       |    |     |      |    |     |       | 100nH  |        |        |  |        |         |        |
|                      | Tight Inductance Tolerance | LQP02T                           | Film         | 0.4<br>±0.2               | 01005                            | 0.4nH       |       |    |     |      |    |     |       | 18nH   |        |        |  |        |         |        |
|                      |                            | LQP03T_00                        |              | 0.6<br>±0.3               | 0201                             | 0.6nH       |       |    |     |      |    |     |       |        | 56nH   |        |  |        |         |        |
|                      |                            | LQP03T_02                        |              | 0.6<br>±0.3               | 0201                             |             |       |    |     |      |    |     |       |        | 68nH   |        |  |        | 120nH   |        |
|                      |                            | LQP03T_04                        |              | 0.6<br>±0.3               | 0201                             | 0.6nH       |       |    |     |      |    |     |       |        | 56nH   |        |  |        |         |        |
|                      |                            | LQP15T                           |              | 1.0<br>±0.5               | 0402                             | 1.0nH       |       |    |     |      |    |     |       |        | 18nH   |        |  |        |         |        |
|                      |                            | LQP15M                           |              | 1.0<br>±0.5               | 0402                             | 1.0nH       |       |    |     |      |    |     |       |        | 33nH   |        |  |        |         |        |
|                      |                            | LQP18M                           |              | 1.6<br>±0.8               | 0603                             | 1.3nH       |       |    |     |      |    |     |       |        | 100nH  |        |  |        |         |        |
|                      |                            | LQW04A                           |              | Wire Wound (air core)     | 0.8<br>±0.4                      | 03015       | 1.1nH |    |     |      |    |     |       |        |        | 33nH   |  |        |         |        |
|                      |                            | LQW15A                           |              |                           | 1.0<br>±0.5                      | 0402        | 1.3nH |    |     |      |    |     |       |        |        | 120nH  |  |        |         |        |
|                      |                            | LQW18A                           |              |                           | 1.6<br>±0.8                      | 0603        | 2.2nH |    |     |      |    |     |       |        |        | 470nH  |  |        |         |        |
|                      |                            | LQW2BH                           |              |                           | 2.0<br>±1.5                      | 0805        | 2.7nH |    |     |      |    |     |       |        |        | 470nH  |  |        |         |        |
|                      |                            | LQW31H                           |              |                           | 3.2<br>±1.6                      | 1206        | 8.8nH |    |     |      |    |     |       |        |        | 100nH  |  |        |         |        |
|                      |                            | LQW21H                           |              | Wire Wound (ferrite core) | 2.0<br>±1.25                     | 0805        |       |    |     |      |    |     |       |        |        | 0.47μH |  |        |         | 2.2μH  |
|                      |                            | LQH31H                           |              |                           | 3.2<br>±1.6                      | 1206        |       |    |     |      |    |     |       |        |        | 54nH   |  |        |         | 880nH  |
|                      |                            | General Frequency Range          |              | LQM18N                    | Magnetically Shielded Multilayer | 1.6<br>±0.8 | 0603  |    |     |      |    |     |       |        |        | 47nH   |  |        |         | 2200nH |
| LQM21N               | 2.0<br>±1.25               |                                  | 0805         |                           |                                  |             |       |    |     |      |    |     |       | 0.1μH  |        |        |  | 4.7μH  |         |        |
| LQH31M               | Wire Wound (ferrite core)  |                                  | 3.2<br>±1.6  | 1206                      |                                  |             |       |    |     |      |    |     |       | 0.15μH |        |        |  | 100μH  |         |        |
| LQH32M               |                            |                                  | 3.2<br>±2.5  | 1210                      |                                  |             |       |    |     |      |    |     |       | 1.0μH  |        |        |  | 560μH  |         |        |
| LQH43M(N)            |                            |                                  | 3.2<br>±4.5  | 1812                      |                                  |             |       |    |     |      |    |     |       | 1.0μH  |        |        |  | 2200μH |         |        |
| DC-DC Converter Type | LQM21P                     | Magnetically Shielded Multilayer | 2.0<br>±1.25 | 0805                      |                                  |             |       |    |     |      |    |     |       | 0.47μH |        |        |  | 2.2μH  |         |        |
|                      | LQM2MP_G0                  |                                  | 2.0<br>±1.6  | 0806                      |                                  |             |       |    |     |      |    |     |       |        | 0.47μH |        |  |        | 4.7μH   |        |
|                      | LQM2HP_J0                  |                                  | 2.5<br>±2.0  | 1008                      |                                  |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 3.3μH   |        |
|                      | LQM2HP_G0                  |                                  | 2.5<br>±2.0  | 1008                      |                                  |             |       |    |     |      |    |     |       |        | 0.47μH |        |  |        | 4.7μH   |        |
|                      | LQM2HP_E0                  |                                  | 2.5<br>±2.0  | 1008                      |                                  |             |       |    |     |      |    |     |       |        |        |        |  |        | 0.56μH  |        |
|                      | LQM31P_00                  |                                  | 3.2<br>±1.6  | 1206                      |                                  |             |       |    |     |      |    |     |       |        | 0.47μH |        |  |        | 4.7μH   |        |
|                      | LQM31P_C0                  |                                  | 3.2<br>±1.6  | 1206                      |                                  |             |       |    |     |      |    |     |       |        | 0.47μH |        |  |        | 2.2μH   |        |
|                      | LQH2MC_02                  |                                  | Wire Wound   | 2.0<br>±1.6               | 0806                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 82μH    |        |
|                      | LQH2MC_52                  |                                  |              | 2.0<br>±1.6               | 0806                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 22μH    |        |
|                      | LQH3NP_M0                  |                                  |              | 3.0<br>±3.0               | 1212                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 100μH   |        |
|                      | LQH3NP_J0                  |                                  |              | 3.0<br>±3.0               | 1212                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 47μH    |        |
|                      | LQH3NP_G0                  |                                  |              | 3.0<br>±3.0               | 1212                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 250μH   |        |
|                      | LQH32P                     |                                  |              | 3.2<br>±2.5               | 1210                             |             |       |    |     |      |    |     |       |        |        | 0.47μH |  |        |         | 22μH   |
|                      | LQH44P                     |                                  |              | 4.0<br>±4.0               | 1515                             |             |       |    |     |      |    |     |       |        |        | 1.0μH  |  |        |         | 22μH   |
|                      | LQH55P                     |                                  |              | 5.7<br>±5.2               | 2220                             |             |       |    |     |      |    |     |       |        |        | 1.2μH  |  |        |         | 22μH   |
| Chokes               | LQM18F                     | Magnetically Shielded Multilayer |              | 1.6<br>±0.8               | 0603                             |             |       |    |     |      |    |     |       | 1.0μH  |        |        |  |        | 10μH    |        |
|                      | LQM21D                     |                                  |              | 2.0<br>±1.25              | 0805                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 47μH    |        |
|                      | LQM21F                     |                                  |              | 2.0<br>±1.25              | 0805                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 47μH    |        |
|                      | LQM31F                     |                                  |              | 3.2<br>±1.6               | 1206                             |             |       |    |     |      |    |     |       |        |        |        |  |        | 10μH    |        |
|                      | LQH31C                     | Wire Wound                       |              | 3.2<br>±1.6               | 1206                             |             |       |    |     |      |    |     |       |        | 0.12μH |        |  |        | 100μH   |        |
|                      | LQH32C                     |                                  |              | 3.2<br>±2.5               | 1210                             |             |       |    |     |      |    |     |       |        | 0.15μH |        |  |        | 560μH   |        |
|                      | LQH32C_53                  |                                  |              | 3.2<br>±2.5               | 1210                             |             |       |    |     |      |    |     |       |        | 1.0μH  |        |  |        | 100μH   |        |
|                      | LQH43C                     |                                  | 3.2<br>±4.5  | 1812                      |                                  |             |       |    |     |      |    |     |       | 1.0μH  |        |        |  | 470μH  |         |        |
|                      | LQH55D                     |                                  | 5.7<br>±5.0  | 2220                      |                                  |             |       |    |     |      |    |     |       |        | 0.12μH |        |  |        | 10000μH |        |
|                      | LQH66S                     |                                  | 6.3<br>±6.3  | 2525                      |                                  |             |       |    |     |      |    |     |       |        | 0.27μH |        |  |        | 10000μH |        |

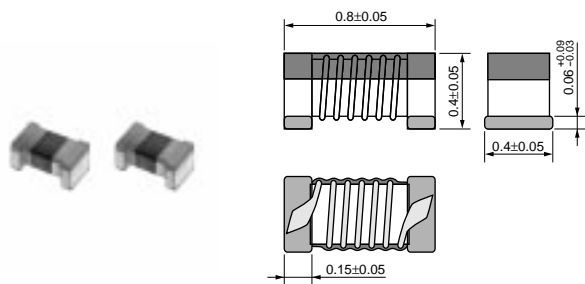
CAUTION : Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering Chip Inductor (Chip Coil).  
Do not use water-soluble flux.

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## Chip Inductor (Chip Coil)


for High Frequency Horizontal Wire Wound

## ● LQW04A Series (03015)



(in mm)

| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (GHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW04AN1N1C00 | 1.1 ±0.2nH      | 100                  | 990                | 0.03 max.           | 15       | 250                  | 20.0                                  |
| LQW04AN1N1D00 | 1.1 ±0.5nH      | 100                  | 990                | 0.03 max.           | 15       | 250                  | 20.0                                  |
| LQW04AN1N8C00 | 1.8 ±0.2nH      | 100                  | 700                | 0.06 max.           | 15       | 250                  | 17.0                                  |
| LQW04AN1N8D00 | 1.8 ±0.5nH      | 100                  | 700                | 0.06 max.           | 15       | 250                  | 17.0                                  |
| LQW04AN2N7C00 | 2.7 ±0.2nH      | 100                  | 570                | 0.07 max.           | 15       | 250                  | 15.0                                  |
| LQW04AN2N7D00 | 2.7 ±0.5nH      | 100                  | 570                | 0.07 max.           | 15       | 250                  | 15.0                                  |
| LQW04AN3N0C00 | 3.0 ±0.2nH      | 100                  | 620                | 0.07 max.           | 15       | 250                  | 13.0                                  |
| LQW04AN3N0D00 | 3.0 ±0.5nH      | 100                  | 620                | 0.07 max.           | 15       | 250                  | 13.0                                  |
| LQW04AN3N6C00 | 3.6 ±0.2nH      | 100                  | 530                | 0.10 max.           | 15       | 250                  | 13.0                                  |
| LQW04AN3N6D00 | 3.6 ±0.5nH      | 100                  | 530                | 0.10 max.           | 15       | 250                  | 13.0                                  |
| LQW04AN3N9C00 | 3.9 ±0.2nH      | 100                  | 530                | 0.10 max.           | 15       | 250                  | 12.0                                  |
| LQW04AN3N9D00 | 3.9 ±0.5nH      | 100                  | 530                | 0.10 max.           | 15       | 250                  | 12.0                                  |
| LQW04AN4N3C00 | 4.3 ±0.2nH      | 100                  | 530                | 0.10 max.           | 15       | 250                  | 11.0                                  |
| LQW04AN4N3D00 | 4.3 ±0.5nH      | 100                  | 530                | 0.10 max.           | 15       | 250                  | 11.0                                  |
| LQW04AN4N7C00 | 4.7 ±0.2nH      | 100                  | 440                | 0.14 max.           | 20       | 250                  | 10.0                                  |
| LQW04AN4N7D00 | 4.7 ±0.5nH      | 100                  | 440                | 0.14 max.           | 20       | 250                  | 10.0                                  |
| LQW04AN5N1C00 | 5.1 ±0.2nH      | 100                  | 470                | 0.12 max.           | 20       | 250                  | 10.0                                  |
| LQW04AN5N1D00 | 5.1 ±0.5nH      | 100                  | 470                | 0.12 max.           | 20       | 250                  | 10.0                                  |
| LQW04AN5N6C00 | 5.6 ±0.2nH      | 100                  | 470                | 0.12 max.           | 20       | 250                  | 9.0                                   |
| LQW04AN5N6D00 | 5.6 ±0.5nH      | 100                  | 470                | 0.12 max.           | 20       | 250                  | 9.0                                   |
| LQW04AN6N2C00 | 6.2 ±0.2nH      | 100                  | 390                | 0.19 max.           | 20       | 250                  | 9.0                                   |
| LQW04AN6N2D00 | 6.2 ±0.5nH      | 100                  | 390                | 0.19 max.           | 20       | 250                  | 9.0                                   |
| LQW04AN6N8C00 | 6.8 ±0.2nH      | 100                  | 440                | 0.14 max.           | 20       | 250                  | 9.0                                   |
| LQW04AN6N8D00 | 6.8 ±0.5nH      | 100                  | 440                | 0.14 max.           | 20       | 250                  | 9.0                                   |
| LQW04AN7N5C00 | 7.5 ±0.2nH      | 100                  | 440                | 0.14 max.           | 20       | 250                  | 8.0                                   |
| LQW04AN7N5D00 | 7.5 ±0.5nH      | 100                  | 440                | 0.14 max.           | 20       | 250                  | 8.0                                   |
| LQW04AN8N2C00 | 8.2 ±0.2nH      | 100                  | 350                | 0.23 max.           | 20       | 250                  | 8.0                                   |
| LQW04AN8N2D00 | 8.2 ±0.5nH      | 100                  | 350                | 0.23 max.           | 20       | 250                  | 8.0                                   |
| LQW04AN9N1C00 | 9.1 ±0.2nH      | 100                  | 400                | 0.16 max.           | 20       | 250                  | 7.0                                   |
| LQW04AN9N1D00 | 9.1 ±0.5nH      | 100                  | 400                | 0.16 max.           | 20       | 250                  | 7.0                                   |
| LQW04AN10NH00 | 10 ±3%          | 100                  | 330                | 0.26 max.           | 20       | 250                  | 7.0                                   |
| LQW04AN10NJ00 | 10 ±5%          | 100                  | 330                | 0.26 max.           | 20       | 250                  | 7.0                                   |
| LQW04AN11NH00 | 11 ±3%          | 100                  | 310                | 0.28 max.           | 15       | 250                  | 7.0                                   |
| LQW04AN11NJ00 | 11 ±5%          | 100                  | 310                | 0.28 max.           | 15       | 250                  | 7.0                                   |
| LQW04AN12NH00 | 12 ±3%          | 100                  | 310                | 0.28 max.           | 15       | 250                  | 6.0                                   |
| LQW04AN12NJ00 | 12 ±5%          | 100                  | 310                | 0.28 max.           | 15       | 250                  | 6.0                                   |
| LQW04AN13NH00 | 13 ±3%          | 100                  | 280                | 0.34 max.           | 15       | 250                  | 6.0                                   |
| LQW04AN13NJ00 | 13 ±5%          | 100                  | 280                | 0.34 max.           | 15       | 250                  | 6.0                                   |
| LQW04AN15NH00 | 15 ±3%          | 100                  | 240                | 0.48 max.           | 15       | 250                  | 5.5                                   |

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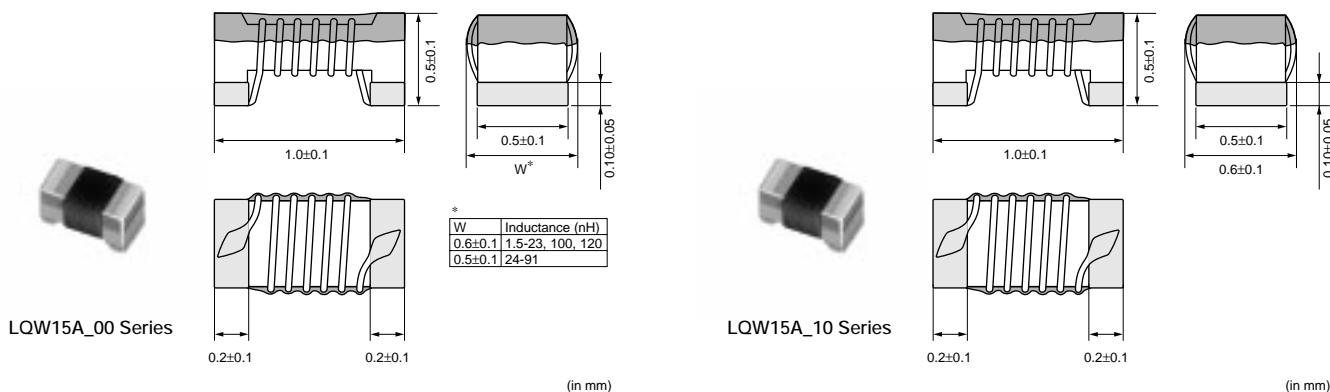
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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (GHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW04AN15NJ00 | 15 ±5%          | 100                  | 240                | 0.48 max.           | 15       | 250                  | 5.5                                   |
| LQW04AN16NH00 | 16 ±3%          | 100                  | 270                | 0.38 max.           | 15       | 250                  | 5.5                                   |
| LQW04AN16NJ00 | 16 ±5%          | 100                  | 270                | 0.38 max.           | 15       | 250                  | 5.5                                   |
| LQW04AN18NH00 | 18 ±3%          | 100                  | 220                | 0.54 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN18NJ00 | 18 ±5%          | 100                  | 220                | 0.54 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN19NH00 | 19 ±3%          | 100                  | 160                | 0.73 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN19NJ00 | 19 ±5%          | 100                  | 160                | 0.73 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN20NH00 | 20 ±3%          | 100                  | 210                | 0.56 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN20NJ00 | 20 ±5%          | 100                  | 210                | 0.56 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN22NH00 | 22 ±3%          | 100                  | 200                | 0.63 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN22NJ00 | 22 ±5%          | 100                  | 200                | 0.63 max.           | 15       | 250                  | 5.0                                   |
| LQW04AN23NH00 | 23 ±3%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN23NJ00 | 23 ±5%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN24NH00 | 24 ±3%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN24NJ00 | 24 ±5%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN25NH00 | 25 ±3%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN25NJ00 | 25 ±5%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN27NH00 | 27 ±3%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN27NJ00 | 27 ±5%          | 100                  | 160                | 0.95 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN33NH00 | 33 ±3%          | 100                  | 140                | 1.11 max.           | 15       | 250                  | 4.0                                   |
| LQW04AN33NJ00 | 33 ±5%          | 100                  | 140                | 1.11 max.           | 15       | 250                  | 4.0                                   |


 Operating Temperature Range: -55 to +125°C  
Only for reflow soldering.

### ● LQW15A Series (0402)




| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (GHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW15AN1N5B00 | 1.5 ±0.1nH      | 100                  | 1000               | 0.03 max.           | 10       | 250                  | 18.0                                  |
| LQW15AN1N5C00 | 1.5 ±0.2nH      | 100                  | 1000               | 0.03 max.           | 10       | 250                  | 18.0                                  |
| LQW15AN1N5D00 | 1.5 ±0.5nH      | 100                  | 1000               | 0.03 max.           | 10       | 250                  | 18.0                                  |
| LQW15AN2N4B00 | 2.4 ±0.1nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N4C00 | 2.4 ±0.2nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N4D00 | 2.4 ±0.5nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N5B00 | 2.5 ±0.1nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N5C00 | 2.5 ±0.2nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N5D00 | 2.5 ±0.5nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N7B00 | 2.7 ±0.1nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N7C00 | 2.7 ±0.2nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N7D00 | 2.7 ±0.5nH      | 100                  | 850                | 0.05 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N9B00 | 2.9 ±0.1nH      | 100                  | 750                | 0.07 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN2N9C00 | 2.9 ±0.2nH      | 100                  | 750                | 0.07 max.           | 20       | 250                  | 15.0                                  |

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (GHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW15AN2N9D00 | 2.9 ±0.5nH      | 100                  | 750                | 0.07 max.           | 20       | 250                  | 15.0                                  |
| LQW15AN3N9B00 | 3.9 ±0.1nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN3N9C00 | 3.9 ±0.2nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN3N9D00 | 3.9 ±0.5nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N1B00 | 4.1 ±0.1nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N1C00 | 4.1 ±0.2nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N1D00 | 4.1 ±0.5nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N3B00 | 4.3 ±0.1nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N3C00 | 4.3 ±0.2nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N3D00 | 4.3 ±0.5nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 10.0                                  |
| LQW15AN4N7B00 | 4.7 ±0.1nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN4N7C00 | 4.7 ±0.2nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN4N7D00 | 4.7 ±0.5nH      | 100                  | 750                | 0.07 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN5N1B00 | 5.1 ±0.1nH      | 100                  | 600                | 0.12 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN5N1C00 | 5.1 ±0.2nH      | 100                  | 600                | 0.12 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN5N1D00 | 5.1 ±0.5nH      | 100                  | 600                | 0.12 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN5N8B00 | 5.8 ±0.1nH      | 100                  | 700                | 0.12 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN5N8C00 | 5.8 ±0.2nH      | 100                  | 700                | 0.12 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN5N8D00 | 5.8 ±0.5nH      | 100                  | 700                | 0.12 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN6N2B00 | 6.2 ±0.1nH      | 100                  | 700                | 0.09 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN6N2C00 | 6.2 ±0.2nH      | 100                  | 700                | 0.09 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN6N2D00 | 6.2 ±0.5nH      | 100                  | 700                | 0.09 max.           | 25       | 250                  | 8.0                                   |
| LQW15AN6N8G00 | 6.8 ±2%         | 100                  | 700                | 0.09 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN6N8H00 | 6.8 ±3%         | 100                  | 700                | 0.09 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN6N8J00 | 6.8 ±5%         | 100                  | 700                | 0.09 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN7N3G00 | 7.3 ±2%         | 100                  | 570                | 0.13 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN7N3H00 | 7.3 ±3%         | 100                  | 570                | 0.13 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN7N3J00 | 7.3 ±5%         | 100                  | 570                | 0.13 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN7N5G00 | 7.5 ±2%         | 100                  | 570                | 0.13 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN7N5H00 | 7.5 ±3%         | 100                  | 570                | 0.13 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN7N5J00 | 7.5 ±5%         | 100                  | 570                | 0.13 max.           | 25       | 250                  | 6.0                                   |
| LQW15AN8N2G00 | 8.2 ±2%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN8N2H00 | 8.2 ±3%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN8N2J00 | 8.2 ±5%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN8N7G00 | 8.7 ±2%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN8N7H00 | 8.7 ±3%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN8N7J00 | 8.7 ±5%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN9N1G00 | 9.1 ±2%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN9N1H00 | 9.1 ±3%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN9N1J00 | 9.1 ±5%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN9N5G00 | 9.5 ±2%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN9N5H00 | 9.5 ±3%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN9N5J00 | 9.5 ±5%         | 100                  | 540                | 0.14 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN10NG00 | 10 ±2%          | 100                  | 500                | 0.17 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN10NH00 | 10 ±3%          | 100                  | 500                | 0.17 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN10NJ00 | 10 ±5%          | 100                  | 500                | 0.17 max.           | 25       | 250                  | 5.5                                   |
| LQW15AN11NG00 | 11 ±2%          | 100                  | 500                | 0.14 max.           | 30       | 250                  | 5.5                                   |
| LQW15AN11NH00 | 11 ±3%          | 100                  | 500                | 0.14 max.           | 30       | 250                  | 5.5                                   |
| LQW15AN11NJ00 | 11 ±5%          | 100                  | 500                | 0.14 max.           | 30       | 250                  | 5.5                                   |
| LQW15AN12NG00 | 12 ±2%          | 100                  | 500                | 0.14 max.           | 30       | 250                  | 5.5                                   |
| LQW15AN12NH00 | 12 ±3%          | 100                  | 500                | 0.14 max.           | 30       | 250                  | 5.5                                   |
| LQW15AN12NJ00 | 12 ±5%          | 100                  | 500                | 0.14 max.           | 30       | 250                  | 5.5                                   |
| LQW15AN13NG00 | 13 ±2%          | 100                  | 430                | 0.21 max.           | 25       | 250                  | 5.0                                   |
| LQW15AN13NH00 | 13 ±3%          | 100                  | 430                | 0.21 max.           | 25       | 250                  | 5.0                                   |
| LQW15AN13NJ00 | 13 ±5%          | 100                  | 430                | 0.21 max.           | 25       | 250                  | 5.0                                   |

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (GHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW15AN15NG00 | 15 ±2%          | 100                  | 460                | 0.16 max.           | 30       | 250                  | 5.0                                   |
| LQW15AN15NH00 | 15 ±3%          | 100                  | 460                | 0.16 max.           | 30       | 250                  | 5.0                                   |
| LQW15AN15NJ00 | 15 ±5%          | 100                  | 460                | 0.16 max.           | 30       | 250                  | 5.0                                   |
| LQW15AN16NG00 | 16 ±2%          | 100                  | 370                | 0.24 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN16NH00 | 16 ±3%          | 100                  | 370                | 0.24 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN16NJ00 | 16 ±5%          | 100                  | 370                | 0.24 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN18NG00 | 18 ±2%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN18NH00 | 18 ±3%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN18NJ00 | 18 ±5%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN19NG00 | 19 ±2%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN19NH00 | 19 ±3%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN19NJ00 | 19 ±5%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.5                                   |
| LQW15AN20NG00 | 20 ±2%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.0                                   |
| LQW15AN20NH00 | 20 ±3%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.0                                   |
| LQW15AN20NJ00 | 20 ±5%          | 100                  | 370                | 0.27 max.           | 25       | 250                  | 4.0                                   |
| LQW15AN22NG00 | 22 ±2%          | 100                  | 310                | 0.30 max.           | 25       | 250                  | 4.0                                   |
| LQW15AN22NH00 | 22 ±3%          | 100                  | 310                | 0.30 max.           | 25       | 250                  | 4.0                                   |
| LQW15AN22NJ00 | 22 ±5%          | 100                  | 310                | 0.30 max.           | 25       | 250                  | 4.0                                   |
| LQW15AN23NG00 | 23 ±2%          | 100                  | 310                | 0.30 max.           | 25       | 250                  | 3.8                                   |
| LQW15AN23NH00 | 23 ±3%          | 100                  | 310                | 0.30 max.           | 25       | 250                  | 3.8                                   |
| LQW15AN23NJ00 | 23 ±5%          | 100                  | 310                | 0.30 max.           | 25       | 250                  | 3.8                                   |
| LQW15AN24NG00 | 24 ±2%          | 100                  | 280                | 0.52 max.           | 25       | 250                  | 3.5                                   |
| LQW15AN24NH00 | 24 ±3%          | 100                  | 280                | 0.52 max.           | 25       | 250                  | 3.5                                   |
| LQW15AN24NJ00 | 24 ±5%          | 100                  | 280                | 0.52 max.           | 25       | 250                  | 3.5                                   |
| LQW15AN27NG00 | 27 ±2%          | 100                  | 280                | 0.52 max.           | 25       | 250                  | 3.5                                   |
| LQW15AN27NH00 | 27 ±3%          | 100                  | 280                | 0.52 max.           | 25       | 250                  | 3.5                                   |
| LQW15AN27NJ00 | 27 ±5%          | 100                  | 280                | 0.52 max.           | 25       | 250                  | 3.5                                   |
| LQW15AN30NG00 | 30 ±2%          | 100                  | 270                | 0.58 max.           | 25       | 250                  | 3.3                                   |
| LQW15AN30NH00 | 30 ±3%          | 100                  | 270                | 0.58 max.           | 25       | 250                  | 3.3                                   |
| LQW15AN30NJ00 | 30 ±5%          | 100                  | 270                | 0.58 max.           | 25       | 250                  | 3.3                                   |
| LQW15AN33NG00 | 33 ±2%          | 100                  | 260                | 0.63 max.           | 25       | 250                  | 3.2                                   |
| LQW15AN33NH00 | 33 ±3%          | 100                  | 260                | 0.63 max.           | 25       | 250                  | 3.2                                   |
| LQW15AN33NJ00 | 33 ±5%          | 100                  | 260                | 0.63 max.           | 25       | 250                  | 3.2                                   |
| LQW15AN36NG00 | 36 ±2%          | 100                  | 260                | 0.63 max.           | 25       | 250                  | 3.1                                   |
| LQW15AN36NH00 | 36 ±3%          | 100                  | 260                | 0.63 max.           | 25       | 250                  | 3.1                                   |
| LQW15AN36NJ00 | 36 ±5%          | 100                  | 260                | 0.63 max.           | 25       | 250                  | 3.1                                   |
| LQW15AN39NG00 | 39 ±2%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN39NH00 | 39 ±3%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN39NJ00 | 39 ±5%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN40NG00 | 40 ±2%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN40NH00 | 40 ±3%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN40NJ00 | 40 ±5%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN43NG00 | 43 ±2%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN43NH00 | 43 ±3%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN43NJ00 | 43 ±5%          | 100                  | 250                | 0.70 max.           | 25       | 250                  | 3.0                                   |
| LQW15AN47NG00 | 47 ±2%          | 100                  | 210                | 1.08 max.           | 25       | 200                  | 2.9                                   |
| LQW15AN47NH00 | 47 ±3%          | 100                  | 210                | 1.08 max.           | 25       | 200                  | 2.9                                   |
| LQW15AN47NJ00 | 47 ±5%          | 100                  | 210                | 1.08 max.           | 25       | 200                  | 2.9                                   |
| LQW15AN51NG00 | 51 ±2%          | 100                  | 210                | 1.08 max.           | 25       | 200                  | 2.85                                  |
| LQW15AN51NH00 | 51 ±3%          | 100                  | 210                | 1.08 max.           | 25       | 200                  | 2.85                                  |
| LQW15AN51NJ00 | 51 ±5%          | 100                  | 210                | 1.08 max.           | 25       | 200                  | 2.85                                  |
| LQW15AN56NG00 | 56 ±2%          | 100                  | 200                | 1.17 max.           | 25       | 200                  | 2.8                                   |
| LQW15AN56NH00 | 56 ±3%          | 100                  | 200                | 1.17 max.           | 25       | 200                  | 2.8                                   |
| LQW15AN56NJ00 | 56 ±5%          | 100                  | 200                | 1.17 max.           | 25       | 200                  | 2.8                                   |
| LQW15AN62NG00 | 62 ±2%          | 100                  | 145                | 1.82 max.           | 20       | 200                  | 2.6                                   |

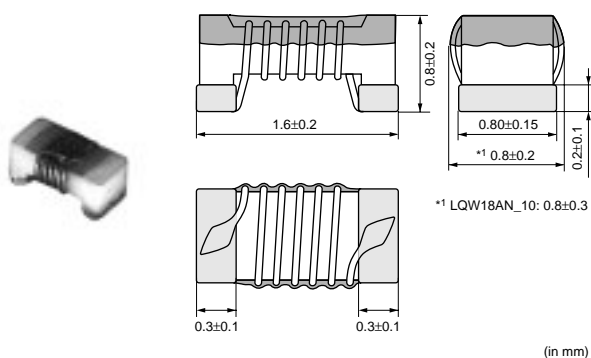
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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (GHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW15AN62NH00 | 62 ±3%          | 100                  | 145                | 1.82 max.           | 20       | 200                  | 2.6                                   |
| LQW15AN62NJ00 | 62 ±5%          | 100                  | 145                | 1.82 max.           | 20       | 200                  | 2.6                                   |
| LQW15AN68NG00 | 68 ±2%          | 100                  | 140                | 1.96 max.           | 20       | 200                  | 2.5                                   |
| LQW15AN68NJ00 | 68 ±5%          | 100                  | 140                | 1.96 max.           | 20       | 200                  | 2.5                                   |
| LQW15AN72NG00 | 72 ±2%          | 100                  | 135                | 2.10 max.           | 20       | 150                  | 2.5                                   |
| LQW15AN72NJ00 | 72 ±5%          | 100                  | 135                | 2.10 max.           | 20       | 150                  | 2.5                                   |
| LQW15AN75NG00 | 75 ±2%          | 100                  | 135                | 2.10 max.           | 20       | 150                  | 2.4                                   |
| LQW15AN75NJ00 | 75 ±5%          | 100                  | 135                | 2.10 max.           | 20       | 150                  | 2.4                                   |
| LQW15AN82NG00 | 82 ±2%          | 100                  | 130                | 2.24 max.           | 20       | 150                  | 2.3                                   |
| LQW15AN82NJ00 | 82 ±5%          | 100                  | 130                | 2.24 max.           | 20       | 150                  | 2.3                                   |
| LQW15AN91NG00 | 91 ±2%          | 100                  | 125                | 2.38 max.           | 20       | 150                  | 2.1                                   |
| LQW15AN91NJ00 | 91 ±5%          | 100                  | 125                | 2.38 max.           | 20       | 150                  | 2.1                                   |
| LQW15ANR10J00 | 100 ±5%         | 100                  | 120                | 2.52 max.           | 20       | 150                  | 1.5                                   |
| LQW15ANR12J00 | 120 ±5%         | 100                  | 110                | 2.66 max.           | 20       | 150                  | 1.0                                   |
| LQW15AN1N3C10 | 1.3 ±0.2nH      | 100                  | 1200               | 0.017 max.          | 20       | 250                  | 16.0                                  |
| LQW15AN1N3D10 | 1.3 ±0.5nH      | 100                  | 1200               | 0.017 max.          | 20       | 250                  | 16.0                                  |
| LQW15AN2N2C10 | 2.2 ±0.2nH      | 100                  | 1000               | 0.027 max.          | 25       | 250                  | 14.0                                  |
| LQW15AN2N2D10 | 2.2 ±0.5nH      | 100                  | 1000               | 0.027 max.          | 25       | 250                  | 14.0                                  |
| LQW15AN2N4D10 | 2.4 ±0.5nH      | 100                  | 1000               | 0.027 max.          | 25       | 250                  | 14.0                                  |
| LQW15AN3N3D10 | 3.3 ±0.5nH      | 100                  | 900                | 0.040 max.          | 30       | 250                  | 12.0                                  |
| LQW15AN3N4C10 | 3.4 ±0.2nH      | 100                  | 900                | 0.040 max.          | 30       | 250                  | 12.0                                  |
| LQW15AN3N4D10 | 3.4 ±0.5nH      | 100                  | 900                | 0.040 max.          | 30       | 250                  | 12.0                                  |
| LQW15AN3N6C10 | 3.6 ±0.2nH      | 100                  | 900                | 0.040 max.          | 30       | 250                  | 9.5                                   |
| LQW15AN3N6D10 | 3.6 ±0.5nH      | 100                  | 900                | 0.040 max.          | 30       | 250                  | 9.5                                   |
| LQW15AN3N9D10 | 3.9 ±0.5nH      | 100                  | 900                | 0.040 max.          | 30       | 250                  | 7.0                                   |
| LQW15AN4N7D10 | 4.7 ±0.5nH      | 100                  | 800                | 0.051 max.          | 30       | 250                  | 8.0                                   |
| LQW15AN5N1C10 | 5.1 ±0.2nH      | 100                  | 800                | 0.051 max.          | 30       | 250                  | 8.0                                   |
| LQW15AN5N1D10 | 5.1 ±0.5nH      | 100                  | 800                | 0.051 max.          | 30       | 250                  | 8.0                                   |
| LQW15AN5N6C10 | 5.6 ±0.2nH      | 100                  | 800                | 0.051 max.          | 30       | 250                  | 8.0                                   |
| LQW15AN5N6D10 | 5.6 ±0.5nH      | 100                  | 800                | 0.051 max.          | 30       | 250                  | 8.0                                   |

Operating Temperature Range: -55 to +125°C  
Only for reflow soldering.

### ● LQW18A Series (0603)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW18AN2N2D00 | 2.2 ±0.5nH      | 100                  | 700                | 0.049 max.          | 16       | 250                  | 6000                                  |
| LQW18AN3N6C00 | 3.6 ±0.2nH      | 100                  | 850                | 0.059 max.          | 25       | 250                  | 6000                                  |
| LQW18AN3N6D00 | 3.6 ±0.5nH      | 100                  | 850                | 0.059 max.          | 25       | 250                  | 6000                                  |
| LQW18AN3N9C00 | 3.9 ±0.2nH      | 100                  | 850                | 0.059 max.          | 35       | 250                  | 6000                                  |
| LQW18AN3N9D00 | 3.9 ±0.5nH      | 100                  | 850                | 0.059 max.          | 35       | 250                  | 6000                                  |

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW18AN4N3C00 | 4.3 ±0.2nH      | 100                  | 850                | 0.059 max.          | 35       | 250                  | 6000                                  |
| LQW18AN4N3D00 | 4.3 ±0.5nH      | 100                  | 850                | 0.059 max.          | 35       | 250                  | 6000                                  |
| LQW18AN4N7D00 | 4.7 ±0.5nH      | 100                  | 850                | 0.059 max.          | 35       | 250                  | 6000                                  |
| LQW18AN5N6C00 | 5.6 ±0.2nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN5N6D00 | 5.6 ±0.5nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN6N2C00 | 6.2 ±0.2nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN6N2D00 | 6.2 ±0.5nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN6N8C00 | 6.8 ±0.2nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN6N8D00 | 6.8 ±0.5nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN7N5D00 | 7.5 ±0.5nH      | 100                  | 750                | 0.082 max.          | 35       | 250                  | 6000                                  |
| LQW18AN8N2D00 | 8.2 ±0.5nH      | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN8N7D00 | 8.7 ±0.5nH      | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN9N1D00 | 9.1 ±0.5nH      | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN9N5D00 | 9.5 ±0.5nH      | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN10NG00 | 10 ±2%          | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN10NJ00 | 10 ±5%          | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN11NG00 | 11 ±2%          | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN11NJ00 | 11 ±5%          | 100                  | 650                | 0.11 max.           | 35       | 250                  | 6000                                  |
| LQW18AN12NG00 | 12 ±2%          | 100                  | 600                | 0.13 max.           | 35       | 250                  | 6000                                  |
| LQW18AN12NJ00 | 12 ±5%          | 100                  | 600                | 0.13 max.           | 35       | 250                  | 6000                                  |
| LQW18AN13NG00 | 13 ±2%          | 100                  | 600                | 0.13 max.           | 35       | 250                  | 6000                                  |
| LQW18AN13NJ00 | 13 ±5%          | 100                  | 600                | 0.13 max.           | 35       | 250                  | 6000                                  |
| LQW18AN15NG00 | 15 ±2%          | 100                  | 600                | 0.13 max.           | 40       | 250                  | 6000                                  |
| LQW18AN15NJ00 | 15 ±5%          | 100                  | 600                | 0.13 max.           | 40       | 250                  | 6000                                  |
| LQW18AN16NG00 | 16 ±2%          | 100                  | 550                | 0.16 max.           | 40       | 250                  | 5500                                  |
| LQW18AN16NJ00 | 16 ±5%          | 100                  | 550                | 0.16 max.           | 40       | 250                  | 5500                                  |
| LQW18AN18NG00 | 18 ±2%          | 100                  | 550                | 0.16 max.           | 40       | 250                  | 5500                                  |
| LQW18AN18NJ00 | 18 ±5%          | 100                  | 550                | 0.16 max.           | 40       | 250                  | 5500                                  |
| LQW18AN20NG00 | 20 ±2%          | 100                  | 550                | 0.16 max.           | 40       | 250                  | 4900                                  |
| LQW18AN20NJ00 | 20 ±5%          | 100                  | 550                | 0.16 max.           | 40       | 250                  | 4900                                  |
| LQW18AN22NG00 | 22 ±2%          | 100                  | 500                | 0.17 max.           | 40       | 250                  | 4600                                  |
| LQW18AN22NJ00 | 22 ±5%          | 100                  | 500                | 0.17 max.           | 40       | 250                  | 4600                                  |
| LQW18AN24NG00 | 24 ±2%          | 100                  | 500                | 0.21 max.           | 40       | 250                  | 3800                                  |
| LQW18AN24NJ00 | 24 ±5%          | 100                  | 500                | 0.21 max.           | 40       | 250                  | 3800                                  |
| LQW18AN27NG00 | 27 ±2%          | 100                  | 440                | 0.21 max.           | 40       | 250                  | 3700                                  |
| LQW18AN27NJ00 | 27 ±5%          | 100                  | 440                | 0.21 max.           | 40       | 250                  | 3700                                  |
| LQW18AN30NG00 | 30 ±2%          | 100                  | 420                | 0.23 max.           | 40       | 250                  | 3300                                  |
| LQW18AN30NJ00 | 30 ±5%          | 100                  | 420                | 0.23 max.           | 40       | 250                  | 3300                                  |
| LQW18AN33NG00 | 33 ±2%          | 100                  | 420                | 0.23 max.           | 40       | 250                  | 3200                                  |
| LQW18AN33NJ00 | 33 ±5%          | 100                  | 420                | 0.23 max.           | 40       | 250                  | 3200                                  |
| LQW18AN36NG00 | 36 ±2%          | 100                  | 400                | 0.26 max.           | 40       | 250                  | 2900                                  |
| LQW18AN36NJ00 | 36 ±5%          | 100                  | 400                | 0.26 max.           | 40       | 250                  | 2900                                  |
| LQW18AN39NG00 | 39 ±2%          | 100                  | 400                | 0.26 max.           | 40       | 250                  | 2800                                  |
| LQW18AN39NJ00 | 39 ±5%          | 100                  | 400                | 0.26 max.           | 40       | 250                  | 2800                                  |
| LQW18AN43NG00 | 43 ±2%          | 100                  | 380                | 0.29 max.           | 40       | 200                  | 2700                                  |
| LQW18AN43NJ00 | 43 ±5%          | 100                  | 380                | 0.29 max.           | 40       | 200                  | 2700                                  |
| LQW18AN47NG00 | 47 ±2%          | 100                  | 380                | 0.29 max.           | 38       | 200                  | 2600                                  |
| LQW18AN47NJ00 | 47 ±5%          | 100                  | 380                | 0.29 max.           | 38       | 200                  | 2600                                  |
| LQW18AN51NG00 | 51 ±2%          | 100                  | 370                | 0.33 max.           | 38       | 200                  | 2500                                  |
| LQW18AN51NJ00 | 51 ±5%          | 100                  | 370                | 0.33 max.           | 38       | 200                  | 2500                                  |
| LQW18AN56NG00 | 56 ±2%          | 100                  | 360                | 0.35 max.           | 38       | 200                  | 2400                                  |
| LQW18AN56NJ00 | 56 ±5%          | 100                  | 360                | 0.35 max.           | 38       | 200                  | 2400                                  |
| LQW18AN62NG00 | 62 ±2%          | 100                  | 280                | 0.51 max.           | 38       | 200                  | 2300                                  |
| LQW18AN62NJ00 | 62 ±5%          | 100                  | 280                | 0.51 max.           | 38       | 200                  | 2300                                  |
| LQW18AN68NG00 | 68 ±2%          | 100                  | 340                | 0.38 max.           | 38       | 200                  | 2200                                  |

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW18AN68NJ00 | 68 ±5%          | 100                  | 340                | 0.38 max.           | 38       | 200                  | 2200                                  |
| LQW18AN72NG00 | 72 ±2%          | 100                  | 270                | 0.56 max.           | 34       | 150                  | 2100                                  |
| LQW18AN72NJ00 | 72 ±5%          | 100                  | 270                | 0.56 max.           | 34       | 150                  | 2100                                  |
| LQW18AN75NG00 | 75 ±2%          | 100                  | 270                | 0.56 max.           | 34       | 150                  | 2050                                  |
| LQW18AN75NJ00 | 75 ±5%          | 100                  | 270                | 0.56 max.           | 34       | 150                  | 2050                                  |
| LQW18AN82NG00 | 82 ±2%          | 100                  | 250                | 0.60 max.           | 34       | 150                  | 2000                                  |
| LQW18AN82NJ00 | 82 ±5%          | 100                  | 250                | 0.60 max.           | 34       | 150                  | 2000                                  |
| LQW18AN91NG00 | 91 ±2%          | 100                  | 230                | 0.64 max.           | 34       | 150                  | 1900                                  |
| LQW18AN91NJ00 | 91 ±5%          | 100                  | 230                | 0.64 max.           | 34       | 150                  | 1900                                  |
| LQW18ANR10G00 | 100 ±2%         | 100                  | 220                | 0.68 max.           | 34       | 150                  | 1800                                  |
| LQW18ANR10J00 | 100 ±5%         | 100                  | 220                | 0.68 max.           | 34       | 150                  | 1800                                  |
| LQW18ANR11G00 | 110 ±2%         | 100                  | 200                | 1.2 max.            | 32       | 150                  | 1700                                  |
| LQW18ANR11J00 | 110 ±5%         | 100                  | 200                | 1.2 max.            | 32       | 150                  | 1700                                  |
| LQW18ANR12G00 | 120 ±2%         | 100                  | 180                | 1.3 max.            | 32       | 150                  | 1600                                  |
| LQW18ANR12J00 | 120 ±5%         | 100                  | 180                | 1.3 max.            | 32       | 150                  | 1600                                  |
| LQW18ANR13G00 | 130 ±2%         | 100                  | 170                | 1.4 max.            | 32       | 150                  | 1450                                  |
| LQW18ANR13J00 | 130 ±5%         | 100                  | 170                | 1.4 max.            | 32       | 150                  | 1450                                  |
| LQW18ANR15G00 | 150 ±2%         | 100                  | 160                | 1.5 max.            | 32       | 150                  | 1400                                  |
| LQW18ANR15J00 | 150 ±5%         | 100                  | 160                | 1.5 max.            | 32       | 150                  | 1400                                  |
| LQW18ANR16G00 | 160 ±2%         | 100                  | 150                | 2.1 max.            | 32       | 150                  | 1350                                  |
| LQW18ANR16J00 | 160 ±5%         | 100                  | 150                | 2.1 max.            | 32       | 150                  | 1350                                  |
| LQW18ANR18G00 | 180 ±2%         | 100                  | 140                | 2.2 max.            | 25       | 100                  | 1300                                  |
| LQW18ANR18J00 | 180 ±5%         | 100                  | 140                | 2.2 max.            | 25       | 100                  | 1300                                  |
| LQW18ANR20G00 | 200 ±2%         | 100                  | 120                | 2.4 max.            | 25       | 100                  | 1250                                  |
| LQW18ANR20J00 | 200 ±5%         | 100                  | 120                | 2.4 max.            | 25       | 100                  | 1250                                  |
| LQW18ANR22G00 | 220 ±2%         | 100                  | 120                | 2.5 max.            | 25       | 100                  | 1200                                  |
| LQW18ANR22J00 | 220 ±5%         | 100                  | 120                | 2.5 max.            | 25       | 100                  | 1200                                  |
| LQW18ANR27G00 | 270 ±2%         | 100                  | 110                | 3.4 max.            | 30       | 100                  | 960                                   |
| LQW18ANR27J00 | 270 ±5%         | 100                  | 110                | 3.4 max.            | 30       | 100                  | 960                                   |
| LQW18ANR33G00 | 330 ±2%         | 100                  | 85                 | 5.5 max.            | 30       | 100                  | 800                                   |
| LQW18ANR33J00 | 330 ±5%         | 100                  | 85                 | 5.5 max.            | 30       | 100                  | 800                                   |
| LQW18ANR39G00 | 390 ±2%         | 100                  | 80                 | 6.2 max.            | 30       | 100                  | 800                                   |
| LQW18ANR39J00 | 390 ±5%         | 100                  | 80                 | 6.2 max.            | 30       | 100                  | 800                                   |
| LQW18ANR47G00 | 470 ±2%         | 100                  | 75                 | 7.0 max.            | 30       | 100                  | 700                                   |
| LQW18ANR47J00 | 470 ±5%         | 100                  | 75                 | 7.0 max.            | 30       | 100                  | 700                                   |
| LQW18AN2N2D10 | 2.2 ±0.5nH      | 100                  | 1400               | 0.018 max.          | 25       | 250                  | 18000                                 |
| LQW18AN3N9C10 | 3.9 ±0.2nH      | 100                  | 1000               | 0.032 max.          | 38       | 250                  | 11000                                 |
| LQW18AN3N9D10 | 3.9 ±0.5nH      | 100                  | 1000               | 0.032 max.          | 38       | 250                  | 11000                                 |
| LQW18AN5N6D10 | 5.6 ±0.5nH      | 100                  | 900                | 0.045 max.          | 38       | 250                  | 10000                                 |
| LQW18AN6N8C10 | 6.8 ±0.2nH      | 100                  | 900                | 0.045 max.          | 38       | 250                  | 7000                                  |
| LQW18AN6N8D10 | 6.8 ±0.5nH      | 100                  | 900                | 0.045 max.          | 38       | 250                  | 7000                                  |
| LQW18AN8N2D10 | 8.2 ±0.5nH      | 100                  | 800                | 0.058 max.          | 38       | 250                  | 7000                                  |
| LQW18AN10NG10 | 10 ±2%          | 100                  | 800                | 0.058 max.          | 38       | 250                  | 5000                                  |
| LQW18AN10NJ10 | 10 ±5%          | 100                  | 800                | 0.058 max.          | 38       | 250                  | 5000                                  |
| LQW18AN12NG10 | 12 ±2%          | 100                  | 750                | 0.071 max.          | 38       | 250                  | 5000                                  |
| LQW18AN12NJ10 | 12 ±5%          | 100                  | 750                | 0.071 max.          | 38       | 250                  | 5000                                  |
| LQW18AN15NJ10 | 15 ±5%          | 100                  | 700                | 0.085 max.          | 42       | 250                  | 4500                                  |
| LQW18AN18NG10 | 18 ±2%          | 100                  | 700                | 0.085 max.          | 42       | 250                  | 3500                                  |
| LQW18AN18NJ10 | 18 ±5%          | 100                  | 700                | 0.085 max.          | 42       | 250                  | 3500                                  |
| LQW18AN22NG10 | 22 ±2%          | 100                  | 640                | 0.099 max.          | 42       | 250                  | 3200                                  |
| LQW18AN22NJ10 | 22 ±5%          | 100                  | 640                | 0.099 max.          | 42       | 250                  | 3200                                  |
| LQW18AN27NG10 | 27 ±2%          | 100                  | 590                | 0.116 max.          | 42       | 250                  | 2800                                  |
| LQW18AN27NJ10 | 27 ±5%          | 100                  | 590                | 0.116 max.          | 42       | 250                  | 2800                                  |
| LQW18AN33NJ10 | 33 ±5%          | 100                  | 550                | 0.132 max.          | 42       | 250                  | 2500                                  |

Operating Temperature Range: -55 to +125°C

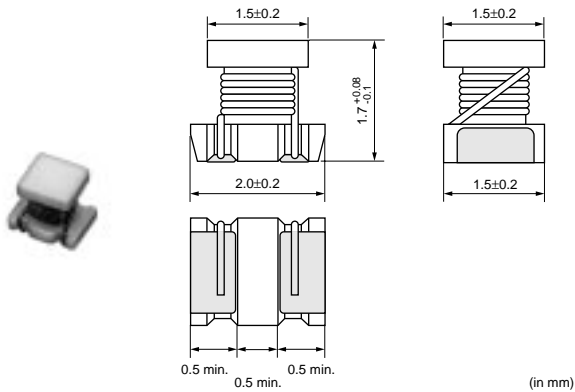
Only for reflow soldering.

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.



# Chip Inductor (Chip Coil)

for High Frequency Vertical Wire Wound

**● LQW2BH Series (0805)**


(in mm)

Inductors (Coils) 3

| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW2BHN3N3D03 | 3.3 ±0.5nH      | 100                  | 910                | 0.05 max.           | 10       | 250                  | 6000                                  |
| LQW2BHN6N8D03 | 6.8 ±0.5nH      | 100                  | 680                | 0.11 max.           | 20       | 250                  | 5400                                  |
| LQW2BHN8N2D03 | 8.2 ±0.5nH      | 100                  | 630                | 0.12 max.           | 20       | 250                  | 3900                                  |
| LQW2BHN10NJ03 | 10 ±5%          | 100                  | 1320               | 0.03 max.           | 30       | 250                  | 3300                                  |
| LQW2BHN12NJ03 | 12 ±5%          | 100                  | 680                | 0.11 max.           | 30       | 250                  | 3200                                  |
| LQW2BHN15NJ03 | 15 ±5%          | 100                  | 630                | 0.12 max.           | 30       | 250                  | 2700                                  |
| LQW2BHN18NJ03 | 18 ±5%          | 100                  | 690                | 0.10 max.           | 30       | 250                  | 2600                                  |
| LQW2BHN22NJ03 | 22 ±5%          | 100                  | 720                | 0.09 max.           | 30       | 250                  | 2100                                  |
| LQW2BHN27NJ03 | 27 ±5%          | 100                  | 540                | 0.17 max.           | 40       | 250                  | 2300                                  |
| LQW2BHN33NG03 | 33 ±2%          | 100                  | 570                | 0.15 max.           | 40       | 250                  | 1900                                  |
| LQW2BHN33NJ03 | 33 ±5%          | 100                  | 570                | 0.15 max.           | 40       | 250                  | 1900                                  |
| LQW2BHN39NG03 | 39 ±2%          | 100                  | 730                | 0.09 max.           | 40       | 250                  | 1700                                  |
| LQW2BHN39NJ03 | 39 ±5%          | 100                  | 730                | 0.09 max.           | 40       | 250                  | 1700                                  |
| LQW2BHN47NG03 | 47 ±2%          | 100                  | 450                | 0.23 max.           | 40       | 200                  | 1600                                  |
| LQW2BHN47NJ03 | 47 ±5%          | 100                  | 450                | 0.23 max.           | 40       | 200                  | 1600                                  |
| LQW2BHN56NG03 | 56 ±2%          | 100                  | 430                | 0.26 max.           | 40       | 200                  | 1500                                  |
| LQW2BHN56NJ03 | 56 ±5%          | 100                  | 430                | 0.26 max.           | 40       | 200                  | 1500                                  |
| LQW2BHN68NG03 | 68 ±2%          | 100                  | 460                | 0.23 max.           | 40       | 200                  | 1200                                  |
| LQW2BHN68NJ03 | 68 ±5%          | 100                  | 460                | 0.23 max.           | 40       | 200                  | 1200                                  |
| LQW2BHN82NG03 | 82 ±2%          | 100                  | 320                | 0.42 max.           | 40       | 150                  | 1100                                  |
| LQW2BHN82NJ03 | 82 ±5%          | 100                  | 320                | 0.42 max.           | 40       | 150                  | 1100                                  |
| LQW2BHNR10G03 | 100 ±2%         | 100                  | 270                | 0.55 max.           | 35       | 150                  | 900                                   |
| LQW2BHNR10J03 | 100 ±5%         | 100                  | 350                | 0.38 max.           | 40       | 150                  | 900                                   |
| LQW2BHNR12G03 | 120 ±2%         | 100                  | 320                | 0.40 max.           | 40       | 150                  | 750                                   |
| LQW2BHNR12J03 | 120 ±5%         | 100                  | 320                | 0.40 max.           | 40       | 150                  | 750                                   |
| LQW2BHNR15G03 | 150 ±2%         | 100                  | 260                | 0.68 max.           | 30       | 150                  | 350                                   |
| LQW2BHNR15J03 | 150 ±5%         | 100                  | 390                | 0.47 max.           | 30       | 150                  | 350                                   |
| LQW2BHNR18G03 | 180 ±2%         | 100                  | 250                | 0.71 max.           | 35       | 100                  | 700                                   |
| LQW2BHNR18J03 | 180 ±5%         | 100                  | 250                | 0.71 max.           | 35       | 100                  | 700                                   |
| LQW2BHNR22G03 | 220 ±2%         | 100                  | 240                | 0.70 max.           | 35       | 100                  | 500                                   |
| LQW2BHNR22J03 | 220 ±5%         | 100                  | 240                | 0.70 max.           | 35       | 100                  | 500                                   |
| LQW2BHNR27J03 | 270 ±5%         | 10                   | 190                | 2.00 max.           | 15       | 25.5                 | 550                                   |
| LQW2BHNR27K03 | 270 ±10%        | 10                   | 190                | 2.00 max.           | 15       | 25.5                 | 550                                   |
| LQW2BHNR33J03 | 330 ±5%         | 10                   | 180                | 2.20 max.           | 15       | 25.5                 | 500                                   |
| LQW2BHNR33K03 | 330 ±10%        | 10                   | 180                | 2.20 max.           | 15       | 25.5                 | 500                                   |
| LQW2BHNR39J03 | 390 ±5%         | 10                   | 170                | 2.50 max.           | 15       | 25.5                 | 400                                   |
| LQW2BHNR39K03 | 390 ±10%        | 10                   | 170                | 2.50 max.           | 15       | 25.5                 | 400                                   |
| LQW2BHNR47J03 | 470 ±5%         | 10                   | 160                | 2.80 max.           | 15       | 25.5                 | 350                                   |
| LQW2BHNR47K03 | 470 ±10%        | 10                   | 160                | 2.80 max.           | 15       | 25.5                 | 350                                   |

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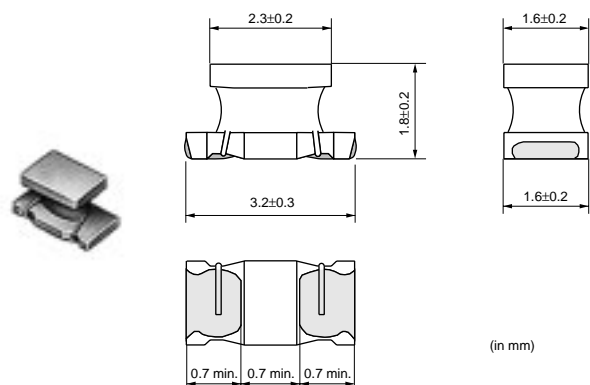
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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW2BHN2N7D13 | 2.7 ±0.5nH      | 100                  | 1900               | 0.02 max.           | 20       | 250                  | 6000                                  |
| LQW2BHN3N1D13 | 3.1 ±0.5nH      | 100                  | 1800               | 0.02 max.           | 20       | 250                  | 6000                                  |
| LQW2BHN3N3D13 | 3.3 ±0.5nH      | 100                  | 1700               | 0.02 max.           | 20       | 250                  | 6000                                  |
| LQW2BHN5N6D13 | 5.6 ±0.5nH      | 100                  | 1500               | 0.02 max.           | 35       | 250                  | 6000                                  |
| LQW2BHN6N8D13 | 6.8 ±0.5nH      | 100                  | 1400               | 0.02 max.           | 35       | 250                  | 5400                                  |
| LQW2BHN8N6D13 | 8.6 ±0.5nH      | 100                  | 1300               | 0.03 max.           | 35       | 250                  | 3900                                  |
| LQW2BHN10NJ13 | 10 ±5%          | 100                  | 1320               | 0.03 max.           | 35       | 250                  | 3300                                  |
| LQW2BHN12NK13 | 12 ±10%         | 100                  | 1100               | 0.04 max.           | 40       | 250                  | 3200                                  |
| LQW2BHN15NK13 | 15 ±10%         | 100                  | 1000               | 0.04 max.           | 40       | 250                  | 3100                                  |
| LQW2BHN18NK13 | 18.8 ±10%       | 100                  | 1000               | 0.05 max.           | 40       | 250                  | 2600                                  |
| LQW2BHN21NK13 | 21 ±10%         | 100                  | 950                | 0.05 max.           | 40       | 250                  | 2200                                  |
| LQW2BHN27NK13 | 27 ±10%         | 100                  | 900                | 0.06 max.           | 40       | 250                  | 1800                                  |

Operating Temperature Range: -40 to +85°C

### ● LQW31H Series (1206)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW31HN8N8J03 | 8.8 ±5%         | 100                  | 750                | 0.029 ±40%          | 50       | 436                  | 1000                                  |
| LQW31HN8N8K03 | 8.8 ±10%        | 100                  | 750                | 0.029 ±40%          | 50       | 436                  | 1000                                  |
| LQW31HN15NJ03 | 14.7 ±5%        | 100                  | 680                | 0.035 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN15NK03 | 14.7 ±10%       | 100                  | 680                | 0.035 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN17NJ03 | 17 ±5%          | 100                  | 650                | 0.037 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN17NK03 | 17 ±10%         | 100                  | 650                | 0.037 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN23NJ03 | 23 ±5%          | 100                  | 590                | 0.046 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN23NK03 | 23 ±10%         | 100                  | 590                | 0.046 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN27NJ03 | 27 ±5%          | 100                  | 560                | 0.051 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN27NK03 | 27 ±10%         | 100                  | 560                | 0.051 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN33NJ03 | 33 ±5%          | 100                  | 530                | 0.057 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN33NK03 | 33 ±10%         | 100                  | 530                | 0.057 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN39NJ03 | 39 ±5%          | 100                  | 490                | 0.067 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN39NK03 | 39 ±10%         | 100                  | 490                | 0.067 ±40%          | 60       | 436                  | 1000                                  |
| LQW31HN47NJ03 | 47 ±5%          | 100                  | 380                | 0.11 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN47NK03 | 47 ±10%         | 100                  | 380                | 0.11 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN56NJ03 | 56 ±5%          | 100                  | 330                | 0.14 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN56NK03 | 56 ±10%         | 100                  | 330                | 0.14 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN64NJ03 | 64 ±5%          | 100                  | 290                | 0.18 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN64NK03 | 64 ±10%         | 100                  | 290                | 0.18 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN84NJ03 | 84 ±5%          | 100                  | 240                | 0.28 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HN84NK03 | 84 ±10%         | 100                  | 240                | 0.28 ±40%           | 60       | 436                  | 1000                                  |
| LQW31HNR10J03 | 100 ±5%         | 100                  | 230                | 0.3 ±40%            | 60       | 436                  | 900                                   |
| LQW31HNR10K03 | 100 ±10%        | 100                  | 230                | 0.3 ±40%            | 60       | 436                  | 900                                   |

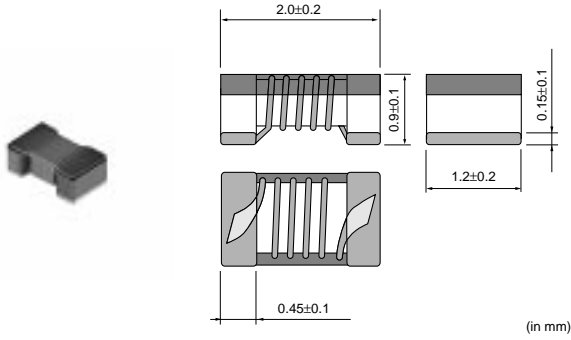
Operating Temperature Range: -40 to +85°C

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# Chip Inductor (Chip Coil)

for High Frequency Horizontal Wire Wound Ferrite Type

● LQW21H Series (0805)



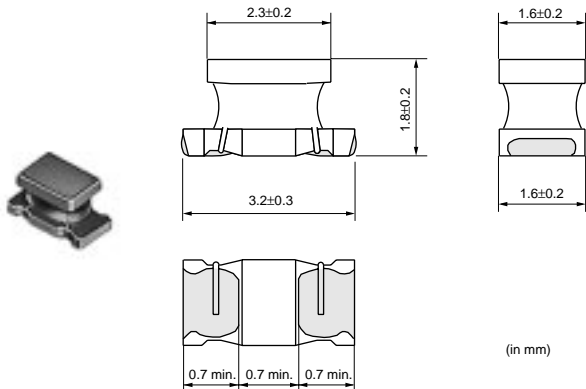
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQW21HNR47J00 | 0.47 ±5%        | 10                   | 160                | 1.30 max.           | 35       | 100                  | 620                                   |
| LQW21HNR56J00 | 0.56 ±5%        | 10                   | 150                | 1.43 max.           | 35       | 100                  | 580                                   |
| LQW21HNR68J00 | 0.68 ±5%        | 10                   | 130                | 2.21 max.           | 35       | 100                  | 520                                   |
| LQW21HNR82J00 | 0.82 ±5%        | 10                   | 125                | 2.34 max.           | 35       | 100                  | 480                                   |
| LQW21HN1R0J00 | 1.0 ±5%         | 10                   | 115                | 2.86 max.           | 35       | 100                  | 450                                   |
| LQW21HN1R2J00 | 1.2 ±5%         | 10                   | 100                | 3.12 max.           | 35       | 100                  | 400                                   |
| LQW21HN1R5J00 | 1.5 ±5%         | 10                   | 85                 | 5.33 max.           | 35       | 100                  | 350                                   |
| LQW21HN1R8J00 | 1.8 ±5%         | 10                   | 80                 | 5.85 max.           | 35       | 100                  | 320                                   |
| LQW21HN2R2J00 | 2.2 ±5%         | 10                   | 75                 | 6.50 max.           | 35       | 100                  | 300                                   |

Operating Temperature Range: -40 to +85°C  
Only for reflow soldering.

# Chip Inductor (Chip Coil)

for High Frequency Vertical Wire Wound Ferrite Type

● LQH31H Series (1206)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQH31HN54NK03 | 54 ±10%         | 1                    | 920                | 0.035 ±30%          | 50       | 100                  | 800                                   |
| LQH31HN95NK03 | 95 ±10%         | 1                    | 790                | 0.047 ±30%          | 60       | 100                  | 650                                   |
| LQH31HNR14J03 | 145 ±5%         | 1                    | 700                | 0.061 ±30%          | 60       | 100                  | 500                                   |
| LQH31HNR14K03 | 145 ±10%        | 1                    | 700                | 0.061 ±30%          | 60       | 100                  | 500                                   |
| LQH31HNR21J03 | 215 ±5%         | 1                    | 520                | 0.11 ±30%           | 60       | 100                  | 430                                   |
| LQH31HNR21K03 | 215 ±10%        | 1                    | 520                | 0.11 ±30%           | 60       | 100                  | 430                                   |

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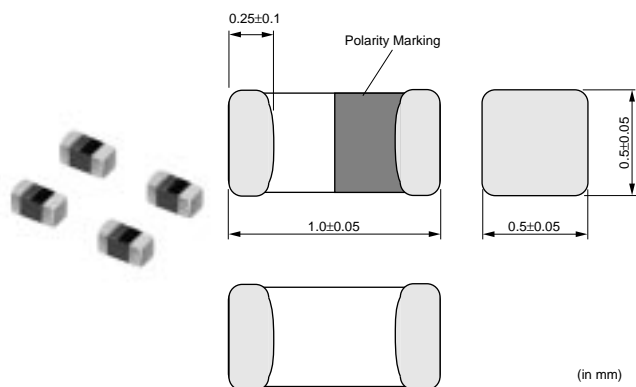
| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQH31HNR29J03 | 290 ±5%         | 1                    | 420                | 0.17 ±30%           | 60       | 100                  | 360                                   |
| LQH31HNR29K03 | 290 ±10%        | 1                    | 420                | 0.17 ±30%           | 60       | 100                  | 360                                   |
| LQH31HNR39J03 | 390 ±5%         | 1                    | 330                | 0.26 ±30%           | 60       | 100                  | 300                                   |
| LQH31HNR39K03 | 390 ±10%        | 1                    | 330                | 0.26 ±30%           | 60       | 100                  | 300                                   |
| LQH31HNR50J03 | 500 ±5%         | 1                    | 260                | 0.44 ±30%           | 60       | 100                  | 270                                   |
| LQH31HNR50K03 | 500 ±10%        | 1                    | 260                | 0.44 ±30%           | 60       | 100                  | 270                                   |
| LQH31HNR61J03 | 610 ±5%         | 1                    | 250                | 0.48 ±30%           | 60       | 100                  | 240                                   |
| LQH31HNR61K03 | 610 ±10%        | 1                    | 250                | 0.48 ±30%           | 60       | 100                  | 240                                   |
| LQH31HNR75J03 | 750 ±5%         | 1                    | 190                | 0.79 ±30%           | 60       | 100                  | 220                                   |
| LQH31HNR75K03 | 750 ±10%        | 1                    | 190                | 0.79 ±30%           | 60       | 100                  | 220                                   |
| LQH31HNR88J03 | 880 ±5%         | 1                    | 180                | 0.86 ±30%           | 60       | 100                  | 200                                   |
| LQH31HNR88K03 | 880 ±10%        | 1                    | 180                | 0.86 ±30%           | 60       | 100                  | 200                                   |

Operating Temperature Range: -40 to +85°C

## Chip Inductor (Chip Coil)

for High Frequency Multilayer Type

### ● LQG15HN Series (0402)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQG15HN1N0S02 | 1.0 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN1N1S02 | 1.1 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN1N2S02 | 1.2 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN1N3S02 | 1.3 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN1N5S02 | 1.5 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN1N6S02 | 1.6 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN1N8S02 | 1.8 ±0.3nH      | 100                  | 300                | 0.10 max.           | 8        | 100                  | 6000                                  |
| LQG15HN2N0S02 | 2.0 ±0.3nH      | 100                  | 300                | 0.12 max.           | 8        | 100                  | 6000                                  |
| LQG15HN2N2S02 | 2.2 ±0.3nH      | 100                  | 300                | 0.15 max.           | 8        | 100                  | 6000                                  |
| LQG15HN2N4S02 | 2.4 ±0.3nH      | 100                  | 300                | 0.16 max.           | 8        | 100                  | 6000                                  |
| LQG15HN2N7S02 | 2.7 ±0.3nH      | 100                  | 300                | 0.17 max.           | 8        | 100                  | 6000                                  |
| LQG15HN3N0S02 | 3.0 ±0.3nH      | 100                  | 300                | 0.18 max.           | 8        | 100                  | 6000                                  |
| LQG15HN3N3S02 | 3.3 ±0.3nH      | 100                  | 300                | 0.19 max.           | 8        | 100                  | 6000                                  |
| LQG15HN3N6S02 | 3.6 ±0.3nH      | 100                  | 300                | 0.19 max.           | 8        | 100                  | 6000                                  |
| LQG15HN3N9S02 | 3.9 ±0.3nH      | 100                  | 300                | 0.19 max.           | 8        | 100                  | 6000                                  |
| LQG15HN4N3S02 | 4.3 ±0.3nH      | 100                  | 300                | 0.21 max.           | 8        | 100                  | 6000                                  |
| LQG15HN4N7S02 | 4.7 ±0.3nH      | 100                  | 300                | 0.23 max.           | 8        | 100                  | 6000                                  |
| LQG15HN5N1S02 | 5.1 ±0.3nH      | 100                  | 300                | 0.24 max.           | 8        | 100                  | 6000                                  |
| LQG15HN5N6S02 | 5.6 ±0.3nH      | 100                  | 300                | 0.26 max.           | 8        | 100                  | 5300                                  |
| LQG15HN6N2S02 | 6.2 ±0.3nH      | 100                  | 300                | 0.27 max.           | 8        | 100                  | 4300                                  |

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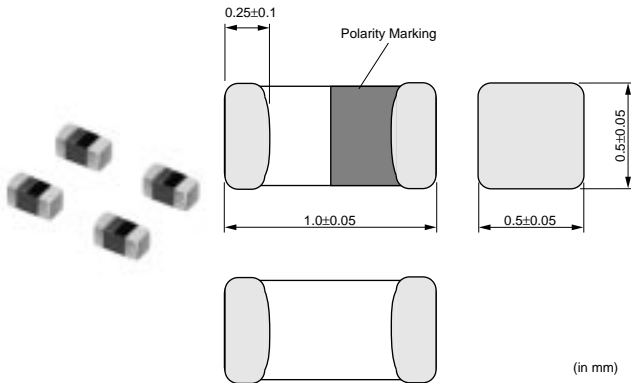
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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQG15HN6N8J02 | 6.8 ±5%         | 100                  | 300                | 0.29 max.           | 8        | 100                  | 4200                                  |
| LQG15HN7N5J02 | 7.5 ±5%         | 100                  | 300                | 0.31 max.           | 8        | 100                  | 3900                                  |
| LQG15HN8N2J02 | 8.2 ±5%         | 100                  | 300                | 0.33 max.           | 8        | 100                  | 3600                                  |
| LQG15HN9N1J02 | 9.1 ±5%         | 100                  | 300                | 0.34 max.           | 8        | 100                  | 3400                                  |
| LQG15HN10NJ02 | 10 ±5%          | 100                  | 300                | 0.35 max.           | 8        | 100                  | 3200                                  |
| LQG15HN12NJ02 | 12 ±5%          | 100                  | 300                | 0.41 max.           | 8        | 100                  | 2800                                  |
| LQG15HN15NJ02 | 15 ±5%          | 100                  | 300                | 0.46 max.           | 8        | 100                  | 2300                                  |
| LQG15HN18NJ02 | 18 ±5%          | 100                  | 300                | 0.51 max.           | 8        | 100                  | 2100                                  |
| LQG15HN22NJ02 | 22 ±5%          | 100                  | 300                | 0.58 max.           | 8        | 100                  | 1800                                  |
| LQG15HN27NJ02 | 27 ±5%          | 100                  | 300                | 0.67 max.           | 8        | 100                  | 1600                                  |
| LQG15HN33NJ02 | 33 ±5%          | 100                  | 200                | 0.67 max.           | 8        | 100                  | 1500                                  |
| LQG15HN39NJ02 | 39 ±5%          | 100                  | 200                | 1.06 max.           | 8        | 100                  | 1200                                  |
| LQG15HN47NJ02 | 47 ±5%          | 100                  | 200                | 1.15 max.           | 8        | 100                  | 1000                                  |
| LQG15HN56NJ02 | 56 ±5%          | 100                  | 200                | 1.20 max.           | 8        | 100                  | 800                                   |
| LQG15HN68NJ02 | 68 ±5%          | 100                  | 180                | 1.25 max.           | 8        | 100                  | 800                                   |
| LQG15HN82NJ02 | 82 ±5%          | 100                  | 150                | 1.60 max.           | 8        | 100                  | 600                                   |
| LQG15HNR10J02 | 100 ±5%         | 100                  | 150                | 1.60 max.           | 8        | 100                  | 600                                   |
| LQG15HNR12J02 | 120 ±5%         | 100                  | 150                | 1.60 max.           | 8        | 100                  | 600                                   |

Operating Temperature Range: -55 to +125°C  
Only for reflow soldering.

● LQG15HS Series (0402)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQG15HS1N0S02 | 1.0 ±0.3nH      | 100                  | 300                | 0.07 max.           | 8        | 100                  | 10000                                 |
| LQG15HS1N1S02 | 1.1 ±0.3nH      | 100                  | 300                | 0.09 max.           | 8        | 100                  | 6000                                  |
| LQG15HS1N2S02 | 1.2 ±0.3nH      | 100                  | 300                | 0.09 max.           | 8        | 100                  | 6000                                  |
| LQG15HS1N3S02 | 1.3 ±0.3nH      | 100                  | 300                | 0.09 max.           | 8        | 100                  | 6000                                  |
| LQG15HS1N5S02 | 1.5 ±0.3nH      | 100                  | 300                | 0.1 max.            | 8        | 100                  | 6000                                  |
| LQG15HS1N6S02 | 1.6 ±0.3nH      | 100                  | 300                | 0.1 max.            | 8        | 100                  | 6000                                  |
| LQG15HS1N8S02 | 1.8 ±0.3nH      | 100                  | 300                | 0.1 max.            | 8        | 100                  | 6000                                  |
| LQG15HS2N0S02 | 2.0 ±0.3nH      | 100                  | 300                | 0.1 max.            | 8        | 100                  | 6000                                  |
| LQG15HS2N2S02 | 2.2 ±0.3nH      | 100                  | 300                | 0.12 max.           | 8        | 100                  | 6000                                  |
| LQG15HS2N4S02 | 2.4 ±0.3nH      | 100                  | 300                | 0.15 max.           | 8        | 100                  | 6000                                  |
| LQG15HS2N7S02 | 2.7 ±0.3nH      | 100                  | 300                | 0.15 max.           | 8        | 100                  | 6000                                  |
| LQG15HS3N0S02 | 3.0 ±0.3nH      | 100                  | 300                | 0.17 max.           | 8        | 100                  | 6000                                  |
| LQG15HS3N3S02 | 3.3 ±0.3nH      | 100                  | 300                | 0.17 max.           | 8        | 100                  | 6000                                  |
| LQG15HS3N6S02 | 3.6 ±0.3nH      | 100                  | 300                | 0.18 max.           | 8        | 100                  | 6000                                  |
| LQG15HS3N9S02 | 3.9 ±0.3nH      | 100                  | 300                | 0.18 max.           | 8        | 100                  | 6000                                  |
| LQG15HS4N3S02 | 4.3 ±0.3nH      | 100                  | 300                | 0.18 max.           | 8        | 100                  | 6000                                  |
| LQG15HS4N7S02 | 4.7 ±0.3nH      | 100                  | 300                | 0.18 max.           | 8        | 100                  | 6000                                  |

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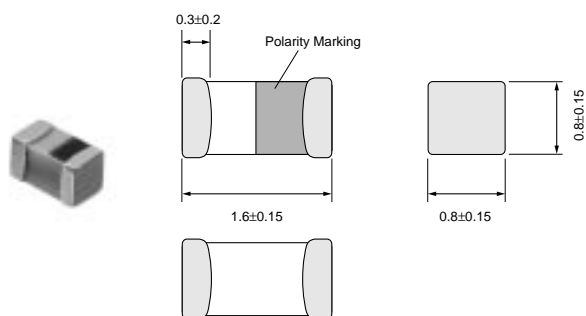
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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQG15HS5N1S02 | 5.1 ±0.3nH      | 100                  | 300                | 0.2 max.            | 8        | 100                  | 5300                                  |
| LQG15HS5N6S02 | 5.6 ±0.3nH      | 100                  | 300                | 0.2 max.            | 8        | 100                  | 4500                                  |
| LQG15HS6N2S02 | 6.2 ±0.3nH      | 100                  | 300                | 0.22 max.           | 8        | 100                  | 4500                                  |
| LQG15HS6N8J02 | 6.8 ±5%         | 100                  | 300                | 0.24 max.           | 8        | 100                  | 4500                                  |
| LQG15HS7N5J02 | 7.5 ±5%         | 100                  | 300                | 0.24 max.           | 8        | 100                  | 4200                                  |
| LQG15HS8N2J02 | 8.2 ±5%         | 100                  | 300                | 0.24 max.           | 8        | 100                  | 3700                                  |
| LQG15HS9N1J02 | 9.1 ±5%         | 100                  | 300                | 0.26 max.           | 8        | 100                  | 3400                                  |
| LQG15HS10NJ02 | 10 ±5%          | 100                  | 300                | 0.26 max.           | 8        | 100                  | 3400                                  |
| LQG15HS12NJ02 | 12 ±5%          | 100                  | 300                | 0.28 max.           | 8        | 100                  | 3000                                  |
| LQG15HS15NJ02 | 15 ±5%          | 100                  | 300                | 0.32 max.           | 8        | 100                  | 2500                                  |
| LQG15HS18NJ02 | 18 ±5%          | 100                  | 300                | 0.36 max.           | 8        | 100                  | 2200                                  |
| LQG15HS22NJ02 | 22 ±5%          | 100                  | 300                | 0.42 max.           | 8        | 100                  | 1900                                  |
| LQG15HS27NJ02 | 27 ±5%          | 100                  | 300                | 0.46 max.           | 8        | 100                  | 1700                                  |
| LQG15HS33NJ02 | 33 ±5%          | 100                  | 200                | 0.58 max.           | 8        | 100                  | 1600                                  |
| LQG15HS39NJ02 | 39 ±5%          | 100                  | 200                | 0.65 max.           | 8        | 100                  | 1200                                  |
| LQG15HS47NJ02 | 47 ±5%          | 100                  | 200                | 0.72 max.           | 8        | 100                  | 1000                                  |
| LQG15HS56NJ02 | 56 ±5%          | 100                  | 200                | 0.82 max.           | 8        | 100                  | 800                                   |
| LQG15HS68NJ02 | 68 ±5%          | 100                  | 180                | 0.92 max.           | 8        | 100                  | 800                                   |
| LQG15HS82NJ02 | 82 ±5%          | 100                  | 150                | 1.2 max.            | 8        | 100                  | 700                                   |
| LQG15HSR10J02 | 100 ±5%         | 100                  | 150                | 1.25 max.           | 8        | 100                  | 600                                   |
| LQG15HSR12J02 | 120 ±5%         | 100                  | 150                | 1.3 max.            | 8        | 100                  | 600                                   |
| LQG15HSR15J02 | 150 ±5%         | 100                  | 140                | 2.99 max.           | 8        | 100                  | 550                                   |
| LQG15HSR18J02 | 180 ±5%         | 100                  | 130                | 3.38 max.           | 8        | 100                  | 500                                   |
| LQG15HSR22J02 | 220 ±5%         | 100                  | 120                | 3.77 max.           | 8        | 100                  | 450                                   |
| LQG15HSR27J02 | 270 ±5%         | 100                  | 110                | 4.94 max.           | 8        | 100                  | 400                                   |

Operating Temperature Range: -55 to +125°C

Only for reflow soldering.

### ● LQG18H Series (0603)



(in mm)

| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQG18HN1N2S00 | 1.2 ±0.3nH      | 100                  | 500                | 0.10 max.           | 12       | 100                  | 6000                                  |
| LQG18HN1N5S00 | 1.5 ±0.3nH      | 100                  | 500                | 0.10 max.           | 12       | 100                  | 6000                                  |
| LQG18HN1N8S00 | 1.8 ±0.3nH      | 100                  | 500                | 0.10 max.           | 12       | 100                  | 6000                                  |
| LQG18HN2N2S00 | 2.2 ±0.3nH      | 100                  | 500                | 0.10 max.           | 12       | 100                  | 6000                                  |
| LQG18HN2N7S00 | 2.7 ±0.3nH      | 100                  | 500                | 0.15 max.           | 12       | 100                  | 6000                                  |
| LQG18HN3N3S00 | 3.3 ±0.3nH      | 100                  | 500                | 0.15 max.           | 12       | 100                  | 6000                                  |
| LQG18HN3N9S00 | 3.9 ±0.3nH      | 100                  | 450                | 0.15 max.           | 12       | 100                  | 6000                                  |
| LQG18HN4N7S00 | 4.7 ±0.3nH      | 100                  | 450                | 0.20 max.           | 12       | 100                  | 6000                                  |
| LQG18HN5N6S00 | 5.6 ±0.3nH      | 100                  | 430                | 0.20 max.           | 12       | 100                  | 5000                                  |
| LQG18HN6N8J00 | 6.8 ±5%         | 100                  | 430                | 0.25 max.           | 12       | 100                  | 5000                                  |

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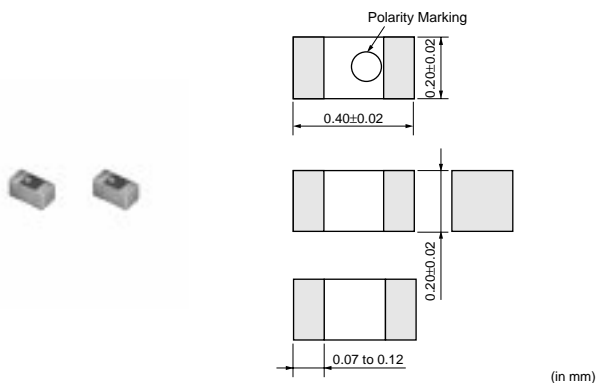
| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQG18HN8N2J00 | 8.2 ±5%         | 100                  | 400                | 0.25 max.           | 12       | 100                  | 4000                                  |
| LQG18HN10NJ00 | 10 ±5%          | 100                  | 400                | 0.30 max.           | 12       | 100                  | 3500                                  |
| LQG18HN12NJ00 | 12 ±5%          | 100                  | 400                | 0.35 max.           | 12       | 100                  | 3000                                  |
| LQG18HN15NJ00 | 15 ±5%          | 100                  | 350                | 0.40 max.           | 12       | 100                  | 2800                                  |
| LQG18HN18NJ00 | 18 ±5%          | 100                  | 350                | 0.45 max.           | 12       | 100                  | 2600                                  |
| LQG18HN22NJ00 | 22 ±5%          | 100                  | 300                | 0.50 max.           | 12       | 100                  | 2300                                  |
| LQG18HN27NJ00 | 27 ±5%          | 100                  | 300                | 0.55 max.           | 12       | 100                  | 2000                                  |
| LQG18HN33NJ00 | 33 ±5%          | 100                  | 300                | 0.60 max.           | 12       | 100                  | 1700                                  |
| LQG18HN39NJ00 | 39 ±5%          | 100                  | 300                | 0.65 max.           | 12       | 100                  | 1500                                  |
| LQG18HN47NJ00 | 47 ±5%          | 100                  | 300                | 0.70 max.           | 12       | 100                  | 1200                                  |
| LQG18HN56NJ00 | 56 ±5%          | 100                  | 300                | 0.75 max.           | 12       | 100                  | 1100                                  |
| LQG18HN68NJ00 | 68 ±5%          | 100                  | 300                | 0.80 max.           | 12       | 100                  | 1000                                  |
| LQG18HN82NJ00 | 82 ±5%          | 100                  | 300                | 0.85 max.           | 12       | 100                  | 900                                   |
| LQG18HNR10J00 | 100 ±5%         | 100                  | 300                | 0.90 max.           | 12       | 100                  | 800                                   |

Operating Temperature Range: -40 to +85°C  
Only for reflow soldering.

## Chip Inductor (Chip Coil)

for High Frequency Film Type

### ● LQP02T Series (01005)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP02TN0N4S02 | 0.4 ±0.3nH      | 500                  | 320                | 0.60 max.           | 8        | 500                  | 6000                                  |
| LQP02TN0N5S02 | 0.5 ±0.3nH      | 500                  | 320                | 0.60 max.           | 8        | 500                  | 6000                                  |
| LQP02TN0N6S02 | 0.6 ±0.3nH      | 500                  | 320                | 0.60 max.           | 8        | 500                  | 6000                                  |
| LQP02TN0N7S02 | 0.7 ±0.3nH      | 500                  | 320                | 0.60 max.           | 8        | 500                  | 6000                                  |
| LQP02TN0N8S02 | 0.8 ±0.3nH      | 500                  | 320                | 0.60 max.           | 8        | 500                  | 6000                                  |
| LQP02TN0N9S02 | 0.9 ±0.3nH      | 500                  | 320                | 0.60 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N0S02 | 1.0 ±0.3nH      | 500                  | 220                | 0.90 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N1S02 | 1.1 ±0.3nH      | 500                  | 220                | 0.90 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N2S02 | 1.2 ±0.3nH      | 500                  | 220                | 0.90 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N3S02 | 1.3 ±0.3nH      | 500                  | 220                | 0.90 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N5S02 | 1.5 ±0.3nH      | 500                  | 220                | 0.90 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N6S02 | 1.6 ±0.3nH      | 500                  | 220                | 0.90 max.           | 8        | 500                  | 6000                                  |
| LQP02TN1N8S02 | 1.8 ±0.3nH      | 500                  | 200                | 1.35 max.           | 8        | 500                  | 6000                                  |
| LQP02TN2N0S02 | 2.0 ±0.3nH      | 500                  | 200                | 1.35 max.           | 8        | 500                  | 6000                                  |
| LQP02TN2N2S02 | 2.2 ±0.3nH      | 500                  | 200                | 1.35 max.           | 8        | 500                  | 6000                                  |
| LQP02TN2N4S02 | 2.4 ±0.3nH      | 500                  | 200                | 1.35 max.           | 8        | 500                  | 6000                                  |
| LQP02TN2N7S02 | 2.7 ±0.3nH      | 500                  | 200                | 1.35 max.           | 8        | 500                  | 6000                                  |

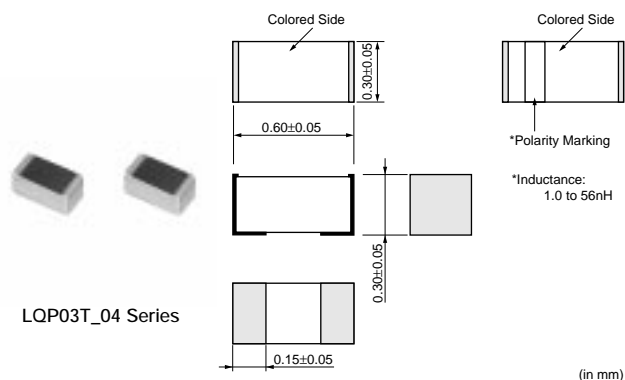
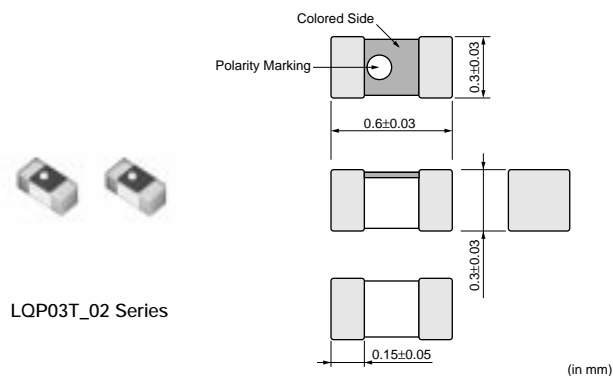
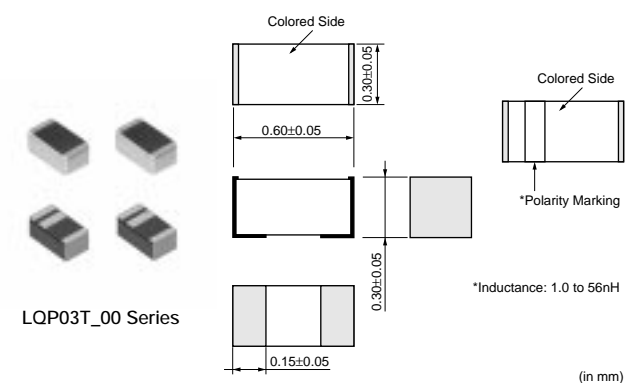
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| Part Number    | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|----------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP02TN3N0S02  | 3.0 ±0.3nH      | 500                  | 200                | 1.35 max.           | 8        | 500                  | 6000                                  |
| LQP02TN3N3S02  | 3.3 ±0.3nH      | 500                  | 180                | 1.65 max.           | 8        | 500                  | 6000                                  |
| LQP02TN3N6S02  | 3.6 ±0.3nH      | 500                  | 180                | 1.65 max.           | 8        | 500                  | 6000                                  |
| LQP02TN3N9S02  | 3.9 ±0.3nH      | 500                  | 180                | 1.65 max.           | 8        | 500                  | 6000                                  |
| LQP02TN4N3S02  | 4.3 ±0.3nH      | 500                  | 180                | 1.65 max.           | 8        | 500                  | 6000                                  |
| LQP02TN4N7S02  | 4.7 ±0.3nH      | 500                  | 160                | 2.10 max.           | 8        | 500                  | 6000                                  |
| LQP02TN5N1S02  | 5.1 ±0.3nH      | 500                  | 160                | 2.10 max.           | 8        | 500                  | 6000                                  |
| LQP02TN5N6S02  | 5.6 ±0.3nH      | 500                  | 140                | 2.40 max.           | 8        | 500                  | 6000                                  |
| LQP02TN6N2J02  | 6.2 ±5%         | 500                  | 140                | 2.40 max.           | 8        | 500                  | 5500                                  |
| LQP02TN6N8J02  | 6.8 ±5%         | 500                  | 140                | 2.85 max.           | 8        | 500                  | 5500                                  |
| LQP02TN7N5J02  | 7.5 ±5%         | 500                  | 140                | 2.85 max.           | 8        | 500                  | 4500                                  |
| LQP02TN8N2J02  | 8.2 ±5%         | 500                  | 140                | 3.15 max.           | 8        | 500                  | 5000                                  |
| LQP02TN9N1J02  | 9.1 ±5%         | 500                  | 140                | 3.15 max.           | 8        | 500                  | 4000                                  |
| LQP02TN10N1J02 | 10 ±5%          | 500                  | 140                | 3.60 max.           | 8        | 500                  | 4000                                  |
| LQP02TN12N1J02 | 12 ±5%          | 500                  | 140                | 3.90 max.           | 7        | 500                  | 3500                                  |
| LQP02TN15N1J02 | 15 ±5%          | 500                  | 140                | 4.35 max.           | 7        | 500                  | 3000                                  |
| LQP02TN18N1J02 | 18 ±5%          | 500                  | 140                | 4.80 max.           | 7        | 500                  | 2500                                  |

Operating Temperature Range: -40 to +85°C  
Only for reflow soldering.

### ● LQP03T Series (0201)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP03TN0N6B00 | 0.6 ±0.1nH      | 500                  | 840                | 0.08 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N6C00 | 0.6 ±0.2nH      | 500                  | 840                | 0.08 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N7B00 | 0.7 ±0.1nH      | 500                  | 820                | 0.09 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N8B00 | 0.8 ±0.1nH      | 500                  | 820                | 0.09 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N8C00 | 0.8 ±0.2nH      | 500                  | 820                | 0.09 max.           | 13       | 500                  | 6000                                  |

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP03TN0N9B00 | 0.9 ±0.1nH      | 500                  | 800                | 0.10 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N0B00 | 1.0 ±0.1nH      | 500                  | 800                | 0.10 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N0C00 | 1.0 ±0.2nH      | 500                  | 800                | 0.10 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N1B00 | 1.1 ±0.1nH      | 500                  | 560                | 0.13 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N2B00 | 1.2 ±0.1nH      | 500                  | 560                | 0.13 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N2C00 | 1.2 ±0.2nH      | 500                  | 560                | 0.13 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N3B00 | 1.3 ±0.1nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N4B00 | 1.4 ±0.1nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N5B00 | 1.5 ±0.1nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N5C00 | 1.5 ±0.2nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N6B00 | 1.6 ±0.1nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N7B00 | 1.7 ±0.1nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N8B00 | 1.8 ±0.1nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N8C00 | 1.8 ±0.2nH      | 500                  | 560                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N9B00 | 1.9 ±0.1nH      | 500                  | 440                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N0B00 | 2.0 ±0.1nH      | 500                  | 440                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N1B00 | 2.1 ±0.1nH      | 500                  | 440                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N2B00 | 2.2 ±0.1nH      | 500                  | 440                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N2C00 | 2.2 ±0.2nH      | 500                  | 440                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N3B00 | 2.3 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N4B00 | 2.4 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N5B00 | 2.5 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N6B00 | 2.6 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N7B00 | 2.7 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N7C00 | 2.7 ±0.2nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N8B00 | 2.8 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N9B00 | 2.9 ±0.1nH      | 500                  | 440                | 0.21 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N0B00 | 3.0 ±0.1nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N1B00 | 3.1 ±0.1nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N2B00 | 3.2 ±0.1nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N3B00 | 3.3 ±0.1nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N3C00 | 3.3 ±0.2nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N4B00 | 3.4 ±0.1nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N5B00 | 3.5 ±0.1nH      | 500                  | 380                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N6B00 | 3.6 ±0.1nH      | 500                  | 340                | 0.45 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N7B00 | 3.7 ±0.1nH      | 500                  | 340                | 0.45 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N8B00 | 3.8 ±0.1nH      | 500                  | 340                | 0.45 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N9B00 | 3.9 ±0.1nH      | 500                  | 340                | 0.45 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N9C00 | 3.9 ±0.2nH      | 500                  | 340                | 0.45 max.           | 13       | 500                  | 6000                                  |
| LQP03TN4N3H00 | 4.3 ±3%         | 500                  | 320                | 0.55 max.           | 13       | 500                  | 6000                                  |
| LQP03TN4N7H00 | 4.7 ±3%         | 500                  | 320                | 0.55 max.           | 13       | 500                  | 6000                                  |
| LQP03TN4N7J00 | 4.7 ±5%         | 500                  | 320                | 0.55 max.           | 13       | 500                  | 6000                                  |
| LQP03TN5N1H00 | 5.1 ±3%         | 500                  | 280                | 0.68 max.           | 13       | 500                  | 6000                                  |
| LQP03TN5N6H00 | 5.6 ±3%         | 500                  | 280                | 0.68 max.           | 13       | 500                  | 6000                                  |
| LQP03TN5N6J00 | 5.6 ±5%         | 500                  | 280                | 0.68 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N2H00 | 6.2 ±3%         | 500                  | 260                | 0.75 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N8H00 | 6.8 ±3%         | 500                  | 260                | 0.75 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N8J00 | 6.8 ±5%         | 500                  | 260                | 0.75 max.           | 13       | 500                  | 6000                                  |
| LQP03TN7N5H00 | 7.5 ±3%         | 500                  | 220                | 0.86 max.           | 13       | 500                  | 5500                                  |
| LQP03TN8N2H00 | 8.2 ±3%         | 500                  | 220                | 0.86 max.           | 13       | 500                  | 5500                                  |
| LQP03TN8N2J00 | 8.2 ±5%         | 500                  | 220                | 0.86 max.           | 13       | 500                  | 5500                                  |
| LQP03TN9N1H00 | 9.1 ±3%         | 500                  | 200                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN10NH00 | 10 ±3%          | 500                  | 200                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN10NJ00 | 10 ±5%          | 500                  | 200                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN12NH00 | 12 ±3%          | 500                  | 180                | 1.25 max.           | 11       | 500                  | 3700                                  |

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP03TN12NJ00 | 12 ±5%          | 500                  | 180                | 1.25 max.           | 11       | 500                  | 3700                                  |
| LQP03TN15NH00 | 15 ±3%          | 500                  | 180                | 1.40 max.           | 11       | 500                  | 3300                                  |
| LQP03TN15NJ00 | 15 ±5%          | 500                  | 180                | 1.40 max.           | 11       | 500                  | 3300                                  |
| LQP03TN18NH00 | 18 ±3%          | 500                  | 160                | 1.60 max.           | 11       | 500                  | 3100                                  |
| LQP03TN18NJ00 | 18 ±5%          | 500                  | 160                | 1.60 max.           | 11       | 500                  | 3100                                  |
| LQP03TN22NH00 | 22 ±3%          | 500                  | 140                | 2.55 max.           | 11       | 500                  | 2800                                  |
| LQP03TN22NJ00 | 22 ±5%          | 500                  | 140                | 2.55 max.           | 11       | 500                  | 2800                                  |
| LQP03TN27NH00 | 27 ±3%          | 500                  | 140                | 2.90 max.           | 11       | 500                  | 2500                                  |
| LQP03TN27NJ00 | 27 ±5%          | 500                  | 140                | 2.90 max.           | 11       | 500                  | 2500                                  |
| LQP03TN33NJ00 | 33 ±5%          | 300                  | 120                | 2.95 max.           | 8        | 300                  | 2000                                  |
| LQP03TN39NJ00 | 39 ±5%          | 300                  | 120                | 3.35 max.           | 8        | 300                  | 1800                                  |
| LQP03TN47NJ00 | 47 ±5%          | 300                  | 100                | 3.60 max.           | 8        | 300                  | 1600                                  |
| LQP03TN56NJ00 | 56 ±5%          | 300                  | 100                | 4.30 max.           | 8        | 300                  | 1400                                  |
| LQP03TN0N6C02 | 0.6 ±0.2nH      | 500                  | 850                | 0.07 max.           | 14       | 500                  | 6000                                  |
| LQP03TN0N7C02 | 0.7 ±0.2nH      | 500                  | 800                | 0.08 max.           | 14       | 500                  | 6000                                  |
| LQP03TN0N8C02 | 0.8 ±0.2nH      | 500                  | 800                | 0.08 max.           | 14       | 500                  | 6000                                  |
| LQP03TN0N9C02 | 0.9 ±0.2nH      | 500                  | 750                | 0.10 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N0C02 | 1.0 ±0.2nH      | 500                  | 750                | 0.10 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N1C02 | 1.1 ±0.2nH      | 500                  | 750                | 0.10 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N2C02 | 1.2 ±0.2nH      | 500                  | 750                | 0.10 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N3C02 | 1.3 ±0.2nH      | 500                  | 600                | 0.15 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N5C02 | 1.5 ±0.2nH      | 500                  | 600                | 0.15 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N6C02 | 1.6 ±0.2nH      | 500                  | 600                | 0.15 max.           | 14       | 500                  | 6000                                  |
| LQP03TN1N8C02 | 1.8 ±0.2nH      | 500                  | 600                | 0.15 max.           | 14       | 500                  | 6000                                  |
| LQP03TN2N0C02 | 2.0 ±0.2nH      | 500                  | 600                | 0.15 max.           | 14       | 500                  | 6000                                  |
| LQP03TN2N2C02 | 2.2 ±0.2nH      | 500                  | 600                | 0.15 max.           | 14       | 500                  | 6000                                  |
| LQP03TN2N4C02 | 2.4 ±0.2nH      | 500                  | 500                | 0.20 max.           | 14       | 500                  | 6000                                  |
| LQP03TN2N7C02 | 2.7 ±0.2nH      | 500                  | 500                | 0.20 max.           | 14       | 500                  | 6000                                  |
| LQP03TN3N0C02 | 3.0 ±0.2nH      | 500                  | 450                | 0.25 max.           | 14       | 500                  | 6000                                  |
| LQP03TN3N3C02 | 3.3 ±0.2nH      | 500                  | 450                | 0.25 max.           | 14       | 500                  | 6000                                  |
| LQP03TN3N6C02 | 3.6 ±0.2nH      | 500                  | 400                | 0.30 max.           | 14       | 500                  | 6000                                  |
| LQP03TN3N9C02 | 3.9 ±0.2nH      | 500                  | 400                | 0.30 max.           | 14       | 500                  | 5700                                  |
| LQP03TN5N1J02 | 5.1 ±5%         | 500                  | 350                | 0.40 max.           | 14       | 500                  | 4200                                  |
| LQP03TN5N6J02 | 5.6 ±5%         | 500                  | 350                | 0.40 max.           | 14       | 500                  | 4000                                  |
| LQP03TN6N2J02 | 6.2 ±5%         | 500                  | 300                | 0.60 max.           | 14       | 500                  | 4000                                  |
| LQP03TN6N8J02 | 6.8 ±5%         | 500                  | 300                | 0.60 max.           | 14       | 500                  | 3900                                  |
| LQP03TN7N5J02 | 7.5 ±5%         | 500                  | 300                | 0.60 max.           | 14       | 500                  | 3700                                  |
| LQP03TN8N2J02 | 8.2 ±5%         | 500                  | 250                | 0.70 max.           | 14       | 500                  | 3600                                  |
| LQP03TN9N1J02 | 9.1 ±5%         | 500                  | 250                | 0.70 max.           | 14       | 500                  | 3300                                  |
| LQP03TN10NJ02 | 10 ±5%          | 500                  | 250                | 0.70 max.           | 14       | 500                  | 3200                                  |
| LQP03TN12NJ02 | 12 ±5%          | 500                  | 250                | 0.70 max.           | 12       | 500                  | 2900                                  |
| LQP03TN15NJ02 | 15 ±5%          | 500                  | 250                | 0.70 max.           | 12       | 500                  | 2600                                  |
| LQP03TN22NJ02 | 22 ±5%          | 500                  | 150                | 1.90 max.           | 12       | 500                  | 2200                                  |
| LQP03TN27NJ02 | 27 ±5%          | 500                  | 140                | 2.30 max.           | 12       | 500                  | 2000                                  |
| LQP03TN33NJ02 | 33 ±5%          | 300                  | 120                | 2.95 max.           | 9        | 300                  | 1700                                  |
| LQP03TN39NJ02 | 39 ±5%          | 300                  | 120                | 3.00 max.           | 9        | 300                  | 1500                                  |
| LQP03TN47NJ02 | 47 ±5%          | 300                  | 100                | 3.60 max.           | 9        | 300                  | 1300                                  |
| LQP03TN56NJ02 | 56 ±5%          | 300                  | 100                | 3.90 max.           | 9        | 300                  | 1200                                  |
| LQP03TN68NJ02 | 68 ±5%          | 300                  | 50                 | 8.00 max.           | 8        | 300                  | 1100                                  |
| LQP03TN82NJ02 | 82 ±5%          | 300                  | 50                 | 10.0 max.           | 8        | 300                  | 1000                                  |
| LQP03TNR10J02 | 100 ±5%         | 300                  | 40                 | 10.0 max.           | 8        | 300                  | 900                                   |
| LQP03TNR12J02 | 120 ±5%         | 300                  | 40                 | 12.0 max.           | 8        | 300                  | 800                                   |
| LQP03TN0N6B04 | 0.6 ±0.1nH      | 500                  | 420                | 0.08 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N6C04 | 0.6 ±0.2nH      | 500                  | 420                | 0.08 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N7B04 | 0.7 ±0.1nH      | 500                  | 410                | 0.09 max.           | 13       | 500                  | 6000                                  |

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP03TN0N8B04 | 0.8 ±0.1nH      | 500                  | 410                | 0.09 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N8C04 | 0.8 ±0.2nH      | 500                  | 410                | 0.09 max.           | 13       | 500                  | 6000                                  |
| LQP03TN0N9B04 | 0.9 ±0.1nH      | 500                  | 400                | 0.10 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N0B04 | 1.0 ±0.1nH      | 500                  | 400                | 0.10 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N0C04 | 1.0 ±0.2nH      | 500                  | 400                | 0.10 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N1B04 | 1.1 ±0.1nH      | 500                  | 280                | 0.13 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N2B04 | 1.2 ±0.1nH      | 500                  | 280                | 0.13 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N2C04 | 1.2 ±0.2nH      | 500                  | 280                | 0.13 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N3B04 | 1.3 ±0.1nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N4B04 | 1.4 ±0.1nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N5B04 | 1.5 ±0.1nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N5C04 | 1.5 ±0.2nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N6B04 | 1.6 ±0.1nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N7B04 | 1.7 ±0.1nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N8B04 | 1.8 ±0.1nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N8C04 | 1.8 ±0.2nH      | 500                  | 280                | 0.16 max.           | 13       | 500                  | 6000                                  |
| LQP03TN1N9B04 | 1.9 ±0.1nH      | 500                  | 220                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N0B04 | 2.0 ±0.1nH      | 500                  | 220                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N1B04 | 2.1 ±0.1nH      | 500                  | 220                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N2B04 | 2.2 ±0.1nH      | 500                  | 220                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N2C04 | 2.2 ±0.2nH      | 500                  | 220                | 0.18 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N3B04 | 2.3 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N4B04 | 2.4 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N5B04 | 2.5 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N6B04 | 2.6 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N7B04 | 2.7 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N7C04 | 2.7 ±0.2nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N8B04 | 2.8 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN2N9B04 | 2.9 ±0.1nH      | 500                  | 220                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N0B04 | 3.0 ±0.1nH      | 500                  | 190                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N1B04 | 3.1 ±0.1nH      | 500                  | 190                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N2B04 | 3.2 ±0.1nH      | 500                  | 190                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N3B04 | 3.3 ±0.1nH      | 500                  | 190                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N3C04 | 3.3 ±0.2nH      | 500                  | 190                | 0.20 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N4B04 | 3.4 ±0.1nH      | 500                  | 190                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N5B04 | 3.5 ±0.1nH      | 500                  | 190                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N6B04 | 3.6 ±0.1nH      | 500                  | 170                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N7B04 | 3.7 ±0.1nH      | 500                  | 170                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N8B04 | 3.8 ±0.1nH      | 500                  | 170                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N9B04 | 3.9 ±0.1nH      | 500                  | 170                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN3N9C04 | 3.9 ±0.2nH      | 500                  | 170                | 0.30 max.           | 13       | 500                  | 6000                                  |
| LQP03TN4N3H04 | 4.3 ±3%         | 500                  | 160                | 0.40 max.           | 13       | 500                  | 6000                                  |
| LQP03TN4N7H04 | 4.7 ±3%         | 500                  | 160                | 0.40 max.           | 13       | 500                  | 6000                                  |
| LQP03TN4N7J04 | 4.7 ±5%         | 500                  | 160                | 0.40 max.           | 13       | 500                  | 6000                                  |
| LQP03TN5N1H04 | 5.1 ±3%         | 500                  | 140                | 0.55 max.           | 13       | 500                  | 6000                                  |
| LQP03TN5N6H04 | 5.6 ±3%         | 500                  | 140                | 0.55 max.           | 13       | 500                  | 6000                                  |
| LQP03TN5N6J04 | 5.6 ±5%         | 500                  | 140                | 0.55 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N2H04 | 6.2 ±3%         | 500                  | 130                | 0.60 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N2J04 | 6.2 ±5%         | 500                  | 130                | 0.60 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N8H04 | 6.8 ±3%         | 500                  | 130                | 0.60 max.           | 13       | 500                  | 6000                                  |
| LQP03TN6N8J04 | 6.8 ±5%         | 500                  | 130                | 0.60 max.           | 13       | 500                  | 6000                                  |
| LQP03TN7N5H04 | 7.5 ±3%         | 500                  | 110                | 0.65 max.           | 13       | 500                  | 5500                                  |
| LQP03TN7N5J04 | 7.5 ±5%         | 500                  | 110                | 0.65 max.           | 13       | 500                  | 5500                                  |
| LQP03TN8N2H04 | 8.2 ±3%         | 500                  | 110                | 0.86 max.           | 13       | 500                  | 5500                                  |
| LQP03TN8N2J04 | 8.2 ±5%         | 500                  | 110                | 0.86 max.           | 13       | 500                  | 5500                                  |

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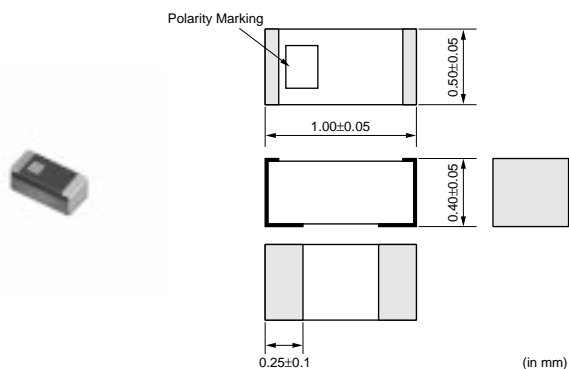
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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP03TN9N1H04 | 9.1 ±3%         | 500                  | 100                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN9N1J04 | 9.1 ±5%         | 500                  | 100                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN10NH04 | 10 ±3%          | 500                  | 100                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN10NJ04 | 10 ±5%          | 500                  | 100                | 1.10 max.           | 13       | 500                  | 4500                                  |
| LQP03TN12NH04 | 12 ±3%          | 500                  | 90                 | 1.15 max.           | 11       | 500                  | 3700                                  |
| LQP03TN12NJ04 | 12 ±5%          | 500                  | 90                 | 1.15 max.           | 11       | 500                  | 3700                                  |
| LQP03TN15NH04 | 15 ±3%          | 500                  | 90                 | 1.40 max.           | 11       | 500                  | 3300                                  |
| LQP03TN15NJ04 | 15 ±5%          | 500                  | 90                 | 1.40 max.           | 11       | 500                  | 3300                                  |
| LQP03TN18NH04 | 18 ±3%          | 500                  | 80                 | 1.60 max.           | 11       | 500                  | 3100                                  |
| LQP03TN18NJ04 | 18 ±5%          | 500                  | 80                 | 1.60 max.           | 11       | 500                  | 3100                                  |
| LQP03TN22NH04 | 22 ±3%          | 500                  | 70                 | 2.55 max.           | 11       | 500                  | 2800                                  |
| LQP03TN22NJ04 | 22 ±5%          | 500                  | 70                 | 2.55 max.           | 11       | 500                  | 2800                                  |
| LQP03TN27NH04 | 27 ±3%          | 500                  | 70                 | 2.90 max.           | 11       | 500                  | 2500                                  |
| LQP03TN27NJ04 | 27 ±5%          | 500                  | 70                 | 2.90 max.           | 11       | 500                  | 2500                                  |
| LQP03TN33NJ04 | 33 ±5%          | 300                  | 60                 | 2.95 max.           | 8        | 300                  | 2000                                  |
| LQP03TN39NJ04 | 39 ±5%          | 300                  | 60                 | 3.35 max.           | 8        | 300                  | 1800                                  |
| LQP03TN47NJ04 | 47 ±5%          | 300                  | 50                 | 3.60 max.           | 8        | 300                  | 1600                                  |
| LQP03TN56NJ04 | 56 ±5%          | 300                  | 50                 | 4.30 max.           | 8        | 300                  | 1400                                  |

Operating Temperature Range: -40 to +85°C

Only for reflow soldering.

### ● LQP15T Series (0402)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP15TN1N0B02 | 1.0 ±0.1nH      | 500                  | 300                | 0.1 max.            | 17       | 500                  | 6000                                  |
| LQP15TN1N0C02 | 1.0 ±0.2nH      | 500                  | 300                | 0.1 max.            | 17       | 500                  | 6000                                  |
| LQP15TN1N1B02 | 1.1 ±0.1nH      | 500                  | 300                | 0.1 max.            | 17       | 500                  | 6000                                  |
| LQP15TN1N1C02 | 1.1 ±0.2nH      | 500                  | 300                | 0.1 max.            | 17       | 500                  | 6000                                  |
| LQP15TN1N2B02 | 1.2 ±0.1nH      | 500                  | 300                | 0.1 max.            | 17       | 500                  | 6000                                  |
| LQP15TN1N2C02 | 1.2 ±0.2nH      | 500                  | 300                | 0.1 max.            | 17       | 500                  | 6000                                  |
| LQP15TN1N3B02 | 1.3 ±0.1nH      | 500                  | 300                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N3C02 | 1.3 ±0.2nH      | 500                  | 300                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N5B02 | 1.5 ±0.1nH      | 500                  | 300                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N5C02 | 1.5 ±0.2nH      | 500                  | 300                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N6B02 | 1.6 ±0.1nH      | 500                  | 250                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N6C02 | 1.6 ±0.2nH      | 500                  | 250                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N8B02 | 1.8 ±0.1nH      | 500                  | 250                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN1N8C02 | 1.8 ±0.2nH      | 500                  | 250                | 0.15 max.           | 17       | 500                  | 6000                                  |
| LQP15TN2N0C02 | 2.0 ±0.2nH      | 500                  | 220                | 0.2 max.            | 17       | 500                  | 6000                                  |
| LQP15TN2N2C02 | 2.2 ±0.2nH      | 500                  | 220                | 0.2 max.            | 17       | 500                  | 6000                                  |
| LQP15TN2N4C02 | 2.4 ±0.2nH      | 500                  | 220                | 0.2 max.            | 17       | 500                  | 6000                                  |

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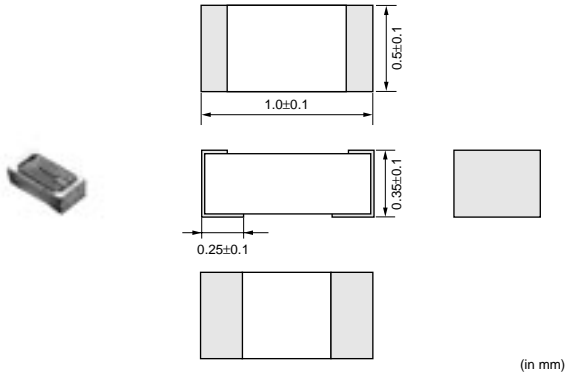
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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP15TN2N7C02 | 2.7 ±0.2nH      | 500                  | 220                | 0.2 max.            | 17       | 500                  | 6000                                  |
| LQP15TN3N0C02 | 3.0 ±0.2nH      | 500                  | 190                | 0.3 max.            | 17       | 500                  | 5500                                  |
| LQP15TN3N3C02 | 3.3 ±0.2nH      | 500                  | 190                | 0.3 max.            | 17       | 500                  | 5500                                  |
| LQP15TN3N6C02 | 3.6 ±0.2nH      | 500                  | 170                | 0.3 max.            | 17       | 500                  | 5500                                  |
| LQP15TN3N9C02 | 3.9 ±0.2nH      | 500                  | 170                | 0.4 max.            | 17       | 500                  | 5500                                  |
| LQP15TN4N7C02 | 4.7 ±0.2nH      | 500                  | 160                | 0.5 max.            | 17       | 500                  | 5000                                  |
| LQP15TN5N6C02 | 5.6 ±0.2nH      | 500                  | 140                | 0.6 max.            | 17       | 500                  | 4500                                  |
| LQP15TN6N8H02 | 6.8 ±3%         | 500                  | 130                | 0.7 max.            | 17       | 500                  | 3500                                  |
| LQP15TN8N2H02 | 8.2 ±3%         | 500                  | 110                | 0.8 max.            | 17       | 500                  | 3000                                  |
| LQP15TN10NH02 | 10 ±3%          | 500                  | 100                | 1.0 max.            | 17       | 500                  | 2500                                  |
| LQP15TN12NH02 | 12 ±3%          | 500                  | 90                 | 1.0 max.            | 17       | 500                  | 2500                                  |
| LQP15TN15NH02 | 15 ±3%          | 500                  | 90                 | 1.3 max.            | 17       | 500                  | 2000                                  |
| LQP15TN18NH02 | 18 ±3%          | 500                  | 80                 | 1.5 max.            | 17       | 500                  | 1500                                  |


 Operating Temperature Range: -40 to +85°C  
 Only for reflow soldering.

### ● LQP15M Series (0402)



| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP15MN1N0B02 | 1.0 ±0.1nH      | 500                  | 400                | 0.1 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N0W02 | 1.0 ±0.05nH     | 500                  | 400                | 0.1 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N1B02 | 1.1 ±0.1nH      | 500                  | 390                | 0.1 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N1W02 | 1.1 ±0.05nH     | 500                  | 390                | 0.1 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N2B02 | 1.2 ±0.1nH      | 500                  | 390                | 0.1 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N2W02 | 1.2 ±0.05nH     | 500                  | 390                | 0.1 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N3B02 | 1.3 ±0.1nH      | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N3W02 | 1.3 ±0.05nH     | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N4W02 | 1.4 ±0.05nH     | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N5B02 | 1.5 ±0.1nH      | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N5W02 | 1.5 ±0.05nH     | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N6B02 | 1.6 ±0.1nH      | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N6W02 | 1.6 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N7W02 | 1.7 ±0.05nH     | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N8B02 | 1.8 ±0.1nH      | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N8W02 | 1.8 ±0.05nH     | 500                  | 280                | 0.2 max.            | 13       | 500                  | 6000                                  |
| LQP15MN1N9W02 | 1.9 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N0B02 | 2.0 ±0.1nH      | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N0W02 | 2.0 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N1W02 | 2.1 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N2B02 | 2.2 ±0.1nH      | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N2W02 | 2.2 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |

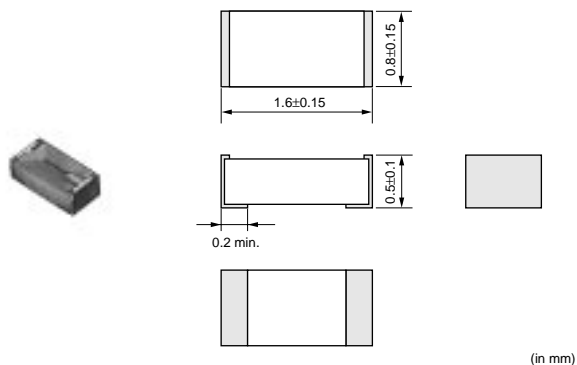
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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP15MN2N3W02 | 2.3 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N4B02 | 2.4 ±0.1nH      | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N4W02 | 2.4 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N5W02 | 2.5 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N6W02 | 2.6 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N7B02 | 2.7 ±0.1nH      | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N7W02 | 2.7 ±0.05nH     | 500                  | 220                | 0.3 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N8W02 | 2.8 ±0.05nH     | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN2N9W02 | 2.9 ±0.05nH     | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N0B02 | 3.0 ±0.1nH      | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N0W02 | 3.0 ±0.05nH     | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N1W02 | 3.1 ±0.05nH     | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N2W02 | 3.2 ±0.05nH     | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N3B02 | 3.3 ±0.1nH      | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N3W02 | 3.3 ±0.05nH     | 500                  | 190                | 0.4 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N4W02 | 3.4 ±0.05nH     | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N5W02 | 3.5 ±0.05nH     | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N6B02 | 3.6 ±0.1nH      | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N6W02 | 3.6 ±0.05nH     | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N7W02 | 3.7 ±0.05nH     | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N8W02 | 3.8 ±0.05nH     | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N9B02 | 3.9 ±0.1nH      | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN3N9W02 | 3.9 ±0.05nH     | 500                  | 170                | 0.5 max.            | 13       | 500                  | 6000                                  |
| LQP15MN4N3B02 | 4.3 ±0.1nH      | 500                  | 160                | 0.6 max.            | 13       | 500                  | 6000                                  |
| LQP15MN4N7B02 | 4.7 ±0.1nH      | 500                  | 160                | 0.6 max.            | 13       | 500                  | 6000                                  |
| LQP15MN5N1B02 | 5.1 ±0.1nH      | 500                  | 140                | 0.7 max.            | 13       | 500                  | 6000                                  |
| LQP15MN5N6B02 | 5.6 ±0.1nH      | 500                  | 140                | 0.7 max.            | 13       | 500                  | 6000                                  |
| LQP15MN6N2B02 | 6.2 ±0.1nH      | 500                  | 130                | 0.9 max.            | 13       | 500                  | 6000                                  |
| LQP15MN6N8B02 | 6.8 ±0.1nH      | 500                  | 130                | 0.9 max.            | 13       | 500                  | 6000                                  |
| LQP15MN7N5B02 | 7.5 ±0.1nH      | 500                  | 110                | 1.1 max.            | 13       | 500                  | 5500                                  |
| LQP15MN8N2B02 | 8.2 ±0.1nH      | 500                  | 110                | 1.1 max.            | 13       | 500                  | 5500                                  |
| LQP15MN9N1B02 | 9.1 ±0.1nH      | 500                  | 100                | 1.3 max.            | 13       | 500                  | 4500                                  |
| LQP15MN10NG02 | 10 ±2%          | 500                  | 100                | 1.3 max.            | 13       | 500                  | 4500                                  |
| LQP15MN12NG02 | 12 ±2%          | 500                  | 90                 | 1.6 max.            | 13       | 500                  | 3700                                  |
| LQP15MN15NG02 | 15 ±2%          | 500                  | 90                 | 1.8 max.            | 13       | 500                  | 3300                                  |
| LQP15MN18NG02 | 18 ±2%          | 500                  | 80                 | 2.0 max.            | 13       | 500                  | 3100                                  |
| LQP15MN22NG02 | 22 ±2%          | 500                  | 70                 | 2.6 max.            | 13       | 500                  | 2800                                  |
| LQP15MN27NG02 | 27 ±2%          | 500                  | 70                 | 3.1 max.            | 13       | 500                  | 2500                                  |
| LQP15MN33NG02 | 33 ±2%          | 500                  | 60                 | 3.8 max.            | 13       | 500                  | 2100                                  |

Operating Temperature Range: -40 to +85°C  
Only for reflow soldering.

## ● LQP18M Series (0603)



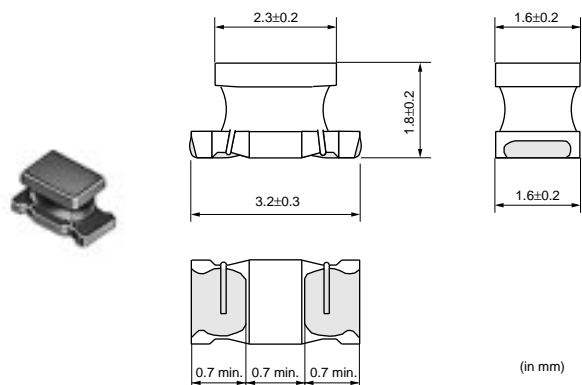
| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQP18MN1N3C02 | 1.3 ±0.2nH      | 500                  | 300                | 0.3 max.            | 17       | 500                  | 6000                                  |
| LQP18MN1N5C02 | 1.5 ±0.2nH      | 500                  | 300                | 0.3 max.            | 17       | 500                  | 6000                                  |
| LQP18MN1N8C02 | 1.8 ±0.2nH      | 500                  | 250                | 0.4 max.            | 17       | 500                  | 6000                                  |
| LQP18MN2N2C02 | 2.2 ±0.2nH      | 500                  | 250                | 0.4 max.            | 17       | 500                  | 6000                                  |
| LQP18MN2N7C02 | 2.7 ±0.2nH      | 500                  | 250                | 0.4 max.            | 17       | 500                  | 6000                                  |
| LQP18MN3N3C02 | 3.3 ±0.2nH      | 500                  | 250                | 0.4 max.            | 17       | 500                  | 6000                                  |
| LQP18MN3N9C02 | 3.9 ±0.2nH      | 500                  | 200                | 0.5 max.            | 17       | 500                  | 5900                                  |
| LQP18MN4N7C02 | 4.7 ±0.2nH      | 500                  | 200                | 0.5 max.            | 17       | 500                  | 5200                                  |
| LQP18MN5N6C02 | 5.6 ±0.2nH      | 500                  | 200                | 0.6 max.            | 17       | 500                  | 4700                                  |
| LQP18MN6N8C02 | 6.8 ±0.2nH      | 500                  | 200                | 0.7 max.            | 17       | 500                  | 4300                                  |
| LQP18MN8N2C02 | 8.2 ±0.2nH      | 500                  | 150                | 0.8 max.            | 17       | 500                  | 3600                                  |
| LQP18MN10NG02 | 10 ±2%          | 500                  | 150                | 1.0 max.            | 17       | 500                  | 3400                                  |
| LQP18MN12NG02 | 12 ±2%          | 500                  | 150                | 1.0 max.            | 17       | 500                  | 3000                                  |
| LQP18MN15NG02 | 15 ±2%          | 500                  | 150                | 1.3 max.            | 17       | 500                  | 2700                                  |
| LQP18MN18NG02 | 18 ±2%          | 500                  | 100                | 1.5 max.            | 17       | 500                  | 2300                                  |
| LQP18MN22NG02 | 22 ±2%          | 500                  | 100                | 1.9 max.            | 17       | 500                  | 2100                                  |
| LQP18MN27NG02 | 27 ±2%          | 500                  | 100                | 2.4 max.            | 17       | 500                  | 1900                                  |
| LQP18MN33NG02 | 33 ±2%          | 500                  | 100                | 2.8 max.            | 17       | 500                  | 1700                                  |
| LQP18MN39NG02 | 39 ±2%          | 500                  | 100                | 2.8 max.            | 17       | 500                  | 1400                                  |
| LQP18MN47NG02 | 47 ±2%          | 300                  | 100                | 2.2 max.            | 17       | 300                  | 1200                                  |
| LQP18MN56NG02 | 56 ±2%          | 300                  | 50                 | 3.4 max.            | 17       | 300                  | 1000                                  |
| LQP18MN68NG02 | 68 ±2%          | 300                  | 50                 | 3.5 max.            | 17       | 300                  | 900                                   |
| LQP18MN82NG02 | 82 ±2%          | 300                  | 50                 | 4.6 max.            | 17       | 300                  | 800                                   |
| LQP18MNR10G02 | 100 ±2%         | 300                  | 50                 | 6.1 max.            | 17       | 300                  | 700                                   |

Operating Temperature Range: -40 to +85°C  
Only for reflow soldering.


## Chip Inductor (Chip Coil)

for General Use Wire Wound Type

## ● LQH31M Series (1206)



| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQH31MNR15K03 | 0.15 ±10%       | 1                    | 250                | 0.39 ±40%           | 20       | 25                   | 250                                   |
| LQH31MNR22K03 | 0.22 ±10%       | 1                    | 240                | 0.43 ±40%           | 20       | 25                   | 250                                   |
| LQH31MNR33K03 | 0.33 ±10%       | 1                    | 230                | 0.45 ±40%           | 30       | 25                   | 250                                   |
| LQH31MNR47K03 | 0.47 ±10%       | 1                    | 215                | 0.83 ±40%           | 30       | 25                   | 200                                   |
| LQH31MNR56K03 | 0.56 ±10%       | 1                    | 200                | 0.61 ±40%           | 30       | 25                   | 180                                   |
| LQH31MNR68K03 | 0.68 ±10%       | 1                    | 190                | 0.67 ±40%           | 30       | 25                   | 160                                   |
| LQH31MNR82K03 | 0.82 ±10%       | 1                    | 185                | 0.73 ±40%           | 30       | 25                   | 120                                   |
| LQH31MN1R0K03 | 1.0 ±10%        | 1                    | 175                | 0.49 ±30%           | 35       | 10                   | 100                                   |
| LQH31MN1R2J03 | 1.2 ±5%         | 1                    | 165                | 0.37 ±30%           | 35       | 10                   | 90                                    |
| LQH31MN1R2K03 | 1.2 ±10%        | 1                    | 165                | 0.9 ±30%            | 35       | 10                   | 90                                    |
| LQH31MN1R5J03 | 1.5 ±5%         | 1                    | 155                | 1.0 ±30%            | 35       | 10                   | 75                                    |
| LQH31MN1R5K03 | 1.5 ±10%        | 1                    | 155                | 1.0 ±30%            | 35       | 10                   | 75                                    |
| LQH31MN1R8J03 | 1.8 ±5%         | 1                    | 150                | 1.6 ±30%            | 35       | 10                   | 60                                    |
| LQH31MN1R8K03 | 1.8 ±10%        | 1                    | 150                | 1.6 ±30%            | 35       | 10                   | 60                                    |
| LQH31MN2R2J03 | 2.2 ±5%         | 1                    | 140                | 0.7 ±30%            | 35       | 10                   | 50                                    |
| LQH31MN2R2K03 | 2.2 ±10%        | 1                    | 140                | 0.7 ±30%            | 35       | 10                   | 50                                    |
| LQH31MN2R7J03 | 2.7 ±5%         | 1                    | 135                | 0.55 ±30%           | 35       | 10                   | 43                                    |
| LQH31MN2R7K03 | 2.7 ±10%        | 1                    | 135                | 0.55 ±30%           | 35       | 10                   | 43                                    |
| LQH31MN3R3J03 | 3.3 ±5%         | 1                    | 130                | 0.61 ±30%           | 35       | 8                    | 38                                    |
| LQH31MN3R3K03 | 3.3 ±10%        | 1                    | 130                | 0.61 ±30%           | 35       | 8                    | 38                                    |
| LQH31MN3R9J03 | 3.9 ±5%         | 1                    | 125                | 1.5 ±30%            | 35       | 8                    | 35                                    |
| LQH31MN3R9K03 | 3.9 ±10%        | 1                    | 125                | 1.5 ±30%            | 35       | 8                    | 35                                    |
| LQH31MN4R7J03 | 4.7 ±5%         | 1                    | 120                | 1.7 ±30%            | 35       | 8                    | 31                                    |
| LQH31MN4R7K03 | 4.7 ±10%        | 1                    | 120                | 1.7 ±30%            | 35       | 8                    | 31                                    |
| LQH31MN5R6J03 | 5.6 ±5%         | 1                    | 115                | 1.8 ±30%            | 35       | 8                    | 28                                    |
| LQH31MN5R6K03 | 5.6 ±10%        | 1                    | 115                | 1.8 ±30%            | 35       | 8                    | 28                                    |
| LQH31MN6R8J03 | 6.8 ±5%         | 1                    | 110                | 2.0 ±30%            | 35       | 8                    | 25                                    |
| LQH31MN6R8K03 | 6.8 ±10%        | 1                    | 110                | 2.0 ±30%            | 35       | 8                    | 25                                    |
| LQH31MN8R2J03 | 8.2 ±5%         | 1                    | 105                | 2.2 ±30%            | 35       | 8                    | 23                                    |
| LQH31MN8R2K03 | 8.2 ±10%        | 1                    | 105                | 2.2 ±30%            | 35       | 8                    | 23                                    |
| LQH31MN100J03 | 10 ±5%          | 1                    | 100                | 2.5 ±30%            | 35       | 5                    | 20                                    |
| LQH31MN100K03 | 10 ±10%         | 1                    | 100                | 2.5 ±30%            | 35       | 5                    | 20                                    |
| LQH31MN120J03 | 12 ±5%          | 1                    | 95                 | 2.7 ±30%            | 35       | 5                    | 18                                    |
| LQH31MN120K03 | 12 ±10%         | 1                    | 95                 | 2.7 ±30%            | 35       | 5                    | 18                                    |
| LQH31MN150J03 | 15 ±5%          | 1                    | 90                 | 3.0 ±30%            | 35       | 5                    | 16                                    |
| LQH31MN150K03 | 15 ±10%         | 1                    | 90                 | 3.0 ±30%            | 35       | 5                    | 16                                    |
| LQH31MN180J03 | 18 ±5%          | 1                    | 85                 | 3.4 ±30%            | 35       | 5                    | 15                                    |
| LQH31MN180K03 | 18 ±10%         | 1                    | 85                 | 3.4 ±30%            | 35       | 5                    | 15                                    |
| LQH31MN220J03 | 22 ±5%          | 1                    | 85                 | 3.1 ±30%            | 40       | 2.5                  | 14                                    |

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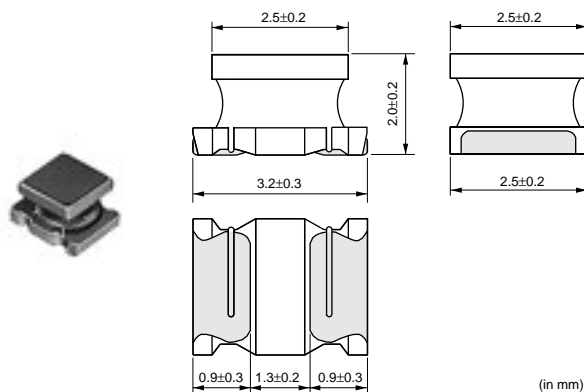


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| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQH31MN220K03 | 22 ±10%         | 1                    | 85                 | 3.1 ±30%            | 40       | 2.5                  | 14                                    |
| LQH31MN270J03 | 27 ±5%          | 1                    | 85                 | 3.4 ±30%            | 40       | 2.5                  | 13                                    |
| LQH31MN270K03 | 27 ±10%         | 1                    | 85                 | 3.4 ±30%            | 40       | 2.5                  | 13                                    |
| LQH31MN330J03 | 33 ±5%          | 1                    | 80                 | 3.8 ±30%            | 40       | 2.5                  | 12                                    |
| LQH31MN330K03 | 33 ±10%         | 1                    | 80                 | 3.8 ±30%            | 40       | 2.5                  | 12                                    |
| LQH31MN390J03 | 39 ±5%          | 1                    | 55                 | 7.2 ±30%            | 40       | 2.5                  | 11                                    |
| LQH31MN390K03 | 39 ±10%         | 1                    | 55                 | 7.2 ±30%            | 40       | 2.5                  | 11                                    |
| LQH31MN470J03 | 47 ±5%          | 1                    | 55                 | 8.0 ±30%            | 40       | 2.5                  | 10                                    |
| LQH31MN470K03 | 47 ±10%         | 1                    | 55                 | 8.0 ±30%            | 40       | 2.5                  | 10                                    |
| LQH31MN560J03 | 56 ±5%          | 1                    | 50                 | 8.9 ±30%            | 40       | 2.5                  | 9                                     |
| LQH31MN560K03 | 56 ±10%         | 1                    | 50                 | 8.9 ±30%            | 40       | 2.5                  | 9                                     |
| LQH31MN680J03 | 68 ±5%          | 1                    | 50                 | 9.9 ±30%            | 40       | 2.5                  | 8.5                                   |
| LQH31MN680K03 | 68 ±10%         | 1                    | 50                 | 9.9 ±30%            | 40       | 2.5                  | 8.5                                   |
| LQH31MN820J03 | 82 ±5%          | 1                    | 45                 | 11 ±30%             | 40       | 2.5                  | 7.5                                   |
| LQH31MN820K03 | 82 ±10%         | 1                    | 45                 | 11 ±30%             | 40       | 2.5                  | 7.5                                   |
| LQH31MN101J03 | 100 ±5%         | 1                    | 45                 | 12 ±30%             | 40       | 2.5                  | 7                                     |
| LQH31MN101K03 | 100 ±10%        | 1                    | 45                 | 12 ±30%             | 40       | 2.5                  | 7                                     |

Operating Temperature Range: -40 to +85°C

### ● LQH32M Series (1210)



(in mm)

| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|----------|----------------|---------------------------------------|
| LQH32MN1R0M23 | 1.0 ±20%        | 1MHz           | 445                | 0.5 max.            | 20       | 1MHz           | 100                                   |
| LQH32MN1R2M23 | 1.2 ±20%        | 1MHz           | 425                | 0.6 max.            | 20       | 1MHz           | 100                                   |
| LQH32MN1R5K23 | 1.5 ±10%        | 1MHz           | 400                | 0.6 max.            | 20       | 1MHz           | 75                                    |
| LQH32MN1R8K23 | 1.8 ±10%        | 1MHz           | 390                | 0.7 max.            | 20       | 1MHz           | 60                                    |
| LQH32MN2R2K23 | 2.2 ±10%        | 1MHz           | 370                | 0.8 max.            | 20       | 1MHz           | 50                                    |
| LQH32MN2R7K23 | 2.7 ±10%        | 1MHz           | 320                | 0.9 max.            | 20       | 1MHz           | 43                                    |
| LQH32MN3R3K23 | 3.3 ±10%        | 1MHz           | 300                | 1.0 max.            | 20       | 1MHz           | 38                                    |
| LQH32MN3R9K23 | 3.9 ±10%        | 1MHz           | 290                | 1.1 max.            | 20       | 1MHz           | 35                                    |
| LQH32MN4R7K23 | 4.7 ±10%        | 1MHz           | 270                | 1.2 max.            | 20       | 1MHz           | 31                                    |
| LQH32MN5R6K23 | 5.6 ±10%        | 1MHz           | 250                | 1.3 max.            | 20       | 1MHz           | 28                                    |
| LQH32MN6R8K23 | 6.8 ±10%        | 1MHz           | 240                | 1.5 max.            | 20       | 1MHz           | 25                                    |
| LQH32MN8R2K23 | 8.2 ±10%        | 1MHz           | 225                | 1.6 max.            | 20       | 1MHz           | 23                                    |
| LQH32MN100J23 | 10 ±5%          | 1MHz           | 190                | 1.8 max.            | 35       | 1MHz           | 20                                    |
| LQH32MN100K23 | 10 ±10%         | 1MHz           | 190                | 1.8 max.            | 35       | 1MHz           | 20                                    |
| LQH32MN120J23 | 12 ±5%          | 1MHz           | 180                | 2.0 max.            | 35       | 1MHz           | 18                                    |
| LQH32MN120K23 | 12 ±10%         | 1MHz           | 180                | 2.0 max.            | 35       | 1MHz           | 18                                    |
| LQH32MN150J23 | 15 ±5%          | 1MHz           | 170                | 2.2 max.            | 35       | 1MHz           | 16                                    |
| LQH32MN150K23 | 15 ±10%         | 1MHz           | 170                | 2.2 max.            | 35       | 1MHz           | 16                                    |
| LQH32MN180J23 | 18 ±5%          | 1MHz           | 165                | 2.5 max.            | 35       | 1MHz           | 15                                    |

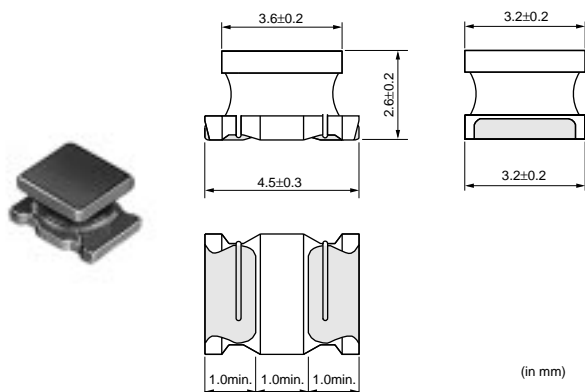
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| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|----------|----------------|---------------------------------------|
| LQH32MN180K23 | 18 ±10%         | 1MHz           | 165                | 2.5 max.            | 35       | 1MHz           | 15                                    |
| LQH32MN220J23 | 22 ±5%          | 1MHz           | 150                | 2.8 max.            | 35       | 1MHz           | 14                                    |
| LQH32MN220K23 | 22 ±10%         | 1MHz           | 150                | 2.8 max.            | 35       | 1MHz           | 14                                    |
| LQH32MN270J23 | 27 ±5%          | 1MHz           | 125                | 3.1 max.            | 35       | 1MHz           | 13                                    |
| LQH32MN270K23 | 27 ±10%         | 1MHz           | 125                | 3.1 max.            | 35       | 1MHz           | 13                                    |
| LQH32MN330J23 | 33 ±5%          | 1MHz           | 115                | 3.5 max.            | 40       | 1MHz           | 12                                    |
| LQH32MN330K23 | 33 ±10%         | 1MHz           | 115                | 3.5 max.            | 40       | 1MHz           | 12                                    |
| LQH32MN390J23 | 39 ±5%          | 1MHz           | 110                | 3.9 max.            | 40       | 1MHz           | 11                                    |
| LQH32MN390K23 | 39 ±10%         | 1MHz           | 110                | 3.9 max.            | 40       | 1MHz           | 11                                    |
| LQH32MN470J23 | 47 ±5%          | 1MHz           | 100                | 4.3 max.            | 40       | 1MHz           | 11                                    |
| LQH32MN470K23 | 47 ±10%         | 1MHz           | 100                | 4.3 max.            | 40       | 1MHz           | 11                                    |
| LQH32MN560J23 | 56 ±5%          | 1MHz           | 85                 | 4.9 max.            | 40       | 1MHz           | 10                                    |
| LQH32MN560K23 | 56 ±10%         | 1MHz           | 85                 | 4.9 max.            | 40       | 1MHz           | 10                                    |
| LQH32MN680J23 | 68 ±5%          | 1MHz           | 80                 | 5.5 max.            | 40       | 1MHz           | 9                                     |
| LQH32MN680K23 | 68 ±10%         | 1MHz           | 80                 | 5.5 max.            | 40       | 1MHz           | 9                                     |
| LQH32MN820J23 | 82 ±5%          | 1MHz           | 70                 | 6.2 max.            | 40       | 1MHz           | 8.5                                   |
| LQH32MN820K23 | 82 ±10%         | 1MHz           | 70                 | 6.2 max.            | 40       | 1MHz           | 8.5                                   |
| LQH32MN101J23 | 100 ±5%         | 1MHz           | 80                 | 7.0 max.            | 40       | 796kHz         | 8                                     |
| LQH32MN101K23 | 100 ±10%        | 1MHz           | 80                 | 7.0 max.            | 40       | 796kHz         | 8                                     |
| LQH32MN121J23 | 120 ±5%         | 1MHz           | 75                 | 8.0 max.            | 40       | 796kHz         | 7.5                                   |
| LQH32MN121K23 | 120 ±10%        | 1MHz           | 75                 | 8.0 max.            | 40       | 796kHz         | 7.5                                   |
| LQH32MN151J23 | 150 ±5%         | 1MHz           | 70                 | 9.3 max.            | 40       | 796kHz         | 7                                     |
| LQH32MN151K23 | 150 ±10%        | 1MHz           | 70                 | 9.3 max.            | 40       | 796kHz         | 7                                     |
| LQH32MN181J23 | 180 ±5%         | 1MHz           | 65                 | 10.2 max.           | 40       | 796kHz         | 6                                     |
| LQH32MN181K23 | 180 ±10%        | 1MHz           | 65                 | 10.2 max.           | 40       | 796kHz         | 6                                     |
| LQH32MN221J23 | 220 ±5%         | 1MHz           | 65                 | 11.8 max.           | 40       | 796kHz         | 5.5                                   |
| LQH32MN221K23 | 220 ±10%        | 1MHz           | 65                 | 11.8 max.           | 40       | 796kHz         | 5.5                                   |
| LQH32MN271J23 | 270 ±5%         | 1MHz           | 65                 | 12.5 max.           | 40       | 796kHz         | 5                                     |
| LQH32MN271K23 | 270 ±10%        | 1MHz           | 65                 | 12.5 max.           | 40       | 796kHz         | 5                                     |
| LQH32MN331J23 | 330 ±5%         | 1MHz           | 65                 | 13.0 max.           | 40       | 796kHz         | 5                                     |
| LQH32MN331K23 | 330 ±10%        | 1MHz           | 65                 | 13.0 max.           | 40       | 796kHz         | 5                                     |
| LQH32MN391J23 | 390 ±5%         | 1MHz           | 50                 | 22.0 max.           | 50       | 796kHz         | 5                                     |
| LQH32MN391K23 | 390 ±10%        | 1MHz           | 50                 | 22.0 max.           | 50       | 796kHz         | 5                                     |
| LQH32MN471J23 | 470 ±5%         | 1kHz           | 45                 | 25.0 max.           | 50       | 796kHz         | 5                                     |
| LQH32MN471K23 | 470 ±10%        | 1kHz           | 45                 | 25.0 max.           | 50       | 796kHz         | 5                                     |
| LQH32MN561J23 | 560 ±5%         | 1kHz           | 40                 | 28.0 max.           | 50       | 796kHz         | 5                                     |
| LQH32MN561K23 | 560 ±10%        | 1kHz           | 40                 | 28.0 max.           | 50       | 796kHz         | 5                                     |

Operating Temperature Range: -40 to +85°C

### ● LQH43M/N Series (1812)



△Note • This PDF catalog is downloaded from the website of Murata Manufacturing co., ltd. Therefore, it's specifications are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before ordering.  
• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|----------|----------------|---------------------------------------|
| LQH43MN1R0M03 | 1.0 ±20%        | 1MHz           | 500                | 0.20 max.           | 20       | 1MHz           | 120                                   |
| LQH43MN1R2M03 | 1.2 ±20%        | 1MHz           | 500                | 0.20 max.           | 20       | 1MHz           | 100                                   |
| LQH43MN1R5M03 | 1.5 ±20%        | 1MHz           | 500                | 0.30 max.           | 20       | 1MHz           | 85                                    |
| LQH43MN1R8M03 | 1.8 ±20%        | 1MHz           | 500                | 0.30 max.           | 20       | 1MHz           | 75                                    |
| LQH43MN2R2M03 | 2.2 ±20%        | 1MHz           | 500                | 0.30 max.           | 20       | 1MHz           | 62                                    |
| LQH43MN2R7M03 | 2.7 ±20%        | 1MHz           | 500                | 0.32 max.           | 20       | 1MHz           | 53                                    |
| LQH43MN3R3M03 | 3.3 ±20%        | 1MHz           | 500                | 0.35 max.           | 20       | 1MHz           | 47                                    |
| LQH43MN3R9M03 | 3.9 ±20%        | 1MHz           | 500                | 0.38 max.           | 20       | 1MHz           | 41                                    |
| LQH43MN4R7K03 | 4.7 ±10%        | 1MHz           | 500                | 0.40 max.           | 30       | 1MHz           | 38                                    |
| LQH43MN5R6K03 | 5.6 ±10%        | 1MHz           | 500                | 0.47 max.           | 30       | 1MHz           | 33                                    |
| LQH43MN6R8K03 | 6.8 ±10%        | 1MHz           | 450                | 0.50 max.           | 30       | 1MHz           | 31                                    |
| LQH43MN8R2K03 | 8.2 ±10%        | 1MHz           | 450                | 0.56 max.           | 30       | 1MHz           | 27                                    |
| LQH43MN100J03 | 10 ±5%          | 1MHz           | 400                | 0.56 max.           | 35       | 1MHz           | 23                                    |
| LQH43MN100K03 | 10 ±10%         | 1MHz           | 400                | 0.56 max.           | 35       | 1MHz           | 23                                    |
| LQH43MN120J03 | 12 ±5%          | 1MHz           | 380                | 0.62 max.           | 35       | 1MHz           | 21                                    |
| LQH43MN120K03 | 12 ±10%         | 1MHz           | 380                | 0.62 max.           | 35       | 1MHz           | 21                                    |
| LQH43MN150J03 | 15 ±5%          | 1MHz           | 360                | 0.73 max.           | 35       | 1MHz           | 19                                    |
| LQH43MN150K03 | 15 ±10%         | 1MHz           | 360                | 0.73 max.           | 35       | 1MHz           | 19                                    |
| LQH43MN180J03 | 18 ±5%          | 1MHz           | 340                | 0.82 max.           | 35       | 1MHz           | 17                                    |
| LQH43MN180K03 | 18 ±10%         | 1MHz           | 340                | 0.82 max.           | 35       | 1MHz           | 17                                    |
| LQH43MN220J03 | 22 ±5%          | 1MHz           | 320                | 0.94 max.           | 35       | 1MHz           | 15                                    |
| LQH43MN220K03 | 22 ±10%         | 1MHz           | 320                | 0.94 max.           | 35       | 1MHz           | 15                                    |
| LQH43MN270J03 | 27 ±5%          | 1MHz           | 300                | 1.1 max.            | 35       | 1MHz           | 14                                    |
| LQH43MN270K03 | 27 ±10%         | 1MHz           | 300                | 1.1 max.            | 35       | 1MHz           | 14                                    |
| LQH43MN330J03 | 33 ±5%          | 1MHz           | 270                | 1.2 max.            | 35       | 1MHz           | 12                                    |
| LQH43MN330K03 | 33 ±10%         | 1MHz           | 270                | 1.2 max.            | 35       | 1MHz           | 12                                    |
| LQH43MN390J03 | 39 ±5%          | 1MHz           | 240                | 1.4 max.            | 35       | 1MHz           | 11                                    |
| LQH43MN390K03 | 39 ±10%         | 1MHz           | 240                | 1.4 max.            | 35       | 1MHz           | 11                                    |
| LQH43MN470J03 | 47 ±5%          | 1MHz           | 220                | 1.5 max.            | 35       | 1MHz           | 10                                    |
| LQH43MN470K03 | 47 ±10%         | 1MHz           | 220                | 1.5 max.            | 35       | 1MHz           | 10                                    |
| LQH43MN560J03 | 56 ±5%          | 1MHz           | 200                | 1.7 max.            | 35       | 1MHz           | 9.3                                   |
| LQH43MN560K03 | 56 ±10%         | 1MHz           | 200                | 1.7 max.            | 35       | 1MHz           | 9.3                                   |
| LQH43MN680J03 | 68 ±5%          | 1MHz           | 180                | 1.9 max.            | 35       | 1MHz           | 8.4                                   |
| LQH43MN680K03 | 68 ±10%         | 1MHz           | 180                | 1.9 max.            | 35       | 1MHz           | 8.4                                   |
| LQH43MN820J03 | 82 ±5%          | 1MHz           | 170                | 2.2 max.            | 35       | 1MHz           | 7.5                                   |
| LQH43MN820K03 | 82 ±10%         | 1MHz           | 170                | 2.2 max.            | 35       | 1MHz           | 7.5                                   |
| LQH43MN101J03 | 100 ±5%         | 1MHz           | 160                | 2.5 max.            | 40       | 796kHz         | 6.8                                   |
| LQH43MN101K03 | 100 ±10%        | 1MHz           | 160                | 2.5 max.            | 40       | 796kHz         | 6.8                                   |
| LQH43MN121J03 | 120 ±5%         | 1MHz           | 150                | 3.0 max.            | 40       | 796kHz         | 6.2                                   |
| LQH43MN121K03 | 120 ±10%        | 1MHz           | 150                | 3.0 max.            | 40       | 796kHz         | 6.2                                   |
| LQH43MN151J03 | 150 ±5%         | 1MHz           | 130                | 3.7 max.            | 40       | 796kHz         | 5.5                                   |
| LQH43MN151K03 | 150 ±10%        | 1MHz           | 130                | 3.7 max.            | 40       | 796kHz         | 5.5                                   |
| LQH43MN181J03 | 180 ±5%         | 1MHz           | 120                | 4.5 max.            | 40       | 796kHz         | 5                                     |
| LQH43MN181K03 | 180 ±10%        | 1MHz           | 120                | 4.5 max.            | 40       | 796kHz         | 5                                     |
| LQH43MN221J03 | 220 ±5%         | 1MHz           | 110                | 5.4 max.            | 40       | 796kHz         | 4.5                                   |
| LQH43MN221K03 | 220 ±10%        | 1MHz           | 110                | 5.4 max.            | 40       | 796kHz         | 4.5                                   |
| LQH43MN271J03 | 270 ±5%         | 1MHz           | 100                | 6.8 max.            | 40       | 796kHz         | 4                                     |
| LQH43MN271K03 | 270 ±10%        | 1MHz           | 100                | 6.8 max.            | 40       | 796kHz         | 4                                     |
| LQH43MN331J03 | 330 ±5%         | 1MHz           | 95                 | 8.2 max.            | 40       | 796kHz         | 3.6                                   |
| LQH43MN331K03 | 330 ±10%        | 1MHz           | 95                 | 8.2 max.            | 40       | 796kHz         | 3.6                                   |
| LQH43MN391J03 | 390 ±5%         | 1MHz           | 90                 | 9.7 max.            | 40       | 796kHz         | 3.3                                   |
| LQH43MN391K03 | 390 ±10%        | 1MHz           | 90                 | 9.7 max.            | 40       | 796kHz         | 3.3                                   |
| LQH43MN471J03 | 470 ±5%         | 1kHz           | 80                 | 11.8 max.           | 40       | 796kHz         | 3                                     |
| LQH43MN471K03 | 470 ±10%        | 1kHz           | 80                 | 11.8 max.           | 40       | 796kHz         | 3                                     |
| LQH43MN561J03 | 560 ±5%         | 1kHz           | 70                 | 14.5 max.           | 40       | 796kHz         | 2.7                                   |

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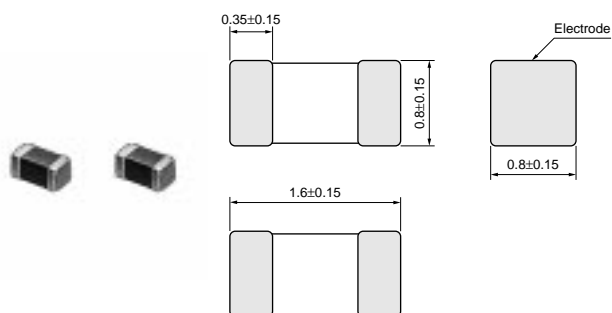
| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|----------|----------------|---------------------------------------|
| LQH43MN561K03 | 560 ±10%        | 1kHz           | 70                 | 14.5 max.           | 40       | 796kHz         | 2.7                                   |
| LQH43MN681J03 | 680 ±5%         | 1kHz           | 65                 | 17.0 max.           | 40       | 796kHz         | 2.5                                   |
| LQH43MN681K03 | 680 ±10%        | 1kHz           | 65                 | 17.0 max.           | 40       | 796kHz         | 2.5                                   |
| LQH43MN821J03 | 820 ±5%         | 1kHz           | 60                 | 20.5 max.           | 40       | 796kHz         | 2.2                                   |
| LQH43MN821K03 | 820 ±10%        | 1kHz           | 60                 | 20.5 max.           | 40       | 796kHz         | 2.2                                   |
| LQH43MN102J03 | 1000 ±5%        | 1kHz           | 50                 | 25.0 max.           | 40       | 252kHz         | 2                                     |
| LQH43MN102K03 | 1000 ±10%       | 1kHz           | 50                 | 25.0 max.           | 40       | 252kHz         | 2                                     |
| LQH43MN122J03 | 1200 ±5%        | 1kHz           | 45                 | 30.0 max.           | 40       | 252kHz         | 1.8                                   |
| LQH43MN122K03 | 1200 ±10%       | 1kHz           | 45                 | 30.0 max.           | 40       | 252kHz         | 1.8                                   |
| LQH43MN152J03 | 1500 ±5%        | 1kHz           | 40                 | 37.0 max.           | 40       | 252kHz         | 1.6                                   |
| LQH43MN152K03 | 1500 ±10%       | 1kHz           | 40                 | 37.0 max.           | 40       | 252kHz         | 1.6                                   |
| LQH43NN182J03 | 1800 ±5%        | 1kHz           | 35                 | 45.0 max.           | 40       | 252kHz         | 1.5                                   |
| LQH43NN182K03 | 1800 ±10%       | 1kHz           | 35                 | 45.0 max.           | 40       | 252kHz         | 1.5                                   |
| LQH43NN222J03 | 2200 ±5%        | 1kHz           | 30                 | 50.0 max.           | 40       | 252kHz         | 1.3                                   |
| LQH43NN222K03 | 2200 ±10%       | 1kHz           | 30                 | 50.0 max.           | 40       | 252kHz         | 1.3                                   |

Operating Temperature Range: -40 to +85°C

## Chip Inductor (Chip Coil)

for General Use Multilayer Type

### ● LQM18N Series (0603)



(in mm)

| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQM18NN47NM00 | 47 ±20%         | 50                   | 50                 | 0.30 max.           | 10       | 50                   | 260                                   |
| LQM18NN68NM00 | 68 ±20%         | 50                   | 50                 | 0.30 max.           | 10       | 50                   | 250                                   |
| LQM18NN82NM00 | 82 ±20%         | 50                   | 50                 | 0.30 max.           | 10       | 50                   | 245                                   |
| LQM18NNR10K00 | 100 ±10%        | 25                   | 50                 | 0.50 max.           | 15       | 25                   | 240                                   |
| LQM18NNR12K00 | 120 ±10%        | 25                   | 50                 | 0.50 max.           | 15       | 25                   | 205                                   |
| LQM18NNR15K00 | 150 ±10%        | 25                   | 50                 | 0.60 max.           | 15       | 25                   | 180                                   |
| LQM18NNR18K00 | 180 ±10%        | 25                   | 50                 | 0.60 max.           | 15       | 25                   | 165                                   |
| LQM18NNR22K00 | 220 ±10%        | 25                   | 50                 | 0.80 max.           | 15       | 25                   | 150                                   |
| LQM18NNR27K00 | 270 ±10%        | 25                   | 50                 | 0.80 max.           | 15       | 25                   | 136                                   |
| LQM18NNR33K00 | 330 ±10%        | 25                   | 35                 | 0.85 max.           | 15       | 25                   | 125                                   |
| LQM18NNR39K00 | 390 ±10%        | 25                   | 35                 | 1.00 max.           | 15       | 25                   | 110                                   |
| LQM18NNR47K00 | 470 ±10%        | 25                   | 35                 | 1.35 max.           | 15       | 25                   | 105                                   |
| LQM18NNR56K00 | 560 ±10%        | 25                   | 35                 | 1.55 max.           | 15       | 25                   | 95                                    |
| LQM18NNR68K00 | 680 ±10%        | 25                   | 35                 | 1.70 max.           | 15       | 25                   | 90                                    |
| LQM18NNR82K00 | 820 ±10%        | 25                   | 35                 | 2.10 max.           | 15       | 25                   | 85                                    |
| LQM18NN1R0K00 | 1000 ±10%       | 10                   | 25                 | 0.60 max.           | 35       | 10                   | 75                                    |
| LQM18NN1R2K00 | 1200 ±10%       | 10                   | 25                 | 0.80 max.           | 35       | 10                   | 65                                    |

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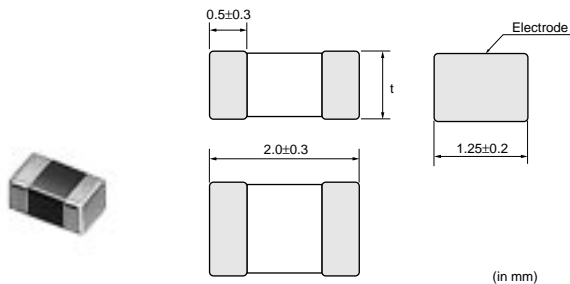
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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

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| Part Number   | Inductance (nH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQM18NN1R5K00 | 1500 ±10%       | 10                   | 25                 | 0.80 max.           | 35       | 10                   | 60                                    |
| LQM18NN1R8K00 | 1800 ±10%       | 10                   | 25                 | 0.95 max.           | 35       | 10                   | 55                                    |
| LQM18NN2R2K00 | 2200 ±10%       | 10                   | 15                 | 1.15 max.           | 35       | 10                   | 50                                    |

Operating Temperature Range: -40 to +85°C

## ● LQM21N Series (0805)



| Dimension of t | Inductance: 0.1 to 2.2μH | 0.85±0.2                 |
|----------------|--------------------------|--------------------------|
|                |                          | Inductance: 2.7 to 4.7μH |

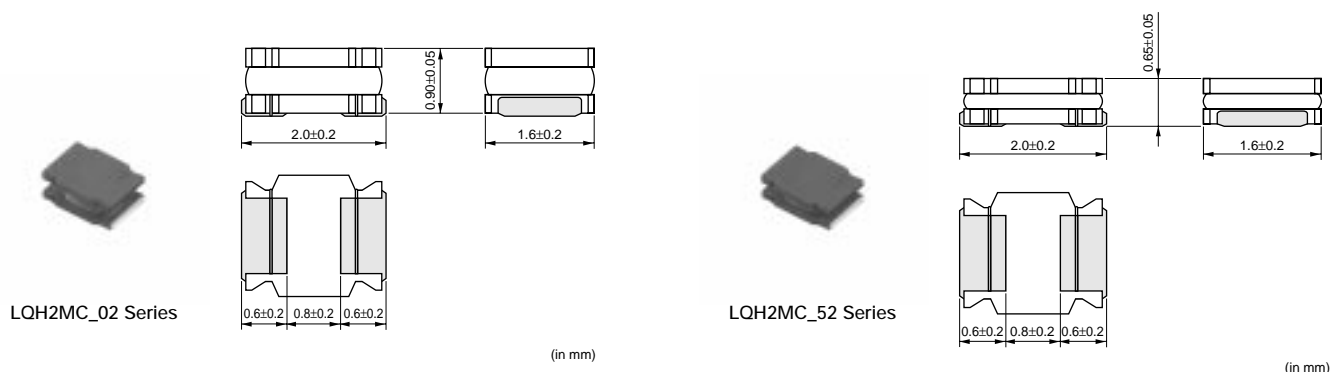
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Q (min.) | Test Frequency (MHz) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|----------|----------------------|---------------------------------------|
| LQM21NNR10K10 | 0.1 ±10%        | 25                   | 250                | 0.26 max.           | 20       | 25                   | 340                                   |
| LQM21NNR12K10 | 0.12 ±10%       | 25                   | 250                | 0.29 max.           | 20       | 25                   | 310                                   |
| LQM21NNR15K10 | 0.15 ±10%       | 25                   | 250                | 0.32 max.           | 20       | 25                   | 270                                   |
| LQM21NNR18K10 | 0.18 ±10%       | 25                   | 250                | 0.35 max.           | 20       | 25                   | 250                                   |
| LQM21NNR22K10 | 0.22 ±10%       | 25                   | 250                | 0.38 max.           | 20       | 25                   | 220                                   |
| LQM21NNR27K10 | 0.27 ±10%       | 25                   | 250                | 0.42 max.           | 20       | 25                   | 200                                   |
| LQM21NNR33K10 | 0.33 ±10%       | 25                   | 250                | 0.48 max.           | 20       | 25                   | 180                                   |
| LQM21NNR39K10 | 0.39 ±10%       | 25                   | 200                | 0.53 max.           | 25       | 25                   | 165                                   |
| LQM21NNR47K10 | 0.47 ±10%       | 25                   | 200                | 0.57 max.           | 25       | 25                   | 150                                   |
| LQM21NNR56K10 | 0.56 ±10%       | 25                   | 150                | 0.63 max.           | 25       | 25                   | 140                                   |
| LQM21NNR68K10 | 0.68 ±10%       | 25                   | 150                | 0.72 max.           | 25       | 25                   | 125                                   |
| LQM21NNR82K10 | 0.82 ±10%       | 25                   | 150                | 0.81 max.           | 25       | 25                   | 115                                   |
| LQM21NN1R0K10 | 1 ±10%          | 10                   | 50                 | 0.40 max.           | 45       | 10                   | 107                                   |
| LQM21NN1R2K10 | 1.2 ±10%        | 10                   | 50                 | 0.47 max.           | 45       | 10                   | 97                                    |
| LQM21NN1R5K10 | 1.5 ±10%        | 10                   | 50                 | 0.50 max.           | 45       | 10                   | 87                                    |
| LQM21NN1R8K10 | 1.8 ±10%        | 10                   | 50                 | 0.57 max.           | 45       | 10                   | 80                                    |
| LQM21NN2R2K10 | 2.2 ±10%        | 10                   | 30                 | 0.63 max.           | 45       | 10                   | 71                                    |
| LQM21NN2R7K10 | 2.7 ±10%        | 10                   | 30                 | 0.69 max.           | 45       | 10                   | 66                                    |
| LQM21NN3R3K10 | 3.3 ±10%        | 10                   | 30                 | 0.80 max.           | 45       | 10                   | 59                                    |
| LQM21NN3R9K10 | 3.9 ±10%        | 10                   | 30                 | 0.89 max.           | 45       | 10                   | 53                                    |
| LQM21NN4R7K10 | 4.7 ±10%        | 10                   | 30                 | 1.00 max.           | 45       | 10                   | 47                                    |

Operating Temperature Range: -40 to +85°C

# Chip Inductor (Chip Coil)

for DC-DC Converter Wire Wound Type

## ● LQH2MC\_02/LQH2MC\_52 Series



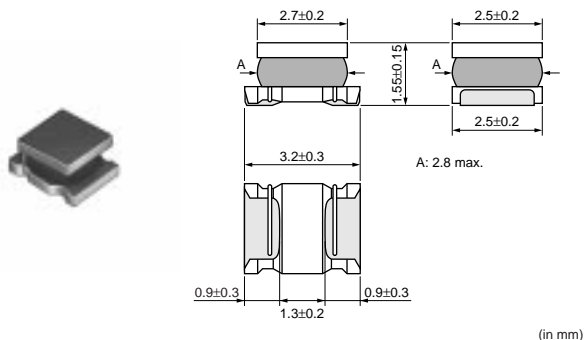
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Allowable DC Current (Based on Temperature Rise) (mA) | Allowable DC Current (Based on Inductance Change) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|---|---|---------------------|---------------------------------------|
| LQH2MCN1R0M02 | 1.0 ±20%        | 1                    | 485   | -   | 0.30 ±30%           | 100                                   |
| LQH2MCN1R5M02 | 1.5 ±20%        | 1                    | 445   | -   | 0.40 ±30%           | 95                                    |
| LQH2MCN2R2M02 | 2.2 ±20%        | 1                    | 425   | -   | 0.48 ±30%           | 70                                    |
| LQH2MCN3R3M02 | 3.3 ±20%        | 1                    | 375   | -   | 0.60 ±30%           | 65                                    |
| LQH2MCN4R7M02 | 4.7 ±20%        | 1                    | 300   | -   | 0.8 ±30%            | 60                                    |
| LQH2MCN5R6M02 | 5.6 ±20%        | 1                    | 280   | -   | 0.9 ±30%            | 60                                    |
| LQH2MCN6R8M02 | 6.8 ±20%        | 1                    | 255   | -   | 1.0 ±30%            | 55                                    |
| LQH2MCN8R2M02 | 8.2 ±20%        | 1                    | 235   | -   | 1.1 ±30%            | 50                                    |
| LQH2MCN100K02 | 10 ±10%         | 1                    | 225   | -   | 1.2 ±30%            | 48                                    |
| LQH2MCN120K02 | 12 ±10%         | 1                    | 210   | -   | 1.4 ±30%            | 44                                    |
| LQH2MCN150K02 | 15 ±10%         | 1                    | 200   | -   | 1.6 ±30%            | 40                                    |
| LQH2MCN180K02 | 18 ±10%         | 1                    | 190   | -   | 1.8 ±30%            | 35                                    |
| LQH2MCN220K02 | 22 ±10%         | 1                    | 185   | -   | 2.1 ±30%            | 30                                    |
| LQH2MCN270K02 | 27 ±10%         | 1                    | 180   | -   | 2.5 ±30%            | 30                                    |
| LQH2MCN330K02 | 33 ±10%         | 1                    | 160   | -   | 2.8 ±30%            | 28                                    |
| LQH2MCN390K02 | 39 ±10%         | 1                    | 125   | -   | 4.4 ±30%            | 24                                    |
| LQH2MCN470K02 | 47 ±10%         | 1                    | 120   | -   | 5.1 ±30%            | 18                                    |
| LQH2MCN560K02 | 56 ±10%         | 1                    | 110   | -   | 5.7 ±30%            | 17                                    |
| LQH2MCN680K02 | 68 ±10%         | 1                    | 100   | -   | 6.6 ±30%            | 14                                    |
| LQH2MCN820K02 | 82 ±10%         | 1                    | 90  | -   | 7.5 ±30%            | 14                                    |
| LQH2MCN1R0M52 | 1.0 ±20%        | 1                    | 595   | -   | 0.25 ±30%           | 215                                   |
| LQH2MCN1R5M52 | 1.5 ±20%        | 1                    | 540   | -   | 0.33 ±30%           | 165                                   |
| LQH2MCN2R2M52 | 2.2 ±20%        | 1                    | 500   | -   | 0.42 ±30%           | 125                                   |
| LQH2MCN3R3M52 | 3.3 ±20%        | 1                    | 360   | -   | 0.74 ±30%           | 110                                   |
| LQH2MCN4R7M52 | 4.7 ±20%        | 1                    | 335   | -   | 0.91 ±30%           | 90                                    |
| LQH2MCN6R8M52 | 6.8 ±20%        | 1                    | 285   | -   | 1.23 ±30%           | 65                                    |
| LQH2MCN100M52 | 10 ±20%         | 1                    | 200   | -   | 2.27 ±30%           | 60                                    |
| LQH2MCN120M52 | 12 ±20%         | 1                    | 170   | -   | 2.4 ±30%            | 30                                    |
| LQH2MCN150M52 | 15 ±20%         | 1                    | 150   | -   | 3.5 ±30%            | 30                                    |
| LQH2MCN180M52 | 18 ±20%         | 1                    | 140   | -   | 4 ±30%              | 30                                    |
| LQH2MCN220M52 | 22 ±20%         | 1                    | 130   | -   | 5.5 ±30%            | 30                                    |

Operating Temperature Range: -40°C to +85°C

Only for reflow soldering.

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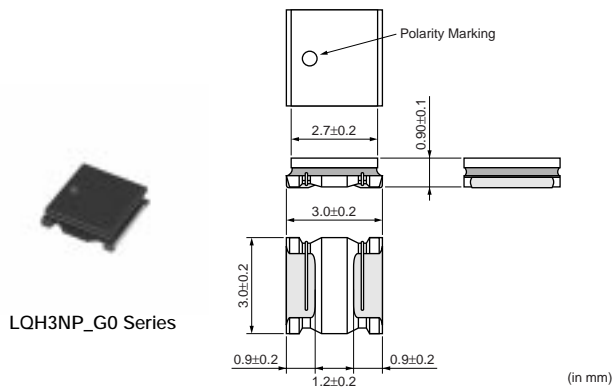
● LQH32P Series



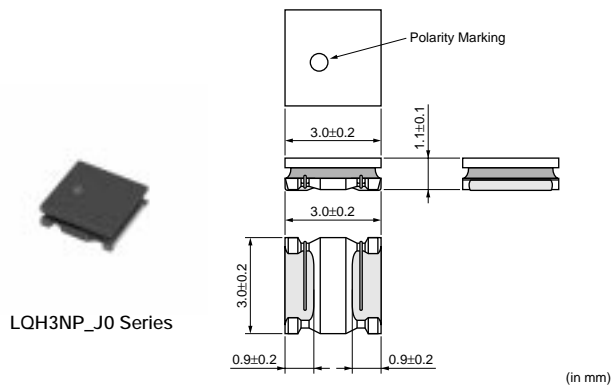
| Part Number   | Inductance ( $\mu$ H) | Test Frequency (MHz) | Allowable DC Current (Based on Temperature Rise) (mA) | Allowable DC Current (Based on Inductance Change) (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------------|----------------------|---|--|---------------------|---------------------------------------|
| LQH32PNR47NN0 | $0.47 \pm 30\%$       | 1                    | 2550  | 3400   | $0.03 \pm 20\%$     | 100                                   |
| LQH32PN1R0NN0 | $1.0 \pm 30\%$        | 1                    | 2050  | 2300   | $0.045 \pm 20\%$    | 100                                   |
| LQH32PN1R5NN0 | $1.5 \pm 30\%$        | 1                    | 1750  | 1750   | $0.057 \pm 20\%$    | 70                                    |
| LQH32PN2R2NN0 | $2.2 \pm 30\%$        | 1                    | 1600  | 1550   | $0.076 \pm 20\%$    | 70                                    |
| LQH32PN3R3NN0 | $3.3 \pm 30\%$        | 1                    | 1200  | 1250   | $0.12 \pm 20\%$     | 50                                    |
| LQH32PN4R7NN0 | $4.7 \pm 30\%$        | 1                    | 1000  | 1000   | $0.18 \pm 20\%$     | 40                                    |
| LQH32PN6R8NN0 | $6.8 \pm 30\%$        | 1                    | 850   | 850  | $0.24 \pm 20\%$     | 40                                    |
| LQH32PN100MN0 | $10 \pm 20\%$         | 1                    | 700   | 750  | $0.38 \pm 20\%$     | 30                                    |
| LQH32PN220MN0 | $22 \pm 20\%$         | 1                    | 450   | 500  | $0.81 \pm 20\%$     | 20                                    |

Operating Temperature Range:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$   
Only for reflow soldering.

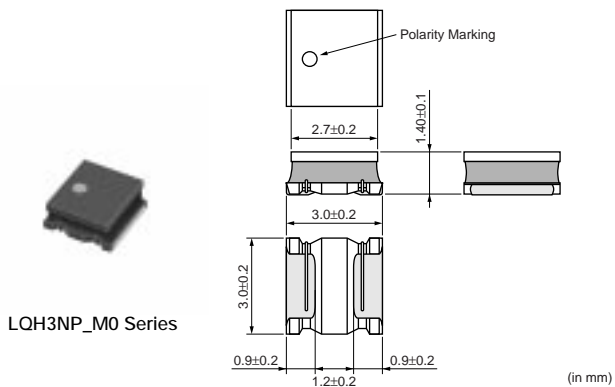
● LQH3NP Series



LQH3NP\_G0 Series



LQH3NP\_J0 Series



LQH3NP\_M0 Series

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| Part Number   | Inductance (μH) | Test Frequency (MHz) | Allowable DC Current (Based on Temperature Rise) (mA) | Allowable DC Current (Based on Inductance Change) (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|---|--|---------------------|---------------------------------------|
| LQH3NPN1R0NG0 | 1.0 ±30%        | 1                    | 1525  | 1650   | 0.08 ±20%           | 160                                   |
| LQH3NPN1R5NG0 | 1.5 ±30%        | 1                    | 1470  | 1300   | 0.10 ±20%           | 130                                   |
| LQH3NPN2R2NG0 | 2.2 ±30%        | 1                    | 1270  | 1250   | 0.14 ±20%           | 100                                   |
| LQH3NPN3R3NG0 | 3.3 ±30%        | 1                    | 1130  | 850  | 0.18 ±20%           | 75                                    |
| LQH3NPN4R7NG0 | 4.7 ±30%        | 1                    | 925   | 800  | 0.26 ±20%           | 60                                    |
| LQH3NPN6R8NG0 | 6.8 ±30%        | 1                    | 710   | 650  | 0.45 ±20%           | 48                                    |
| LQH3NPN100NG0 | 10 ±30%         | 1                    | 630   | 500  | 0.57 ±20%           | 45                                    |
| LQH3NPN150NG0 | 15 ±30%         | 1                    | 475   | 370  | 0.91 ±20%           | 35                                    |
| LQH3NPN220MG0 | 22 ±20%         | 1                    | 430   | 340  | 1.1 ±20%            | 25                                    |
| LQH3NPN220NG0 | 22 ±30%         | 1                    | 430   | 340  | 1.1 ±20%            | 25                                    |
| LQH3NPN330MG0 | 33 ±20%         | 1                    | 345   | 250  | 2.1 ±20%            | 24                                    |
| LQH3NPN330NG0 | 33 ±30%         | 1                    | 345   | 250  | 2.1 ±20%            | 24                                    |
| LQH3NPN470MG0 | 47 ±20%         | 1                    | 270   | 170  | 3.0 ±20%            | 19                                    |
| LQH3NPN470NG0 | 47 ±30%         | 1                    | 270   | 170  | 3.0 ±20%            | 19                                    |
| LQH3NPN680MG0 | 68 ±20%         | 1                    | 235   | 150  | 4.2 ±20%            | 16                                    |
| LQH3NPN680NG0 | 68 ±30%         | 1                    | 235   | 150  | 4.2 ±20%            | 16                                    |
| LQH3NPN101MG0 | 100 ±20%        | 1                    | 165   | 140  | 8.0 ±20%            | 10                                    |
| LQH3NPN101NG0 | 100 ±30%        | 1                    | 165   | 140  | 8.0 ±20%            | 10                                    |
| LQH3NPN151MG0 | 150 ±20%        | 1                    | 145   | 110  | 11.0 ±20%           | 10                                    |
| LQH3NPN151NG0 | 150 ±30%        | 1                    | 145   | 110  | 11.0 ±20%           | 10                                    |
| LQH3NPN221MG0 | 220 ±20%        | 1                    | 130   | 100  | 14.0 ±20%           | 8.5                                   |
| LQH3NPN221NG0 | 220 ±30%        | 1                    | 130   | 100  | 14.0 ±20%           | 8.5                                   |
| LQH3NPN251MG0 | 250 ±20%        | 1                    | 130   | 80   | 15.0 ±20%           | 8.0                                   |
| LQH3NPN251NG0 | 250 ±30%        | 1                    | 130   | 80   | 15.0 ±20%           | 8.0                                   |
| LQH3NPN1R0NJ0 | 1.0 ±30%        | 1                    | 1620  | 1650   | 0.040 ±20%          | 140                                   |
| LQH3NPN1R5NJ0 | 1.5 ±30%        | 1                    | 1500  | 1200   | 0.055 ±20%          | 90                                    |
| LQH3NPN2R2NJ0 | 2.2 ±30%        | 1                    | 1460  | 1150   | 0.069 ±20%          | 90                                    |
| LQH3NPN3R3NJ0 | 3.3 ±30%        | 1                    | 1270  | 950  | 0.105 ±20%          | 70                                    |
| LQH3NPN4R7NJ0 | 4.7 ±30%        | 1                    | 1120  | 780  | 0.130 ±20%          | 65                                    |
| LQH3NPN6R8NJ0 | 6.8 ±30%        | 1                    | 850   | 700  | 0.210 ±20%          | 45                                    |
| LQH3NPN100NJ0 | 10 ±30%         | 1                    | 710   | 560  | 0.300 ±20%          | 35                                    |
| LQH3NPN150NJ0 | 15 ±30%         | 1                    | 590   | 440  | 0.440 ±20%          | 30                                    |
| LQH3NPN220MJ0 | 22 ±20%         | 1                    | 510   | 350  | 0.600 ±20%          | 25                                    |
| LQH3NPN220NJ0 | 22 ±30%         | 1                    | 510   | 350  | 0.600 ±20%          | 25                                    |
| LQH3NPN330MJ0 | 33 ±20%         | 1                    | 410   | 280  | 0.900 ±20%          | 20                                    |
| LQH3NPN330NJ0 | 33 ±30%         | 1                    | 410   | 280  | 0.900 ±20%          | 20                                    |
| LQH3NPN470MJ0 | 47 ±20%         | 1                    | 350   | 200  | 1.30 ±20%           | 15                                    |
| LQH3NPN470NJ0 | 47 ±30%         | 1                    | 350   | 200  | 1.30 ±20%           | 15                                    |
| LQH3NPN1R0MM0 | 1.0 ±20%        | 1                    | 2050  | 1400   | 0.044 ±20%          | 130                                   |
| LQH3NPN1R0NM0 | 1.0 ±30%        | 1                    | 2050  | 1400   | 0.044 ±20%          | 130                                   |
| LQH3NPN2R2MM0 | 2.2 ±20%        | 1                    | 1600  | 1250   | 0.073 ±20%          | 90                                    |
| LQH3NPN2R2NM0 | 2.2 ±30%        | 1                    | 1600  | 1250   | 0.073 ±20%          | 90                                    |
| LQH3NPN3R3MM0 | 3.3 ±20%        | 1                    | 1450  | 1000   | 0.092 ±20%          | 75                                    |
| LQH3NPN3R3NM0 | 3.3 ±30%        | 1                    | 1450  | 1000   | 0.092 ±20%          | 75                                    |
| LQH3NPN4R7MM0 | 4.7 ±20%        | 1                    | 1250  | 880  | 0.13 ±20%           | 65                                    |
| LQH3NPN4R7NM0 | 4.7 ±30%        | 1                    | 1250  | 880  | 0.13 ±20%           | 65                                    |
| LQH3NPN6R8MM0 | 6.8 ±20%        | 1                    | 1000  | 820  | 0.20 ±20%           | 50                                    |
| LQH3NPN6R8NM0 | 6.8 ±30%        | 1                    | 1000  | 820  | 0.20 ±20%           | 50                                    |
| LQH3NPN100MM0 | 10 ±20%         | 1                    | 870   | 550  | 0.26 ±20%           | 45                                    |
| LQH3NPN100NM0 | 10 ±30%         | 1                    | 870   | 550  | 0.26 ±20%           | 45                                    |
| LQH3NPN220MM0 | 22 ±20%         | 1                    | 650   | 410  | 0.51 ±20%           | 28                                    |
| LQH3NPN330MM0 | 33 ±20%         | 1                    | 500   | 370  | 0.85 ±20%           | 22                                    |
| LQH3NPN470MM0 | 47 ±20%         | 1                    | 410   | 310  | 1.25 ±20%           | 18                                    |
| LQH3NPN101MM0 | 100 ±20%        | 1                    | 240   | 200  | 3.50 ±20%           | 12                                    |

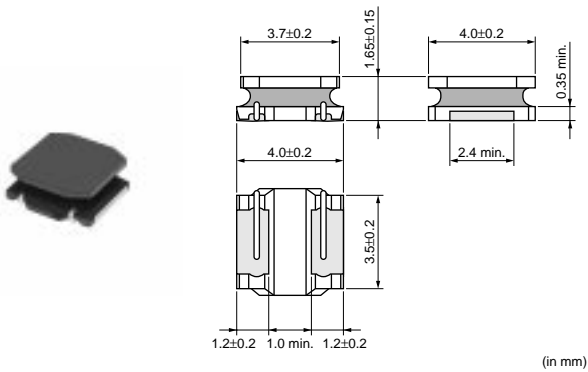
Operating Temperature Range: -40°C to +85°C

Only for reflow soldering.

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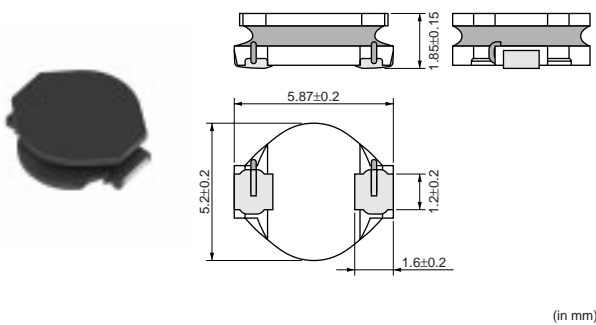


## ● LQH44P Series



| Part Number   | Inductance (μH) | Test Frequency (MHz) | Allowable DC Current (Based on Temperature Rise) (mA) | Allowable DC Current (Based on Inductance Change) (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|---|--|---------------------|---------------------------------------|
| LQH44PN1R0NP0 | 1.0 ±30%        | 1                    | 2450  | 2950   | 0.030 ±20%          | 90                                    |
| LQH44PN2R2MP0 | 2.2 ±20%        | 1                    | 1800  | 2500   | 0.049 ±20%          | 70                                    |
| LQH44PN3R3MP0 | 3.3 ±20%        | 1                    | 1770  | 2100   | 0.065 ±20%          | 50                                    |
| LQH44PN4R7MP0 | 4.7 ±20%        | 1                    | 1700  | 1700   | 0.080 ±20%          | 40                                    |
| LQH44PN6R8MP0 | 6.8 ±20%        | 1                    | 1340  | 1400   | 0.12 ±20%           | 35                                    |
| LQH44PN100MP0 | 10 ±20%         | 1                    | 1170  | 1150   | 0.16 ±20%           | 25                                    |
| LQH44PN220MP0 | 22 ±20%         | 1                    | 790   | 800  | 0.37 ±20%           | 17                                    |

## ● LQH55P Series



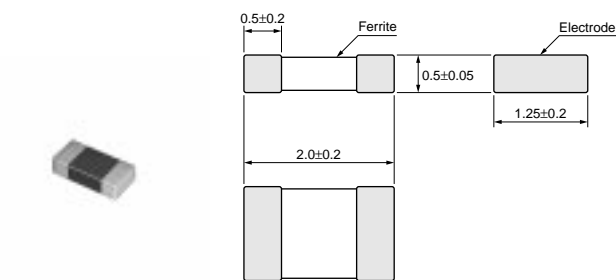
| Part Number   | Inductance (μH) | Test Frequency (kHz) | Allowable DC Current (Based on Temperature Rise) (mA) | Allowable DC Current (Based on Inductance Change) (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|---|--|---------------------|---------------------------------------|
| LQH55PN1R2NR0 | 1.2 ±30%        | 100                  | 2900  | 2600   | 0.021 ±20%          | 80                                    |
| LQH55PN2R2NR0 | 2.2 ±30%        | 100                  | 2500  | 2100   | 0.031 ±20%          | 60                                    |
| LQH55PN2R7NR0 | 2.7 ±30%        | 100                  | 2150  | 2070   | 0.040 ±20%          | 50                                    |
| LQH55PN3R3NR0 | 3.3 ±30%        | 100                  | 2000  | 2000   | 0.044 ±20%          | 35                                    |
| LQH55PN4R7NR0 | 4.7 ±30%        | 100                  | 1750  | 1400   | 0.060 ±20%          | 30                                    |
| LQH55PN6R8NR0 | 6.8 ±30%        | 100                  | 1450  | 1200   | 0.087 ±20%          | 25                                    |
| LQH55PN100MR0 | 10 ±20%         | 100                  | 1250  | 1000   | 0.11 ±20%           | 20                                    |
| LQH55PN220MR0 | 22 ±20%         | 100                  | 850   | 670  | 0.26 ±20%           | 10                                    |

Operating Temperature Range: -40°C to +85°C  
 Only for reflow soldering.

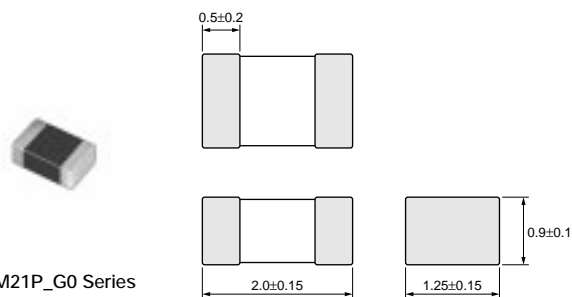
## Chip Inductor (Chip Coil)

for DC-DC Converter Multilayer Type

## ● LQM21P Series (0805)



LQM21P\_C0 Series



LQM21P\_G0 Series

(in mm)

(in mm)

## LQM21P\_C0 Series (0805)

| Part Number   | Inductance ( $\mu$ H) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM21PNR47MC0 | $0.47 \pm 20\%$       | 1                    | 1100               | $0.12 \pm 25\%$     | 100                                   |
| LQM21PN1R0MC0 | $1.0 \pm 20\%$        | 1                    | 800                | $0.19 \pm 25\%$     | 90                                    |
| LQM21PN1R5MC0 | $1.5 \pm 20\%$        | 1                    | 700                | $0.26 \pm 25\%$     | 70                                    |
| LQM21PN2R2MC0 | $2.2 \pm 20\%$        | 1                    | 600                | $0.34 \pm 25\%$     | 50                                    |

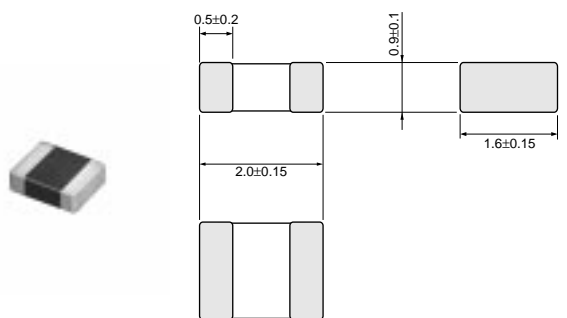
Operating Temperature Range: -55 to +125°C

## LQM21P\_G0 Series (0805)

| Part Number   | Inductance ( $\mu$ H) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM21PNR54MG0 | $0.54 \pm 20\%$       | 1                    | 1300               | $0.075 \pm 25\%$    | 100                                   |

Operating Temperature Range: -55 to +125°C

## ● LQM2MP Series (0806)



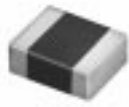
(in mm)

| Part Number   | Inductance ( $\mu$ H) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM2MPNR47NG0 | $0.47 \pm 30\%$       | 1                    | 1600               | $0.06 \pm 25\%$     | 100                                   |
| LQM2MPN1R0NG0 | $1.0 \pm 30\%$        | 1                    | 1400               | $0.085 \pm 25\%$    | 60                                    |
| LQM2MPN1R5NG0 | $1.5 \pm 30\%$        | 1                    | 1200               | $0.11 \pm 25\%$     | 50                                    |
| LQM2MPN2R2NG0 | $2.2 \pm 30\%$        | 1                    | 1200               | $0.11 \pm 25\%$     | 40                                    |
| LQM2MPN3R3NG0 | $3.3 \pm 30\%$        | 1                    | 1200               | $0.12 \pm 25\%$     | 30                                    |
| LQM2MPN4R7NG0 | $4.7 \pm 30\%$        | 1                    | 1100               | $0.14 \pm 25\%$     | 20                                    |

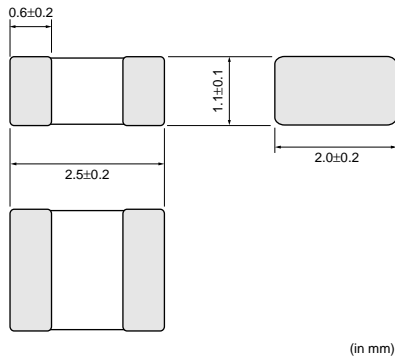
Operating Temperature Range: -55 to +125°C

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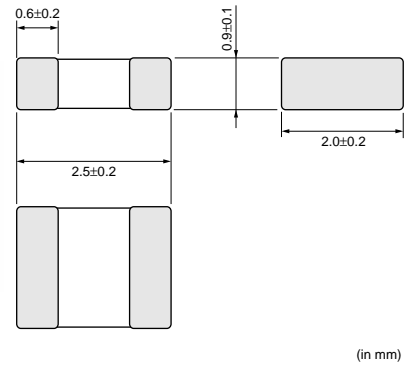
## ● LQM2HP Series (1008)



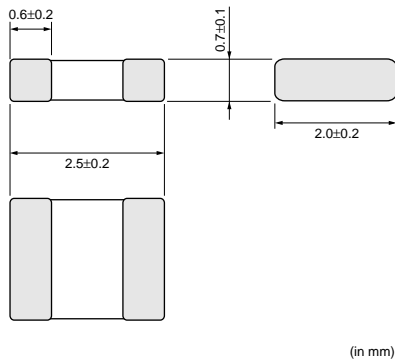
LQM2HP\_J0 Series



LQM2HP\_G0 Series



LQM2HP\_E0 Series



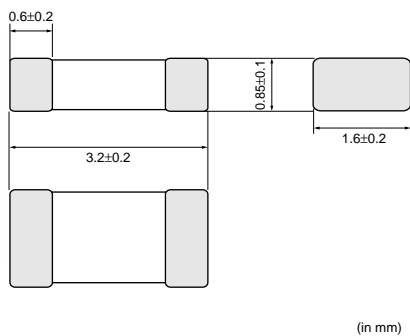
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM2HPN1R0MJ0 | 1.0 ±20%        | 1                    | 1500               | 0.09 ±25%           | 70                                    |
| LQM2HPN2R2MJ0 | 2.2 ±20%        | 1                    | 1000               | 0.12 ±25%           | 40                                    |
| LQM2HPN3R3MJ0 | 3.3 ±20%        | 1                    | 1000               | 0.12 ±25%           | 30                                    |
| LQM2HPNR47MG0 | 0.47 ±20%       | 1                    | 1800               | 0.04 ±25%           | 100                                   |
| LQM2HPN1R0MG0 | 1.0 ±20%        | 1                    | 1600               | 0.055 ±25%          | 60                                    |
| LQM2HPN1R5MG0 | 1.5 ±20%        | 1                    | 1500               | 0.07 ±25%           | 50                                    |
| LQM2HPN2R2MG0 | 2.2 ±20%        | 1                    | 1300               | 0.08 ±25%           | 40                                    |
| LQM2HPN3R3MG0 | 3.3 ±20%        | 1                    | 1200               | 0.10 ±25%           | 30                                    |
| LQM2HPN4R7MG0 | 4.7 ±20%        | 1                    | 1100               | 0.11 ±25%           | 25                                    |
| LQM2HPNR56ME0 | 0.56 ±20%       | 1                    | 1500               | 0.06 ±25%           | 70                                    |

Operating Temperature Range: -55 to +125°C

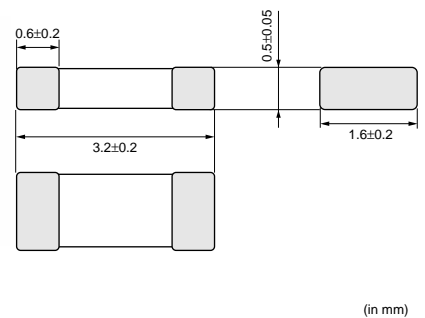
## ● LQM31P Series (1206)



LQM31P\_00 Series



LQM31P\_C0 Series



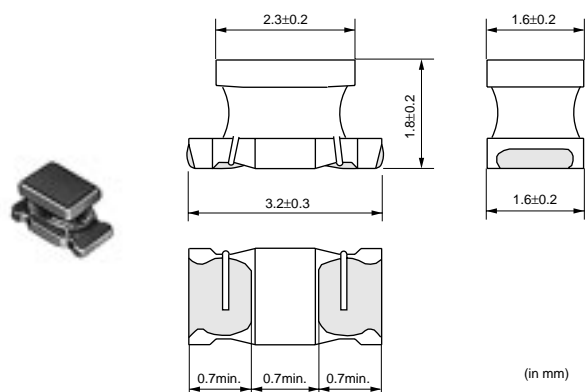
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM31PNR47M00 | 0.47 ±20%       | 1                    | 1400               | 0.07 ±25%           | 80                                    |
| LQM31PN1R0M00 | 1.0 ±20%        | 1                    | 1200               | 0.12 ±25%           | 60                                    |
| LQM31PN1R5M00 | 1.5 ±20%        | 1                    | 1000               | 0.14 ±25%           | 50                                    |
| LQM31PN2R2M00 | 2.2 ±20%        | 1                    | 900                | 0.19 ±25%           | 40                                    |
| LQM31PN3R3M00 | 3.3 ±20%        | 1                    | 800                | 0.24 ±25%           | 30                                    |
| LQM31PN4R7M00 | 4.7 ±20%        | 1                    | 700                | 0.30 ±25%           | 25                                    |
| LQM31PNR47MC0 | 0.47 ±20%       | 1                    | 1300               | 0.085 ±25%          | 90                                    |
| LQM31PN1R0MC0 | 1.0 ±20%        | 1                    | 1100               | 0.14 ±25%           | 70                                    |
| LQM31PN1R5MC0 | 1.5 ±20%        | 1                    | 1000               | 0.17 ±25%           | 60                                    |
| LQM31PN2R2MC0 | 2.2 ±20%        | 1                    | 900                | 0.25 ±25%           | 50                                    |

Operating Temperature Range: -55 to +125°C

## Chip Inductor (Chip Coil)

for Choke Wire Wound Type

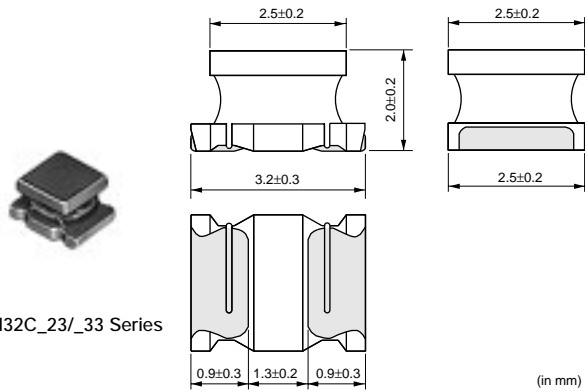
### ● LQH31C Series (1206)



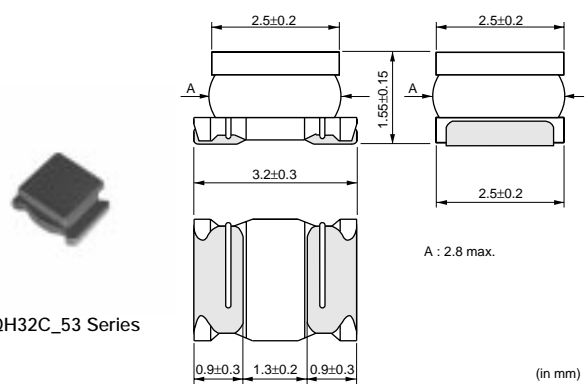
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQH31CNR12M03 | 0.12 ±20%       | 1                    | 970                | 0.08 ±40%           | 250                                   |
| LQH31CNR22M03 | 0.22 ±20%       | 1                    | 850                | 0.1 ±40%            | 250                                   |
| LQH31CNR47M03 | 0.47 ±20%       | 1                    | 700                | 0.15 ±40%           | 180                                   |
| LQH31CN1R0M03 | 1.0 ±20%        | 1                    | 510                | 0.28 ±30%           | 100                                   |
| LQH31CN2R2M03 | 2.2 ±20%        | 1                    | 430                | 0.41 ±30%           | 50                                    |
| LQH31CN4R7M03 | 4.7 ±20%        | 1                    | 340                | 0.65 ±30%           | 31                                    |
| LQH31CN100K03 | 10 ±10%         | 1                    | 230                | 1.3 ±30%            | 20                                    |
| LQH31CN220K03 | 22 ±10%         | 1                    | 160                | 3.0 ±30%            | 14                                    |
| LQH31CN470K03 | 47 ±10%         | 1                    | 100                | 8.0 ±30%            | 10                                    |
| LQH31CN101K03 | 100 ±10%        | 1                    | 80                 | 12 ±30%             | 7                                     |

Operating Temperature Range: -40 to +85°C

## ● LQH32C Series (1210)



LQH32C\_23/\_33 Series



LQH32C\_53 Series

(in mm)

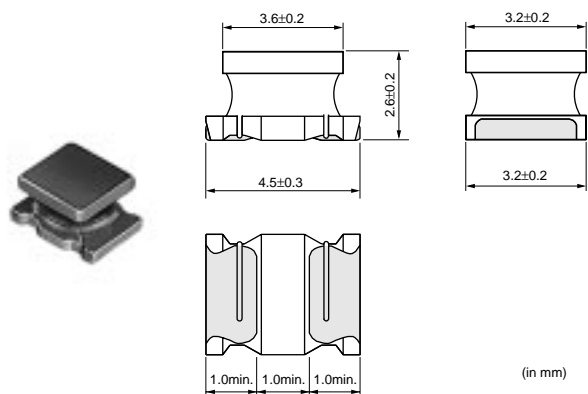
(in mm)

| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|---------------------------------------|
| LQH32CN1R0M23 | 1.0 ±20%        | 1MHz           | 800                | 0.09 ±30%           | 96                                    |
| LQH32CN2R2M23 | 2.2 ±20%        | 1MHz           | 600                | 0.13 ±30%           | 64                                    |
| LQH32CN4R7M23 | 4.7 ±20%        | 1MHz           | 450                | 0.2 ±30%            | 43                                    |
| LQH32CN100K23 | 10 ±10%         | 1MHz           | 300                | 0.44 ±30%           | 26                                    |
| LQH32CN220K23 | 22 ±10%         | 1MHz           | 250                | 0.71 ±30%           | 19                                    |
| LQH32CN470K23 | 47 ±10%         | 1MHz           | 170                | 1.3 ±30%            | 15                                    |
| LQH32CN101K23 | 100 ±10%        | 1MHz           | 100                | 3.5 ±30%            | 10                                    |
| LQH32CN221K23 | 220 ±10%        | 1MHz           | 70                 | 8.4 ±30%            | 6.8                                   |
| LQH32CN331K23 | 330 ±10%        | 1MHz           | 60                 | 10 ±30%             | 5.6                                   |
| LQH32CN391K23 | 390 ±10%        | 1MHz           | 60                 | 17 ±30%             | 5                                     |
| LQH32CN471K23 | 470 ±10%        | 1kHz           | 60                 | 19 ±30%             | 5                                     |
| LQH32CN561K23 | 560 ±10%        | 1kHz           | 60                 | 22 ±30%             | 5                                     |
| LQH32CNR15M33 | 0.15 ±20%       | 1MHz           | 1450               | 0.028 ±30%          | 400                                   |
| LQH32CNR27M33 | 0.27 ±20%       | 1MHz           | 1250               | 0.034 ±30%          | 250                                   |
| LQH32CNR47M33 | 0.47 ±20%       | 1MHz           | 1100               | 0.042 ±30%          | 150                                   |
| LQH32CN1R0M33 | 1.0 ±20%        | 1MHz           | 1000               | 0.06 ±30%           | 100                                   |
| LQH32CN2R2M33 | 2.2 ±20%        | 1MHz           | 790                | 0.097 ±30%          | 64                                    |
| LQH32CN4R7M33 | 4.7 ±20%        | 1MHz           | 650                | 0.15 ±30%           | 43                                    |
| LQH32CN100K33 | 10 ±10%         | 1MHz           | 450                | 0.3 ±30%            | 26                                    |
| LQH32CN1R0M53 | 1.0 ±20%        | 1MHz           | 1000               | 0.060 ±30%          | 100                                   |
| LQH32CN2R2M53 | 2.2 ±20%        | 1MHz           | 790                | 0.097 ±30%          | 64                                    |
| LQH32CN3R3M53 | 3.3 ±20%        | 1MHz           | 710                | 0.12 ±30%           | 50                                    |
| LQH32CN4R7M53 | 4.7 ±20%        | 1MHz           | 650                | 0.15 ±30%           | 43                                    |
| LQH32CN6R8M53 | 6.8 ±20%        | 1MHz           | 540                | 0.25 ±30%           | 32                                    |
| LQH32CN100K53 | 10 ±10%         | 1MHz           | 450                | 0.30 ±30%           | 26                                    |
| LQH32CN150K53 | 15 ±10%         | 1MHz           | 300                | 0.58 ±30%           | 26                                    |
| LQH32CN220K53 | 22 ±10%         | 1MHz           | 250                | 0.71 ±30%           | 19                                    |
| LQH32CN330K53 | 33 ±10%         | 1MHz           | 200                | 1.1 ±30%            | 17                                    |
| LQH32CN470K53 | 47 ±10%         | 1MHz           | 170                | 1.3 ±30%            | 15                                    |
| LQH32CN680K53 | 68 ±10%         | 1MHz           | 130                | 2.2 ±30%            | 12                                    |
| LQH32CN101K53 | 100 ±10%        | 1MHz           | 100                | 3.5 ±30%            | 10                                    |

Operating Temperature Range: -40 to +85°C

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## ● LQH43C Series (1812)



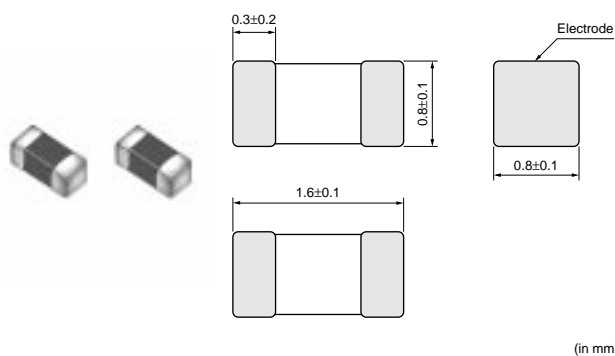
| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|---------------------------------------|
| LQH43CN1R0M03 | 1.0 ±20%        | 1MHz           | 1080               | 0.08 max.           | 100                                   |
| LQH43CN1R5M03 | 1.5 ±20%        | 1MHz           | 1000               | 0.09 max.           | 85                                    |
| LQH43CN2R2M03 | 2.2 ±20%        | 1MHz           | 900                | 0.11 max.           | 60                                    |
| LQH43CN3R3M03 | 3.3 ±20%        | 1MHz           | 800                | 0.13 max.           | 47                                    |
| LQH43CN4R7M03 | 4.7 ±20%        | 1MHz           | 750                | 0.15 max.           | 35                                    |
| LQH43CN6R8M03 | 6.8 ±20%        | 1MHz           | 720                | 0.20 max.           | 30                                    |
| LQH43CN100K03 | 10 ±10%         | 1MHz           | 650                | 0.24 max.           | 23                                    |
| LQH43CN150K03 | 15 ±10%         | 1MHz           | 570                | 0.32 max.           | 20                                    |
| LQH43CN220K03 | 22 ±10%         | 1MHz           | 420                | 0.6 max.            | 15                                    |
| LQH43CN330K03 | 33 ±10%         | 1MHz           | 310                | 1.0 max.            | 12                                    |
| LQH43CN470K03 | 47 ±10%         | 1MHz           | 280                | 1.1 max.            | 10                                    |
| LQH43CN680K03 | 68 ±10%         | 1MHz           | 220                | 1.7 max.            | 8.4                                   |
| LQH43CN101K03 | 100 ±10%        | 1MHz           | 190                | 2.2 max.            | 6.8                                   |
| LQH43CN151K03 | 150 ±10%        | 1MHz           | 130                | 3.5 max.            | 5.5                                   |
| LQH43CN221K03 | 220 ±10%        | 1MHz           | 110                | 4.0 max.            | 4.5                                   |
| LQH43CN331K03 | 330 ±10%        | 1MHz           | 100                | 6.8 max.            | 3.6                                   |
| LQH43CN471K03 | 470 ±10%        | 1kHz           | 90                 | 8.5 max.            | 3.0                                   |

Operating Temperature Range: -40 to +85°C

## Chip Inductor (Chip Coil)

for Choke Multilayer Type

## ● LQM18F Series (0603)



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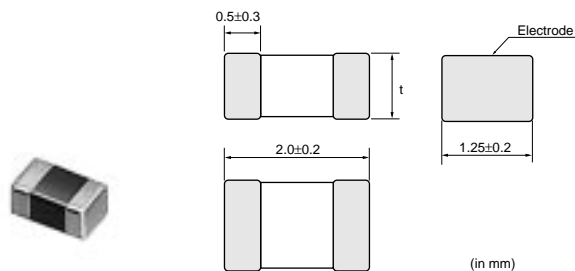
| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM18FN1R0M00 | 1.0 ±20%        | 1                    | 150                | 0.20 ±30%           | 120                                   |
| LQM18FN2R2M00 | 2.2 ±20%        | 1                    | 120                | 0.40 ±30%           | 80                                    |
| LQM18FN4R7M00 | 4.7 ±20%        | 1                    | 80                 | 0.60 ±30%           | 50                                    |
| LQM18FN100M00 | 10 ±20%         | 1                    | 50                 | 0.90 ±30%           | 30                                    |

Operating Temperature Range: -55 to +125°C

**3**

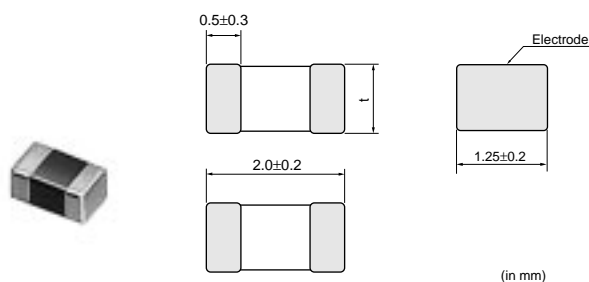
Inductors (Coils)

### ● LQM21D/F Series (0805)



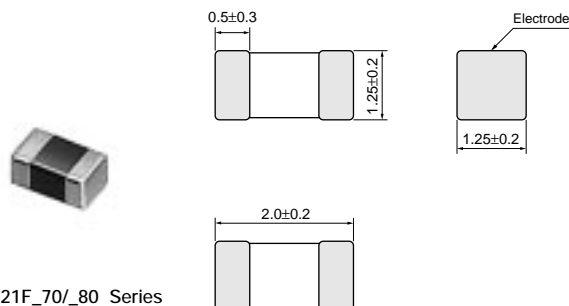
LQM21D Series

| Dimension of t | Inductance: 1.0 to 10μH | 0.85±0.2               |
|----------------|-------------------------|------------------------|
|                |                         | Inductance: 22 to 47μH |



LQM21F\_00 Series

| Dimension of t | Inductance: 1.0 to 2.2μH | 0.85±0.2                |
|----------------|--------------------------|-------------------------|
|                |                          | Inductance: 4.7 to 47μH |



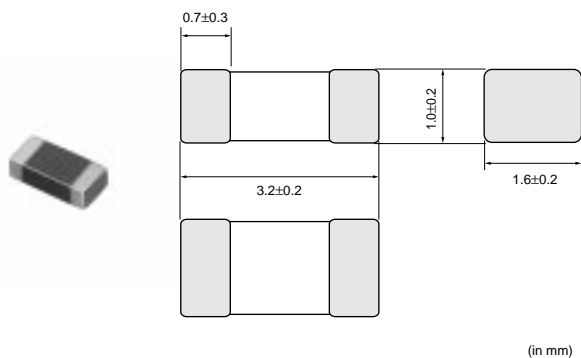
LQM21F\_70/\_80 Series

(in mm)

| Part Number   | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------------|--------------------|---------------------|---------------------------------------|
| LQM21DN1R0N00 | 1.0 ±30%        | 1                    | 60                 | 0.10 max.           | 75                                    |
| LQM21DN2R2N00 | 2.2 ±30%        | 1                    | 40                 | 0.17 max.           | 50                                    |
| LQM21DN4R7N00 | 4.7 ±30%        | 1                    | 30                 | 0.30 max.           | 35                                    |
| LQM21DN100N00 | 10 ±30%         | 1                    | 15                 | 0.50 max.           | 24                                    |
| LQM21DN220N00 | 22 ±30%         | 1                    | 13                 | 0.65 max.           | 16                                    |
| LQM21DN470N00 | 47 ±30%         | 1                    | 7                  | 1.20 max.           | 7.5                                   |
| LQM21FN1R0N00 | 1.0 ±30%        | 1                    | 220                | 0.20 ±30%           | 105                                   |
| LQM21FN2R2N00 | 2.2 ±30%        | 1                    | 150                | 0.28 ±30%           | 70                                    |
| LQM21FN4R7N00 | 4.7 ±30%        | 1                    | 80                 | 0.30 ±30%           | 25                                    |
| LQM21FN100N00 | 10 ±30%         | 1                    | 60                 | 0.50 ±30%           | 15                                    |
| LQM21FN220N00 | 22 ±30%         | 1                    | 13                 | 0.35 ±30%           | 15                                    |
| LQM21FN470N00 | 47 ±30%         | 1                    | 7                  | 0.60 ±30%           | 7.5                                   |
| LQM21FN4R7M70 | 4.7 ±20%        | 1                    | 120                | 0.35 ±30%           | 25                                    |
| LQM21FN100M70 | 10 ±20%         | 1                    | 100                | 0.60 ±30%           | 15                                    |
| LQM21FN4R7M80 | 4.7 ±20%        | 1                    | 120                | 0.18 ±30%           | 25                                    |
| LQM21FN100M80 | 10 ±20%         | 1                    | 100                | 0.30 ±30%           | 15                                    |

Operating Temperature Range: -40°C to +85°C (LQM21D/21F\_00 Series), -55°C to +125°C (LQM21F\_70/\_80 Series)

## ● LQM31F Series (1206)



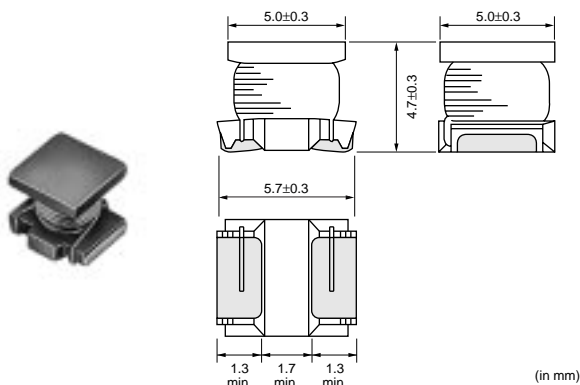
| Part Number          | Inductance (μH) | Test Frequency (MHz) | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|----------------------|-----------------|----------------------|--------------------|---------------------|---------------------------------------|
| <b>LQM31FN100M00</b> | 10 ±20%         | 1                    | 70                 | 0.50 max.           | 20                                    |

Operating Temperature Range: -40 to +85°C

## Chip Inductor (Chip Coil)

for Choke Large Current Type

## ● LQH55D Series (2220)



| Part Number          | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|----------------------|-----------------|----------------|--------------------|---------------------|---------------------------------------|
| <b>LQH55DNR12M03</b> | 0.12 ±20%       | 1MHz           | 6000               | 0.007 ±40%          | 450                                   |
| <b>LQH55DNR27M03</b> | 0.27 ±20%       | 1MHz           | 5300               | 0.010 ±40%          | 300                                   |
| <b>LQH55DNR47M03</b> | 0.47 ±20%       | 1MHz           | 4800               | 0.013 ±40%          | 200                                   |
| <b>LQH55DN1R0M03</b> | 1.0 ±20%        | 1MHz           | 4000               | 0.019 ±40%          | 150                                   |
| <b>LQH55DN1R5M03</b> | 1.5 ±20%        | 1MHz           | 3700               | 0.022 ±40%          | 110                                   |
| <b>LQH55DN2R2M03</b> | 2.2 ±20%        | 1MHz           | 3200               | 0.029 ±40%          | 80                                    |
| <b>LQH55DN3R3M03</b> | 3.3 ±20%        | 1MHz           | 2900               | 0.036 ±40%          | 40                                    |
| <b>LQH55DN4R7M03</b> | 4.7 ±20%        | 1MHz           | 2700               | 0.041 ±40%          | 30                                    |
| <b>LQH55DN6R8M03</b> | 6.8 ±20%        | 1MHz           | 2000               | 0.074 ±40%          | 25                                    |
| <b>LQH55DN100M03</b> | 10 ±20%         | 1MHz           | 1700               | 0.093 ±40%          | 20                                    |
| <b>LQH55DN150M03</b> | 15 ±20%         | 1MHz           | 1400               | 0.15 ±40%           | 17                                    |
| <b>LQH55DN220M03</b> | 22 ±20%         | 1MHz           | 1200               | 0.19 ±40%           | 15                                    |
| <b>LQH55DN330M03</b> | 33 ±20%         | 1MHz           | 900                | 0.32 ±40%           | 12                                    |
| <b>LQH55DN470M03</b> | 47 ±20%         | 1MHz           | 800                | 0.40 ±40%           | 10                                    |
| <b>LQH55DN680M03</b> | 68 ±20%         | 1MHz           | 640                | 0.67 ±40%           | 7.6                                   |
| <b>LQH55DN101M03</b> | 100 ±20%        | 100kHz         | 560                | 0.86 ±40%           | 6.5                                   |
| <b>LQH55DN151M03</b> | 150 ±20%        | 100kHz         | 420                | 1.9 ±40%            | 5.0                                   |
| <b>LQH55DN221M03</b> | 220 ±20%        | 100kHz         | 320                | 2.4 ±40%            | 4.0                                   |

Continued on the following page.

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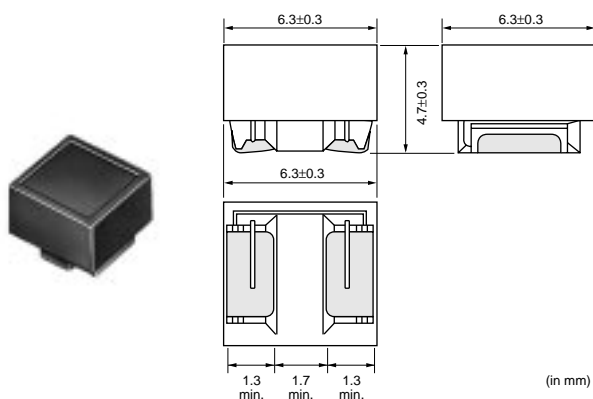


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| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|---------------------------------------|
| LQH55DN331M03 | 330 ±20%        | 100kHz         | 270                | 4.4 ±40%            | 3.1                                   |
| LQH55DN471M03 | 470 ±20%        | 100kHz         | 240                | 5.4 ±40%            | 2.4                                   |
| LQH55DN681M03 | 680 ±20%        | 100kHz         | 190                | 8.1 ±40%            | 1.9                                   |
| LQH55DN102M03 | 1000 ±20%       | 10kHz          | 150                | 10.3 ±40%           | 1.7                                   |
| LQH55DN222M03 | 2200 ±20%       | 10kHz          | 100                | 21.5 ±40%           | 1.2                                   |
| LQH55DN472M03 | 4700 ±20%       | 10kHz          | 70                 | 43.6 ±40%           | 0.8                                   |
| LQH55DN103M03 | 10000 ±20%      | 10kHz          | 50                 | 100 ±40%            | 0.5                                   |

Operating Temperature Range: -40 to +80°C  
Only for reflow soldering.

### ● LQH66S Series (2525)



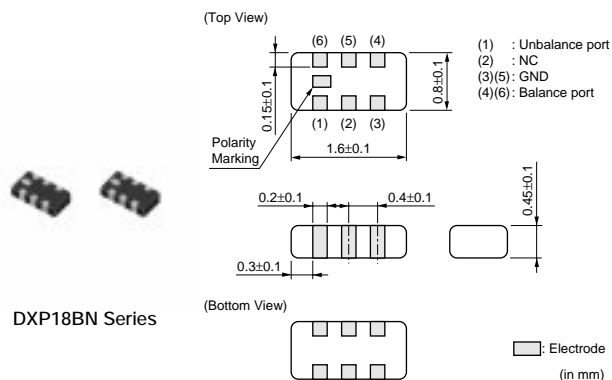
| Part Number   | Inductance (μH) | Test Frequency | Rated Current (mA) | DC Resistance (ohm) | Self Resonance Frequency (min.) (MHz) |
|---------------|-----------------|----------------|--------------------|---------------------|---------------------------------------|
| LQH66SNR27M03 | 0.27 ±20%       | 1MHz           | 6000               | 0.007 ±40%          | 300                                   |
| LQH66SNR68M03 | 0.68 ±20%       | 1MHz           | 5300               | 0.010 ±40%          | 180                                   |
| LQH66SN1R0M03 | 1.0 ±20%        | 1MHz           | 4700               | 0.013 ±40%          | 150                                   |
| LQH66SN1R5M03 | 1.5 ±20%        | 1MHz           | 3800               | 0.016 ±40%          | 110                                   |
| LQH66SN2R2M03 | 2.2 ±20%        | 1MHz           | 3300               | 0.019 ±40%          | 80                                    |
| LQH66SN3R3M03 | 3.3 ±20%        | 1MHz           | 2600               | 0.022 ±40%          | 40                                    |
| LQH66SN4R7M03 | 4.7 ±20%        | 1MHz           | 2200               | 0.025 ±40%          | 30                                    |
| LQH66SN6R8M03 | 6.8 ±20%        | 1MHz           | 1800               | 0.029 ±40%          | 25                                    |
| LQH66SN100M03 | 10 ±20%         | 1MHz           | 1600               | 0.036 ±40%          | 20                                    |
| LQH66SN150M03 | 15 ±20%         | 1MHz           | 1300               | 0.069 ±40%          | 17                                    |
| LQH66SN220M03 | 22 ±20%         | 1MHz           | 1100               | 0.087 ±40%          | 15                                    |
| LQH66SN330M03 | 33 ±20%         | 1MHz           | 860                | 0.14 ±40%           | 12                                    |
| LQH66SN470M03 | 47 ±20%         | 1MHz           | 760                | 0.17 ±40%           | 10                                    |
| LQH66SN680M03 | 68 ±20%         | 1MHz           | 600                | 0.29 ±40%           | 7.6                                   |
| LQH66SN101M03 | 100 ±20%        | 100kHz         | 520                | 0.36 ±40%           | 6.5                                   |
| LQH66SN151M03 | 150 ±20%        | 100kHz         | 420                | 0.63 ±40%           | 5.0                                   |
| LQH66SN221M03 | 220 ±20%        | 100kHz         | 350                | 0.79 ±40%           | 4.0                                   |
| LQH66SN331M03 | 330 ±20%        | 100kHz         | 280                | 1.8 ±40%            | 3.2                                   |
| LQH66SN471M03 | 470 ±20%        | 100kHz         | 240                | 2.2 ±40%            | 2.5                                   |
| LQH66SN681M03 | 680 ±20%        | 100kHz         | 200                | 3.9 ±40%            | 2.0                                   |
| LQH66SN102M03 | 1000 ±20%       | 10kHz          | 160                | 4.9 ±40%            | 1.7                                   |
| LQH66SN222M03 | 2200 ±20%       | 10kHz          | 100                | 9.4 ±40%            | 1.2                                   |
| LQH66SN472M03 | 4700 ±20%       | 10kHz          | 70                 | 19.5 ±40%           | 0.8                                   |
| LQH66SN103M03 | 10000 ±20%      | 10kHz          | 50                 | 39.7 ±40%           | 0.5                                   |

Operating Temperature Range: -40 to +85°C  
Only for reflow soldering.

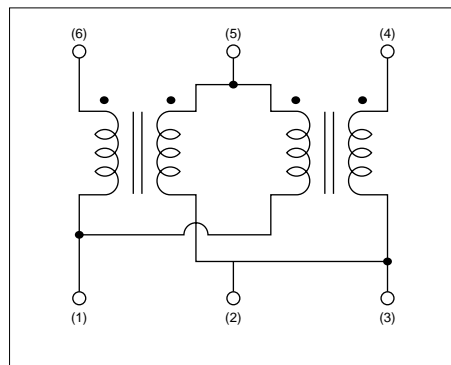
# Balun

## Film Type

### ● DXP18BN Series



Equivalent Circuit



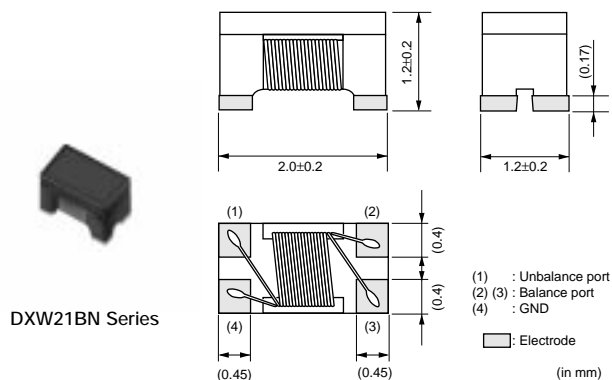
| Part Number  | Min. Frequency Range (MHz) | Max. Frequency Range (MHz) | Port Impedance | Insertion Loss at Freq. Range (max.) (dB) | CMRR at Freq. Range (min.) (dB) | Rated Power (dBm) |
|--------------|----------------------------|----------------------------|----------------|---|---------------------------------|-------------------|
| DXP18BN5014H | 470                        | 790                        | 50/200         | 1.2                                       | 25                              | 20                |
| DXP18BN5014T | 50                         | 870                        | 50/200         | 1.5                                       | 25                              | 20                |
| DXP18BN7514T | 50                         | 870                        | 75/300         | 1.5                                       | 25                              | 20                |

Operating Temperature Range: -40°C to +85°C  
Only for reflow soldering.

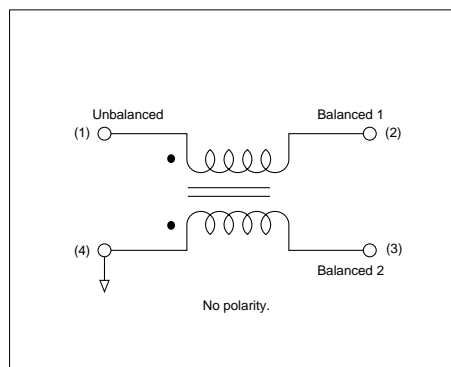
# Balun

## Wire Wound Type

### ● DXW21BN Series



Equivalent Circuit



| Part Number  | Min. Frequency Range | Max. Frequency Range | Port Impedance | Insertion Loss at Freq. Range (max.) (dB) | CMRR at Freq. Range (min.) (dB) | Rated Power (dBm) |
|--------------|----------------------|----------------------|----------------|---|---------------------------------|-------------------|
| DXW21BN7511S | 1GHz                 | 1.5GHz               | 75/75          | 1.4                                       | 20                              | 27                |
| DXW21BN7511T | 50MHz                | 870MHz               | 75/75          | 1.0                                       | 20                              | 27                |

Operating Temperature Range: -40°C to +85°C  
Only for reflow soldering.

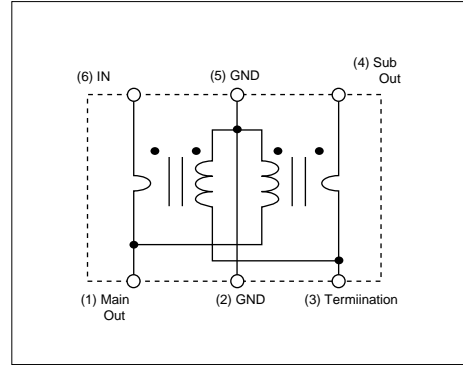
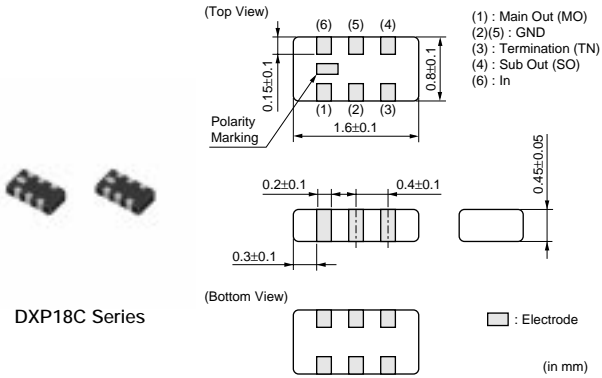
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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# Coupler

Film Type

● **DXP18C Series**

Equivalent Circuit



DXP18C Series

| Part Number         | Min. Frequency Range (MHz) | Max. Frequency Range (MHz) | Port Impedance | Insertion Loss at Freq. Range (max.) (dB) | Coupling Loss at Freq. Range (Typ.) (dB) | Isolation at Freq. Range (Min) (dB) | Rated Power (dBm) |
|---------------------|----------------------------|----------------------------|----------------|---|--|-------------------------------------|-------------------|
| <b>DXP18CN7510T</b> | 50                         | 870                        | 75 ohm ALL     | 2.3                                       | 10                                       | 18                                  | 20                |
| <b>DXP18CN7515T</b> | 50                         | 870                        | 75 ohm ALL     | 1.5                                       | 15                                       | 20                                  | 20                |

Operating Temperature Range: -40°C to +85°C

Only for reflow soldering.

# 4

## Resistors

**High Voltage Resistors**

**R Networks**

**Trimmer Potentiometers**

High Voltage Resistors

(Part Number) **MHR** **0409** **S** **A** **107** **J** **60**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Product ID
- ② Board (W×L) Dimensions
- ③ Type
- ④ Circuit
- ⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Resistance |
|------------|------------|
| <b>406</b> | 40MΩ       |
| <b>207</b> | 200MΩ      |

- ⑥ Resistance Tolerance
- ⑦ Individual Specifications

R Network

(Part Number)  
 X, Y, L Circuit **RG** **LD** **8** **X** **103** **J** **T2**  
 ① ② ③ ④ ⑤ ⑥ ⑨

Z, M Circuit **RG** **LD** **8** **M** **103** **J** **104** **J** **T2**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Custom Circuit **RG** **LD** **8** **A** \*\*\*\*  
 ① ② ③ ④ ⑩

- ① Product ID
- ② Structure
- ③ Number of Element
- ④ Circuit
- ⑤ Nominal Resistance (Z, M Circuit : R<sub>A</sub>  
L Circuit : Output Impedance)

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Nominal Resistance |
|------------|--------------------|
| <b>150</b> | 15Ω                |
| <b>103</b> | 10kΩ               |

- ⑥ Resistance Tolerance (Z, M Circuit : R<sub>A</sub>  
L Circuit : Impedance Tolerance)

- ⑦ Nominal Resistance (Z, M Circuit : R<sub>B</sub>)

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Nominal Resistance |
|------------|--------------------|
| <b>150</b> | 15Ω                |
| <b>104</b> | 100kΩ              |

If R<sub>A</sub> and R<sub>B</sub> values are the same, ⑦ and ⑧ remain blanks, and the corresponding code is omitted.



- ⑧ Resistance Tolerance (Z, M Circuit : R<sub>B</sub>)
- ⑨ Packaging
- ⑩ Design No.

Trimmer Potentiometers

(Part Number) **PV** **A2** **A** **103** **A01** **R00**  
 ① ② ③ ④ ⑤ ⑥

- ① Product ID
- ② Series

| Code      | Series                                     |
|-----------|--|
| <b>Z2</b> | SMD Open 2mm Size Carbon Resistive Element |
| <b>A2</b> | SMD Open 2mm Size                          |
| <b>Z3</b> | SMD Open 3mm Size Carbon Resistive Element |
| <b>F2</b> | SMD Sealed 2mm Size                        |
| <b>G3</b> | SMD Sealed 3mm Size                        |
| <b>M4</b> | SMD Sealed 4mm Size                        |
| <b>G5</b> | SMD Sealed 5mm Square 11-turns             |
| <b>32</b> | Lead Sealed 6mm Round Single-turn          |
| <b>12</b> | Lead Sealed 7mm Round 4-turns              |
| <b>36</b> | Lead Sealed 10mm Square 25-turns           |
| <b>37</b> | Lead Sealed 6mm Square 12-turns            |

- ③ Adjustment Direction /Lead Type
- ④ Total Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Total Resistance |
|------------|------------------|
| <b>100</b> | 10Ω              |
| <b>102</b> | 1000Ω            |
| <b>104</b> | 100000Ω (=100kΩ) |

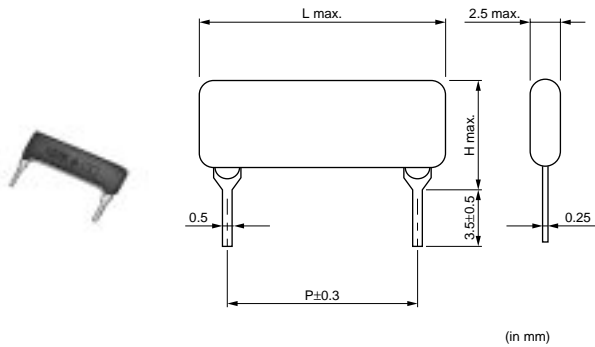
- ⑤ Individual Specification

| Series           | Code       | Individual Specification                                  |
|------------------|------------|---|
| <b>PVA2</b>      | <b>A01</b> | Standard Type   |
| <b>PVZ2</b>      | <b>C04</b> | Standard, High-heat Resistance Type (for Ultra-thin Type) |
| <b>PVZ3</b>      | <b>C01</b> | Standard, High-heat Resistance Type (for Top Adjustment)  |
|                  | <b>E01</b> | Standard, High-heat Resistance Type (for Rear Adjustment) |
| <b>PVM4</b>      | <b>C01</b> | Standard Type   |
|                  | <b>D01</b> | High-liability Type                                       |
| <b>PVF2</b>      | <b>A11</b> | Standard Type (Resistance Change Characteristics: Linear) |
| <b>PV32/PV12</b> | <b>A01</b> | Standard Type   |
| <b>PVG3</b>      | <b>C01</b> | Standard Type   |
| <b>PV36/PV37</b> | <b>C01</b> | Standard Type   |
|                  | <b>C31</b> | Radial Taping   |
| <b>PVG5</b>      | <b>C03</b> | Standard Type   |

- ⑥ Packaging

# High Voltage Resistors

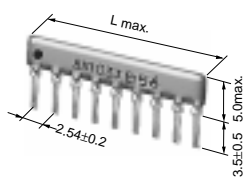
## ● MHR\_SA Series



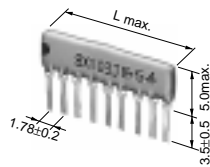
| Part Number     | Resistance (min.) (M ohm) | Resistance (max.) (M ohm) | Rated Voltage (Single Use) (kV) | Rated Voltage (Molded Use) (kV) | Rated Power (W) | Lead Pitch P (mm) | Length L (mm) | Height H (mm) |
|-----------------|---------------------------|---------------------------|---------------------------------|---------------------------------|-----------------|-------------------|---------------|---------------|
| MHR0307SA○○○△□□ | 1                         | 500                       | 2                               | 3                               | 0.3             | 5.08              | 7.6           | 5.0           |
| MHR0309SA○○○△□□ | 1                         | 500                       | 3.5                             | 5                               | 0.5             | 7.62              | 10.1          | 5.0           |
| MHR0312SA○○○△□□ | 1                         | 600                       | 5                               | 7                               | 0.6             | 10.16             | 12.6          | 5.0           |
| MHR0314SA○○○△□□ | 1                         | 1000                      | 6                               | 10                              | 0.7             | 12.70             | 15.1          | 5.0           |
| MHR0317SA○○○△□□ | 1                         | 1000                      | 7                               | 12                              | 0.8             | 15.24             | 17.6          | 5.0           |
| MHR0319SA○○○△□□ | 1                         | 1000                      | 8                               | 14                              | 1.0             | 17.78             | 20.2          | 5.0           |
| MHR0409SA○○○△□□ | 1                         | 1000                      | 3.5                             | 10                              | 0.6             | 7.62              | 10.1          | 6.5           |
| MHR0412SA○○○△□□ | 1                         | 1000                      | 5                               | 10                              | 0.8             | 10.16             | 12.6          | 6.5           |
| MHR0414SA○○○△□□ | 1                         | 1000                      | 6                               | 10                              | 1.0             | 12.70             | 15.1          | 6.5           |
| MHR0417SA○○○△□□ | 1                         | 1000                      | 7                               | 12                              | 1.1             | 15.24             | 17.6          | 6.5           |
| MHR0419SA○○○△□□ | 1                         | 1000                      | 8                               | 14                              | 1.2             | 17.78             | 20.2          | 6.5           |
| MHR0422SA○○○△□□ | 1                         | 1000                      | 9                               | 16                              | 1.3             | 20.32             | 22.7          | 6.5           |
| MHR0609SA○○○△□□ | 1                         | 1000                      | 3.5                             | 10                              | 0.8             | 7.62              | 10.1          | 9.0           |
| MHR0612SA○○○△□□ | 1                         | 1000                      | 5                               | 10                              | 1.0             | 10.16             | 12.6          | 9.0           |
| MHR0614SA○○○△□□ | 1                         | 1000                      | 6                               | 12                              | 1.2             | 12.70             | 15.1          | 9.0           |
| MHR0617SA○○○△□□ | 1                         | 1000                      | 7                               | 14                              | 1.3             | 15.24             | 17.6          | 9.0           |
| MHR0619SA○○○△□□ | 1                         | 1000                      | 8                               | 16                              | 1.4             | 17.78             | 20.2          | 9.0           |
| MHR0622SA○○○△□□ | 1                         | 1000                      | 9                               | 18                              | 1.5             | 20.32             | 22.7          | 9.0           |

For resistance value and ratio of B circuit, please contact us.

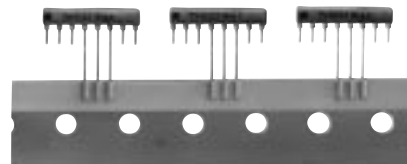
## R Networks



Standard Profile RGLD Series



Shrink Profile RGLE Series



RGLD Series Taping Type (4-9 pin)

in mm

● Standard Circuits

| Type                                | X Type      | Y Type  | Z Type | M Type  |
|-------------------------------------|-------------|---------|--------|---------|
| Circuit<br>(n: Number of resistors) |             |         |        |         |
| Number of Resistor                  | <b>RGLD</b> | 3 to 12 | 3 to 7 | 6 to 12 |
|                                     | <b>RGLE</b> | 3 to 15 | 3 to 8 | 6 to 12 |

● Rating

|                            | RGLD Series  | RGLE Series  |
|----------------------------|--|--|
| Rated Power (W)            | 1/8  | 1/10   |
| Package Power (W)          | Rated Power X Number of Resistors X K (K: coefficient) |  |
| Resistance Range (Ω)       | 10 to 1M (X, Y, M Type)                                |  |
| Resistance Value           | E-12 Value (X, Y, M Type)                              |  |
| Resistance Tolerance (%)   | J ; ±5, G ; ±2 (22Ω min.)                              |  |
| T.C.R (ppm/°C)             | ±200   |  |
| Max Operating Voltage (V)  | 100  |  |
| Operating Temperature (°C) | -55 to +125  |  |
| Derating Curve             |  | E-12 Values<br>10, 12, 15, 18, 22, 27,<br>33, 39, 47, 56, 68, 82<br><br>Standard Resistance Value<br>for Z type (Ω)<br>R1/R2=180/390, 220/330,<br>330/390, 330/470 |

● L Dimensions

| Series \ Number of Pins  | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>RGLE</b> (pitch 1.78) | 7.7  | 9.5  | 11.2 | 12.9 | 14.6 | 16.4 | 18.2 | 20.0 | 21.8 | 23.5 | 25.3 | 27.1 | 28.9 |
| <b>RGLD</b> (pitch 2.54) | 10.1 | 12.6 | 15.1 | 17.6 | 20.2 | 22.7 | 25.3 | 27.8 | 30.5 | 33.0 | 35.5 | -    | -    |

in mm

Custom-made circuits are also available. Please contact us.

Minimum Quantity (order in sets only) : 1,000 pcs. (Bulk/Taping)

## Trimmer Potentiometers

SMD Open Type 2mm Size

● PVZ2 Series

**PVZ2A Series**

\*1 Driver Plate Rotation Area:  
Please do not place any components more than 0.5mm in height within this area.  
(Tolerance: ±0.2 in mm)

**PVZ2R Series**

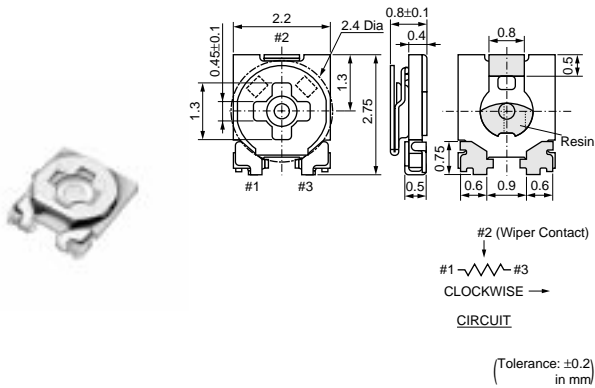
\*1 Driver Plate Rotation Area  
CLOCKWISE →  
(Tolerance: ±0.2 in mm)

| Part Number | Power Rating (W) | Soldering Method      | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|-----------------------|--|------------------------|--------------|
| PVZ2A_C04   | 0.05(50°C)       | Reflow/Soldering Iron | 1(240°±10°)                                | 470ohm to 1M ohm ±30%  | ±500         |
| PVZ2R_C04   | 0.1(50°C)        | Reflow/Soldering Iron | 1(240°±10°)                                | 470ohm to 1M ohm ±30%  | ±500         |

Operating Temperature: -25 to +85°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

### ● PVA2 Series



| Part Number | Power Rating (W) | Soldering Method      | Number of Turns (Effective Rotation Angle) | Total Resistance Value  | TCR (ppm/°C) |
|-------------|------------------|-----------------------|--|-------------------------|--------------|
| PVA2A       | 0.1(70°C)        | Reflow/Soldering Iron | 1(260°±10°)                                | 100ohm to 2.2M ohm ±25% | ±250         |

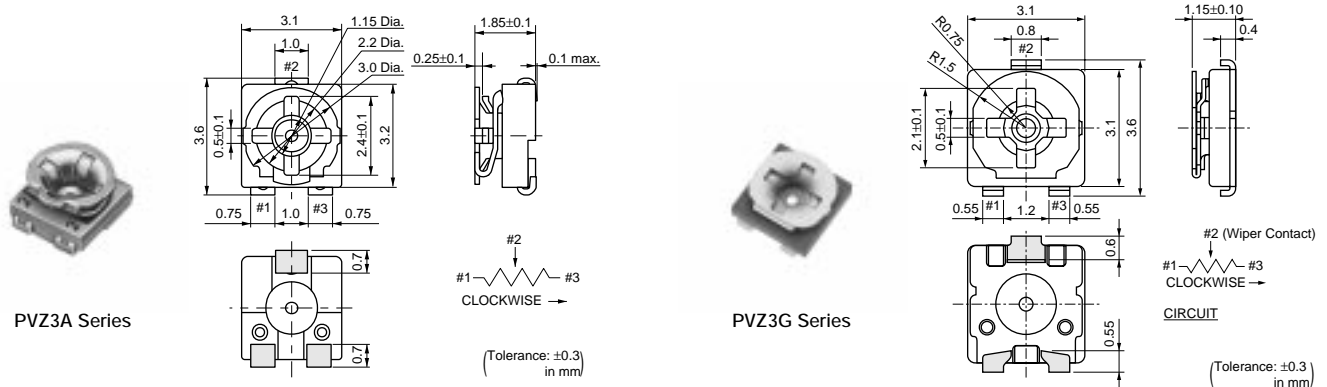
Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## Trimmer Potentiometers

SMD Open Type 3mm Size

### ● PVZ3 Series



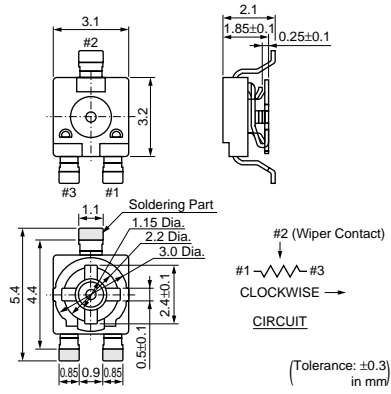
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PVZ3K Series



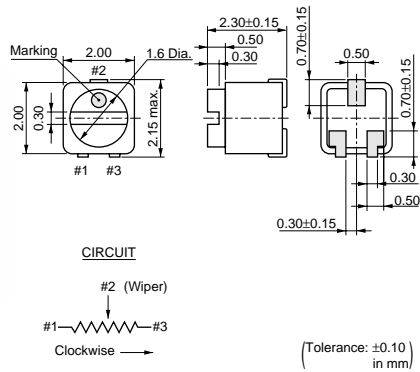
| Part Number | Power Rating (W) | Soldering Method      | Number of Turns (Effective Rotation Angle) | Total Resistance Value  | TCR (ppm/°C) |
|-------------|------------------|-----------------------|--|-------------------------|--------------|
| PVZ3A_C01   | 0.1(50°C)        | Reflow/Soldering Iron | 1(230°±10°)                                | 220ohm to 2.2M ohm ±30% | ±500         |
| PVZ3G_C01   | 0.1(50°C)        | Reflow/Soldering Iron | 1(230°±10°)                                | 220ohm to 2.2M ohm ±30% | ±500         |
| PVZ3K_E01   | 0.1(50°C)        | Reflow/Soldering Iron | 1(230°±10°)                                | 220ohm to 2.2M ohm ±30% | ±500         |

Operating Temperature: -25 to +85°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## Trimmer Potentiometers

SMD Sealed Type 2mm Size



| Part Number | Power Rating (W) | Soldering Method      | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|-----------------------|--|------------------------|--------------|
| PVF2A       | 0.001(50°C)      | Reflow/Soldering Iron | 1(210°±10°)                                | 500ohm to 1M ohm ±30%  | ±500         |

Operating Temperature: -25 to +60°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

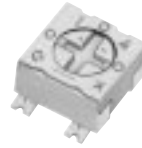
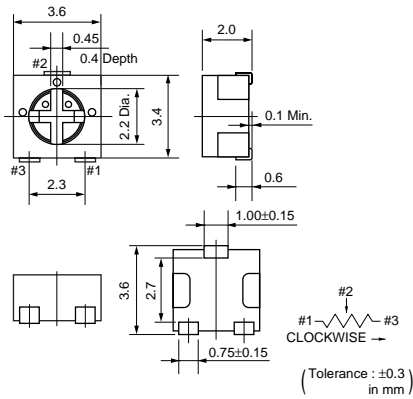
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# Trimmer Potentiometers

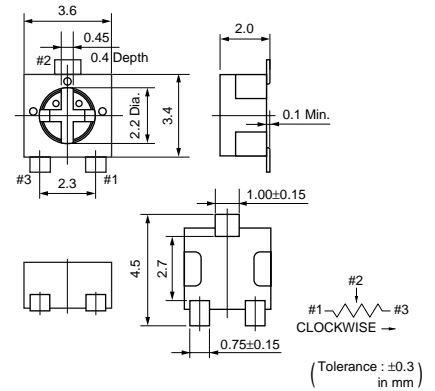
## SMD Sealed Type 3mm Size



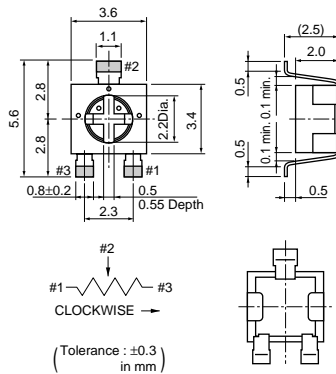
PVG3A Series



PVG3G Series



PVG3K Series



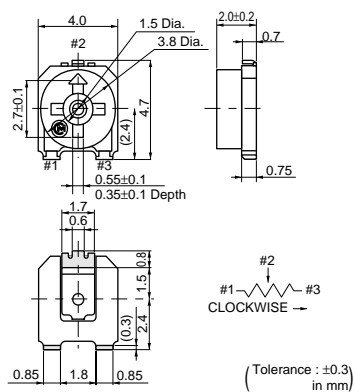
| Part Number | Power Rating (W) | Soldering Method      | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|-----------------------|--|------------------------|--------------|
| PVG3A       | 0.25(70°C)       | Reflow/Soldering Iron | 1(210°±10°)                                | 10ohm to 2M ohm ±20%   | ±150         |
| PVG3G       | 0.25(70°C)       | Reflow/Soldering Iron | 1(210°±10°)                                | 10ohm to 2M ohm ±20%   | ±150         |
| PVG3K       | 0.25(70°C)       | Reflow/Soldering Iron | 1(210°±10°)                                | 10ohm to 2M ohm ±20%   | ±150         |

Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

# Trimmer Potentiometers

## SMD Sealed Type 4mm Size



| Part Number | Power Rating (W) | Soldering Method           | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|----------------------------|--|------------------------|--------------|
| PVM4A□□□C01 | 0.1(70°C)        | Flow/Reflow/Soldering Iron | 1(240°±10°)                                | 100ohm to 2M ohm ±25%  | ±250         |
| PVM4A□□□D01 | 0.25(70°C)       | Flow/Reflow/Soldering Iron | 1(240°±10°)                                | 100ohm to 500ohm ±20%  | ±100         |
|             | 0.25(70°C)       | Flow/Reflow/Soldering Iron | 1(240°±10°)                                | 1k ohm to 5k ohm ±20%  | ±200         |
|             | 0.25(70°C)       | Flow/Reflow/Soldering Iron | 1(240°±10°)                                | 10k ohm to 2M ohm ±20% | ±150         |

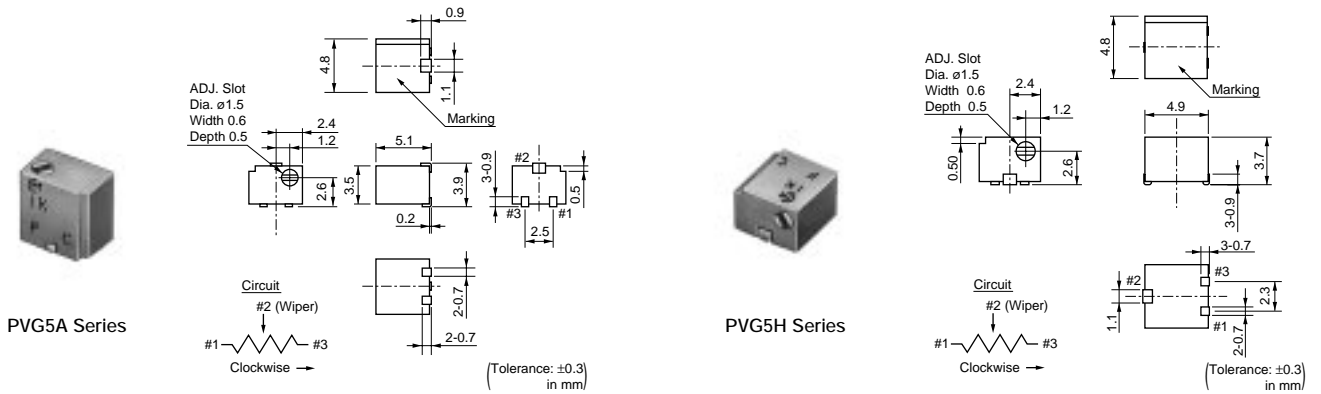
Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## Trimmer Potentiometers

SMD Sealed Type Multi-turns

### ● PVG5 Series



| Part Number | Power Rating (W) | Soldering Method      | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|-----------------------|--|------------------------|--------------|
| PVG5A       | 0.25(70°C)       | Reflow/Soldering Iron | 11   | 10ohm to 2M ohm ±10%   | ±150         |
| PVG5H       | 0.25(70°C)       | Reflow/Soldering Iron | 11   | 10ohm to 2M ohm ±10%   | ±150         |

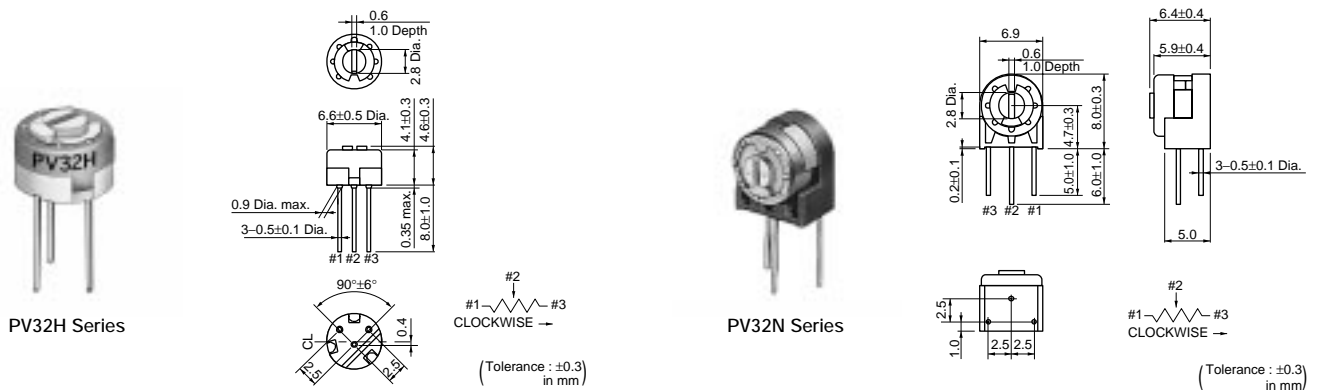
Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## Trimmer Potentiometers

Lead Sealed Type Single-turn

### ● PV32 Series

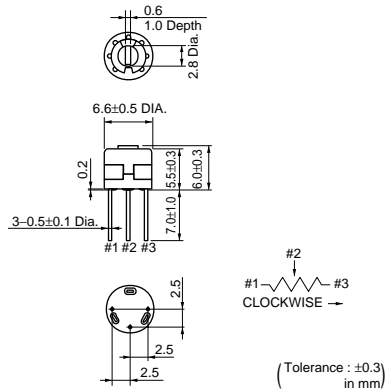


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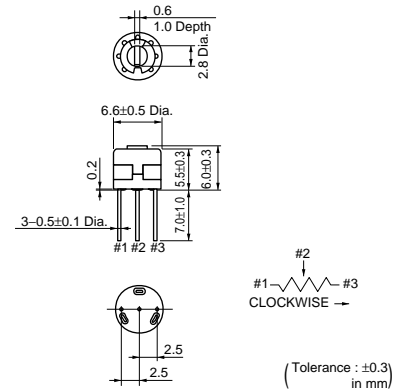
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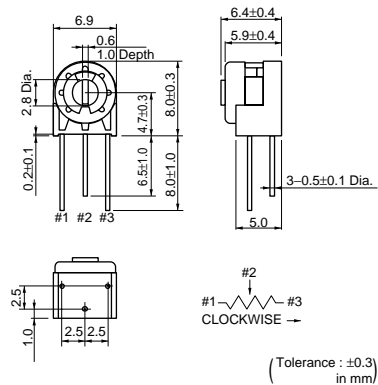
PV32P Series



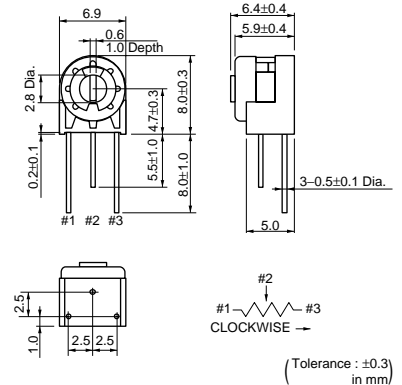
PV32R Series



PV32S Series



PV32T Series



| Part Number | Power Rating (W) | Soldering Method    | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|---------------------|--|------------------------|--------------|
| PV32H       | 0.5(70°C)        | Flow/Soldering Iron | 1(230°±5°)                                 | 10ohm to 5M ohm ±20%   | ±100         |
| PV32N       | 0.5(70°C)        | Flow/Soldering Iron | 1(230°±5°)                                 | 10ohm to 5M ohm ±20%   | ±100         |
| PV32P       | 0.5(70°C)        | Flow/Soldering Iron | 1(230°±5°)                                 | 10ohm to 5M ohm ±20%   | ±100         |
| PV32R       | 0.5(70°C)        | Flow/Soldering Iron | 1(230°±5°)                                 | 10ohm to 5M ohm ±20%   | ±100         |
| PV32S       | 0.5(70°C)        | Flow/Soldering Iron | 1(230°±5°)                                 | 10ohm to 5M ohm ±20%   | ±100         |
| PV32T       | 0.5(70°C)        | Flow/Soldering Iron | 1(230°±5°)                                 | 10ohm to 5M ohm ±20%   | ±100         |

Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

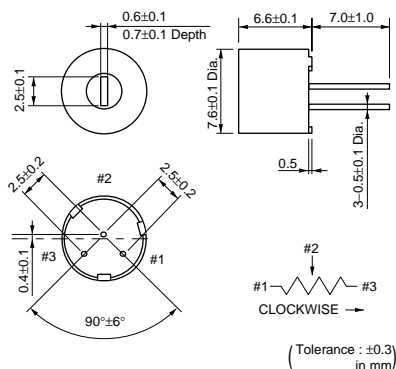
## Trimmer Potentiometers

### Lead Sealed Type Multi-turns

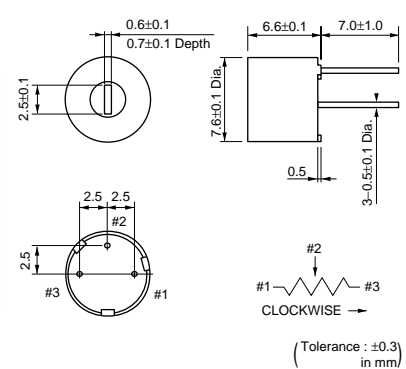
#### ● PV12 Series



PV12H Series



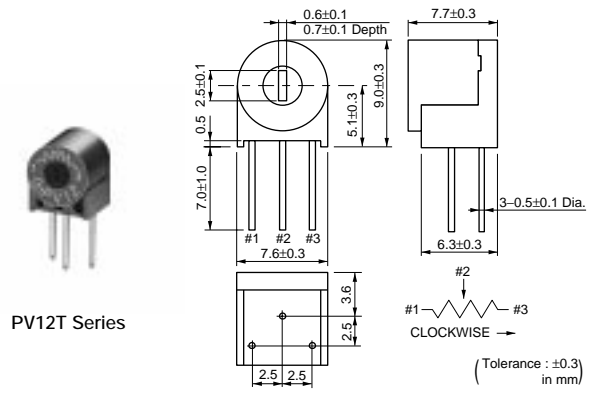
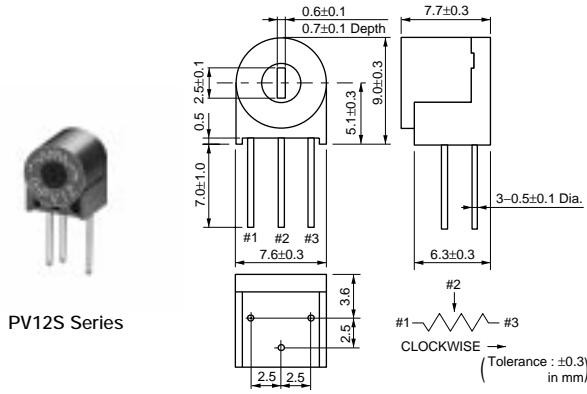
PV12P Series



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PV12S Series

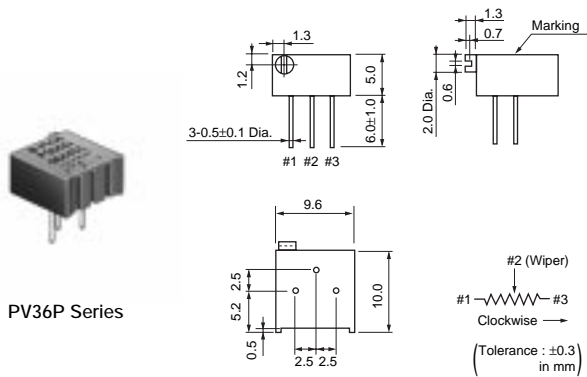
PV12T Series

| Part Number | Power Rating (W) | Soldering Method    | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|---------------------|--|------------------------|--------------|
| PV12H       | 0.5(70°C)        | Flow/Soldering Iron | 4  | 10ohm to 2M ohm ±10%   | ±100         |
| PV12P       | 0.5(70°C)        | Flow/Soldering Iron | 4  | 10ohm to 2M ohm ±10%   | ±100         |
| PV12S       | 0.5(70°C)        | Flow/Soldering Iron | 4  | 10ohm to 2M ohm ±10%   | ±100         |
| PV12T       | 0.5(70°C)        | Flow/Soldering Iron | 4  | 10ohm to 2M ohm ±10%   | ±100         |

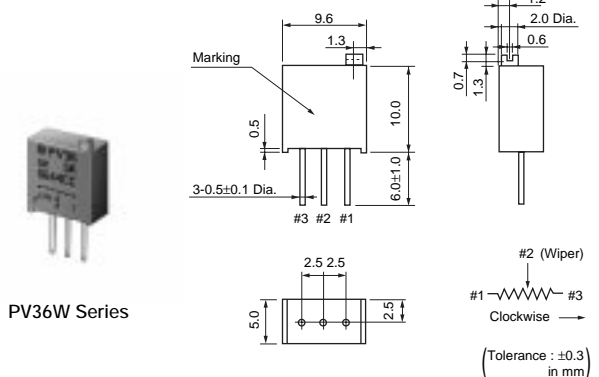
Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

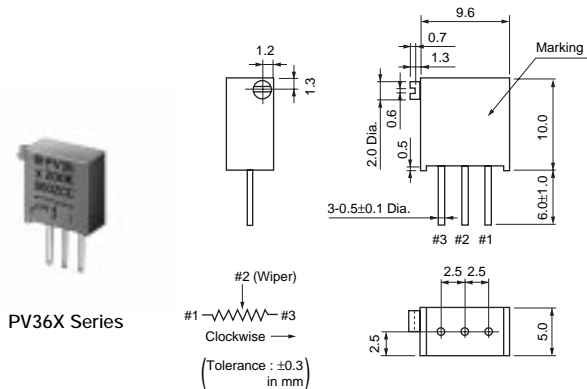
● PV36 Series



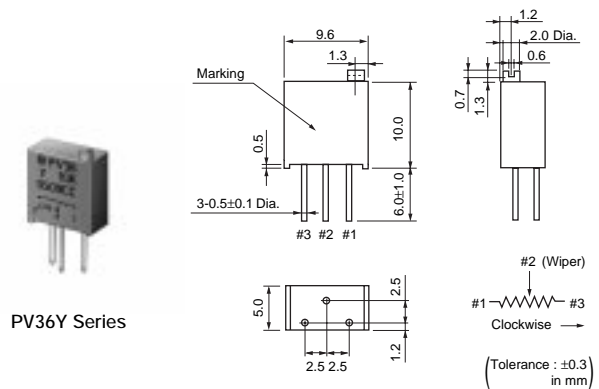
PV36P Series



PV36W Series



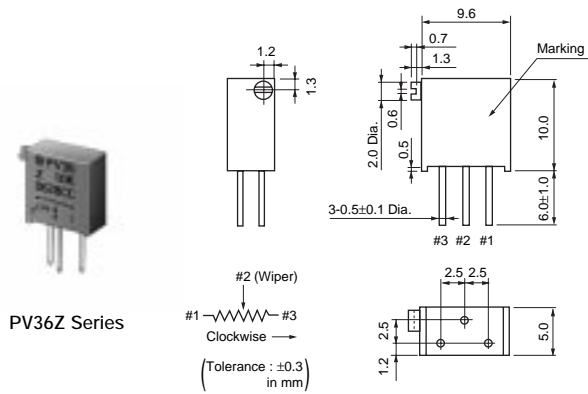
PV36X Series



PV36Y Series

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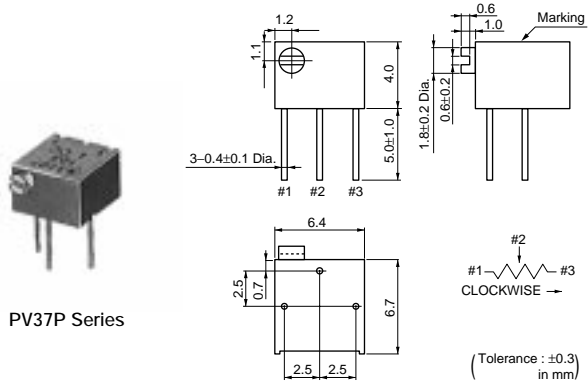
PV36Z Series

| Part Number | Power Rating (W) | Soldering Method    | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|---------------------|--|------------------------|--------------|
| PV36P       | 0.5(70°C)        | Flow/Soldering Iron | 25   | 10ohm to 100ohm ±10%   | ±150         |
|             | 0.5(70°C)        | Flow/Soldering Iron | 25   | 200ohm to 2M ohm ±10%  | ±100         |
| PV36W       | 0.5(70°C)        | Flow/Soldering Iron | 25   | 10ohm to 100ohm ±10%   | ±150         |
|             | 0.5(70°C)        | Flow/Soldering Iron | 25   | 200ohm to 2M ohm ±10%  | ±100         |
| PV36X       | 0.5(70°C)        | Flow/Soldering Iron | 25   | 10ohm to 100ohm ±10%   | ±150         |
|             | 0.5(70°C)        | Flow/Soldering Iron | 25   | 200ohm to 2M ohm ±10%  | ±100         |
| PV36Y       | 0.5(70°C)        | Flow/Soldering Iron | 25   | 10ohm to 100ohm ±10%   | ±150         |
|             | 0.5(70°C)        | Flow/Soldering Iron | 25   | 200ohm to 2M ohm ±10%  | ±100         |
| PV36Z       | 0.5(70°C)        | Flow/Soldering Iron | 25   | 10ohm to 100ohm ±10%   | ±150         |
|             | 0.5(70°C)        | Flow/Soldering Iron | 25   | 200ohm to 2M ohm ±10%  | ±100         |

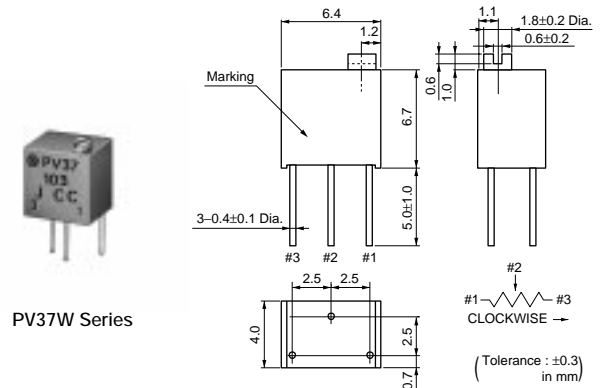
Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

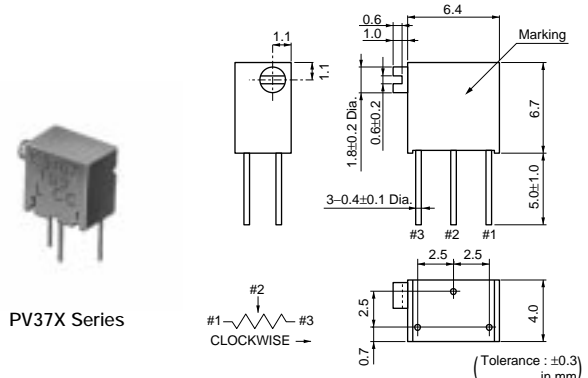
### ● PV37 Series



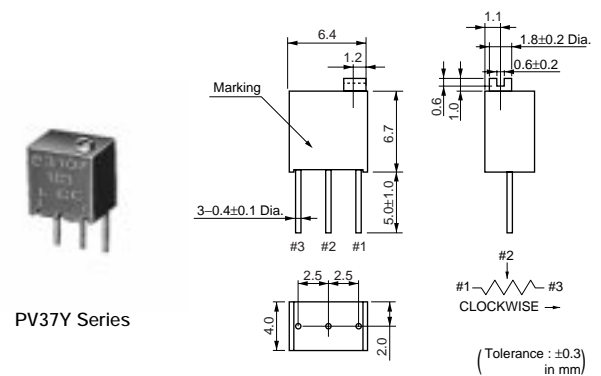
PV37P Series



PV37W Series



PV37X Series

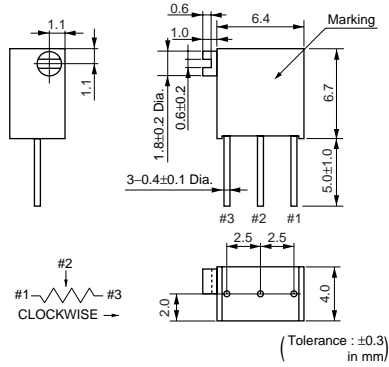


PV37Y Series

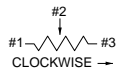
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PV37Z Series



| Part Number | Power Rating (W) | Soldering Method    | Number of Turns (Effective Rotation Angle) | Total Resistance Value | TCR (ppm/°C) |
|-------------|------------------|---------------------|--|------------------------|--------------|
| PV37P       | 0.25(85°C)       | Flow/Soldering Iron | 12   | 10ohm to 2M ohm ±10%   | ±150         |
| PV37W       | 0.25(85°C)       | Flow/Soldering Iron | 12   | 10ohm to 2M ohm ±10%   | ±150         |
| PV37X       | 0.25(85°C)       | Flow/Soldering Iron | 12   | 10ohm to 2M ohm ±10%   | ±150         |
| PV37Y       | 0.25(85°C)       | Flow/Soldering Iron | 12   | 10ohm to 2M ohm ±10%   | ±150         |
| PV37Z       | 0.25(85°C)       | Flow/Soldering Iron | 12   | 10ohm to 2M ohm ±10%   | ±150         |

Operating Temperature: -55 to +125°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

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# 5

## Resonators

**Crystal Resonators**

**Ceramic Resonators (CERALOCK®)(MHz)**

**Ceramic Resonators (CERALOCK®)(kHz)**



● Part Numbering

**Crystal Resonators**

(Part Number) **XR** **C** **GA** **33M868** **F0L** **00** **R0**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Lead Style

| Code     | Lead Style |
|----------|------------|
| <b>C</b> | SMD        |

③ Structure/Size

| Code      | Structure/Size |
|-----------|----------------|
| <b>GA</b> | Cap Chip Type  |

④ Nominal Center Frequency

Expressed by five-digit alphanumeric. The unit is in hertz (Hz).  
 Decimal point is expressed by capital letter "M".

⑤ Design

| Code       | Design                                     |
|------------|--|
| <b>F□□</b> | Thickness Expander mode (Fundamental wave) |

□□: indicates initial frequency tolerance and application.

⑥ Individual Specification

| Code      | Design   |
|-----------|--|
| <b>00</b> | Two-digit alphanumeric express Individual Specification. |

**00**: Standard specification type.

⑦ Packaging

| Code      | Packaging             |
|-----------|-----------------------|
| <b>R0</b> | Plastic Taping ø180mm |
| <b>R1</b> | Plastic Taping ø330mm |

**CERALOCK® (MHz)**

(Part Number) **CS** **T** **CE** **16M0** **V** **5** **3** **\*\*\*** **-R0**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

② Frequency/Capacitance

| Code     | Frequency/Capacitance       |
|----------|-----------------------------|
| <b>A</b> | MHz No capacitance built-in |
| <b>T</b> | MHz Built-in Capacitance    |

③ Structure/Size

| Code            | Structure/Size             |
|-----------------|----------------------------|
| <b>LS</b>       | Round Lead Type            |
| <b>CC</b>       | Cap Chip Type              |
| <b>CR/CE/CG</b> | Small-cap Chip Type        |
| <b>CV</b>       | Monolithic Chip Type       |
| <b>CW/CZ</b>    | Small Monolithic Chip Type |



④ Nominal Center Frequency

Expressed by four-digit alphanumeric. The unit is in hertz (Hz).  
 Decimal point is expressed by capital letter "M".

⑤ Design

| Code       | Design                                 |
|------------|--|
| <b>G</b>   | Thickness Shear mode                   |
| <b>T/V</b> | Thickness Expander mode                |
| <b>X</b>   | Thickness Expander mode (3rd overtone) |

⑥ Initial Frequency Tolerance

| Code     | Design       |
|----------|--------------|
| <b>5</b> | ±0.5%        |
| <b>3</b> | ±0.3%        |
| <b>2</b> | ±0.2%        |
| <b>1</b> | ±0.1%        |
| <b>H</b> | ±0.07%       |
| <b>K</b> | -0.025/0.02% |

⑦ Load Capacity

| Code     | Design     |
|----------|------------|
| <b>1</b> | 3/5/6pF    |
| <b>2</b> | 10pF       |
| <b>3</b> | 15pF       |
| <b>4</b> | 22pF       |
| <b>5</b> | 30/33/39pF |
| <b>6</b> | 47pF       |

⑧ Individual Specification

⑨ Packaging

**CERALOCK® (kHz)**

(Part Number) **CS** **B** **FB** **500K** **J58** **\*\*\*** **-R1**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Frequency/Capacitance

③ Structure/Size

| Code      | Structure/Size         |
|-----------|------------------------|
| <b>LA</b> | Two-Terminal Lead Type |
| <b>FB</b> | SMD Type               |

④ Nominal Center Frequency

Expressed by four-digit alphanumeric. The unit is in hertz (Hz).  
 Capital letter "K" following three figures expresses the unit of "kHz".  
 In case of 1.0MHz (1000kHz) or above, expressed by three figures and capital letter "M" for decimal point.

⑤ Design

| Code       | Design                            |
|------------|-----------------------------------|
| <b>E□□</b> | Area Expansion mode               |
| <b>J□□</b> | Area Expansion mode (Closed Type) |

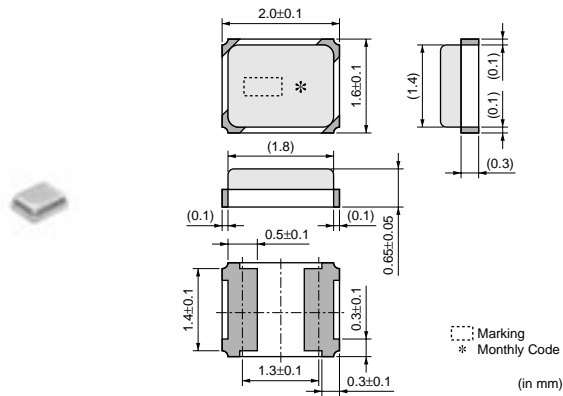
□□ indicates initial frequency tolerance and load capacitance.

⑥ Individual Specification

⑦ Packaging

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# Crystal Resonators



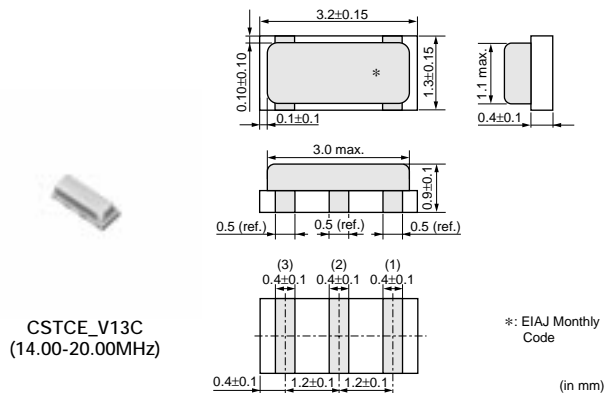
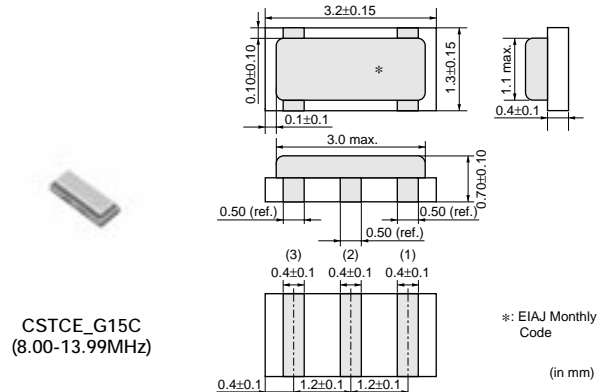
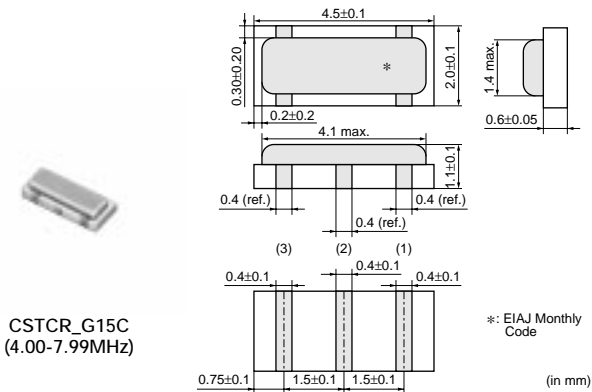
| Part Number               | Nominal Frequency (MHz) | Frequency Tolerance  | Equivalent Series Resistance (ohm) | Temp. Stability           | Drive Level (μW) | Load Capacitance (pF) |
|---------------------------|-------------------------|----------------------|------------------------------------|---------------------------|------------------|-----------------------|
| <b>XRCGA30M000F0L00R0</b> | 30.0000                 | ±100ppmmax. (25±3°C) | 100 max.                           | ±50ppmmax. (-30 to +85°C) | 300 max.         | 6                     |
| <b>XRCGA33M868F0L00R0</b> | 33.8688                 | ±100ppmmax. (25±3°C) | 100 max.                           | ±50ppmmax. (-30 to +85°C) | 300 max.         | 6                     |
| <b>XRCGA40M000F0L00R0</b> | 40.0000                 | ±100ppmmax. (25±3°C) | 100 max.                           | ±50ppmmax. (-30 to +85°C) | 300 max.         | 6                     |
| <b>XRCGA48M000F0L00R0</b> | 48.0000                 | ±100ppmmax. (25±3°C) | 100 max.                           | ±50ppmmax. (-30 to +85°C) | 300 max.         | 6                     |

Operating Temperature Range: -30 to +85°C

5  
Resonators

# CERALOCK® (MHz)

● MHz Chip Type for Automotive -Tight Frequency Tolerance-



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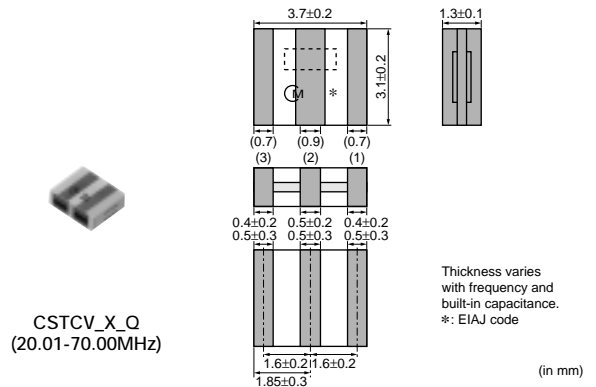
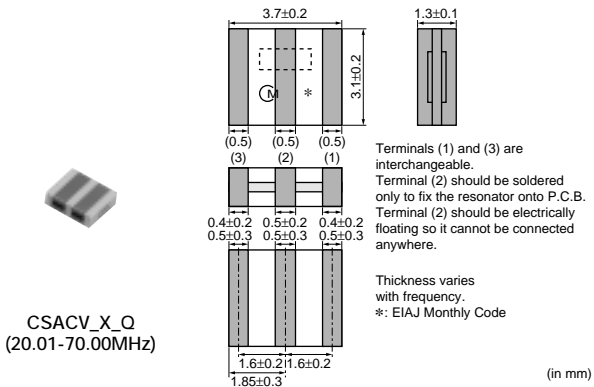
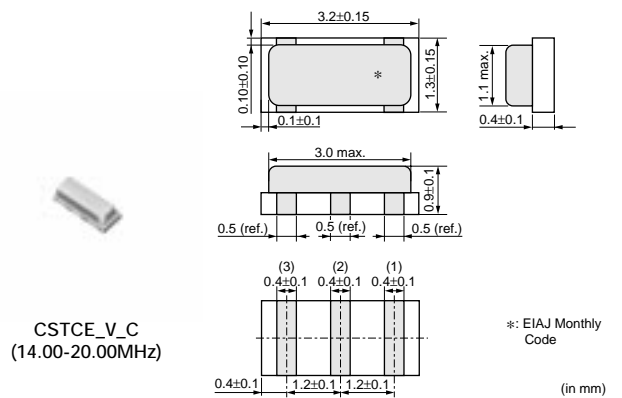
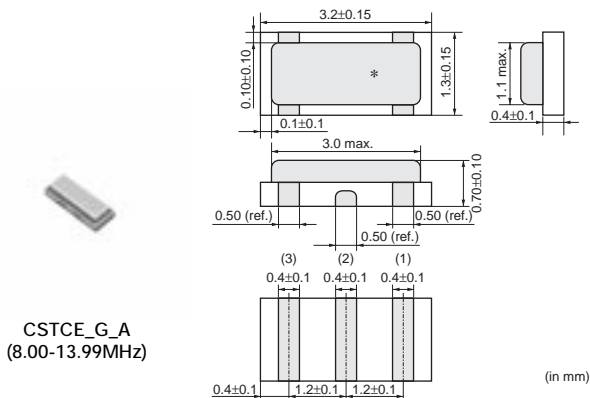
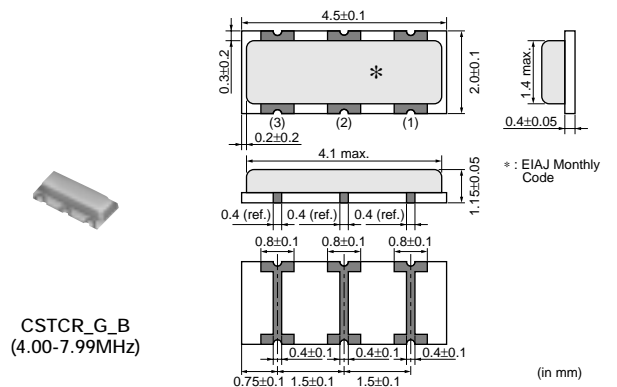
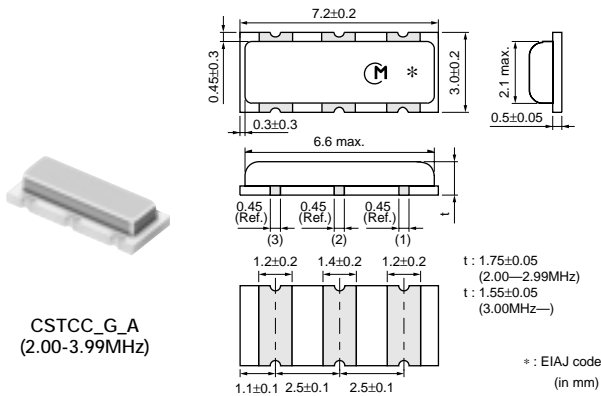
| Part Number       | Oscillating Frequency (MHz) | Initial Tolerance | Temp. Stability (%) | Temp. Range (°C) |
|-------------------|-----------------------------|-------------------|---------------------|------------------|
| <b>CSTCR_G15C</b> | 4.00 to 7.99                | ±0.1%             | ±0.13               | -40 to 125       |
| <b>CSTCE_G15C</b> | 8.00 to 13.99               | ±0.1%             | ±0.13               | -40 to 125       |
| <b>CSTCE_V13C</b> | 14.00 to 20.00              | ±0.1%             | ±0.13               | -40 to 125       |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

CSTCE\_V13C: The size of external electrode is not same as CSTCE\_V.

CSTCR\_G15C: The size of external electrode is not same as CSTCR\_G and CSTCR\_G\_B.

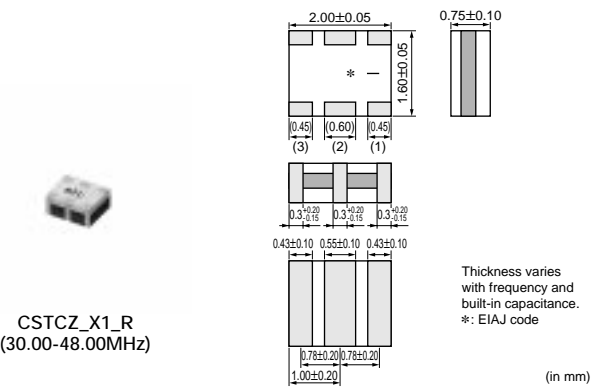
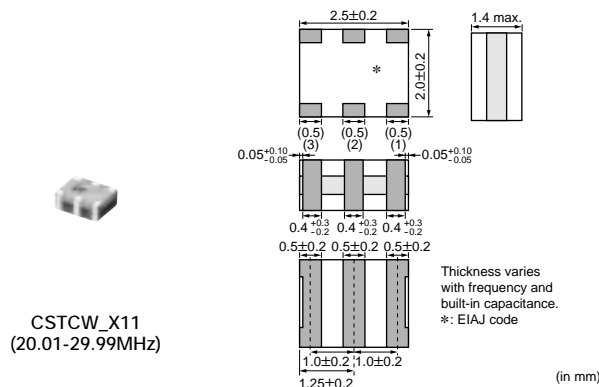
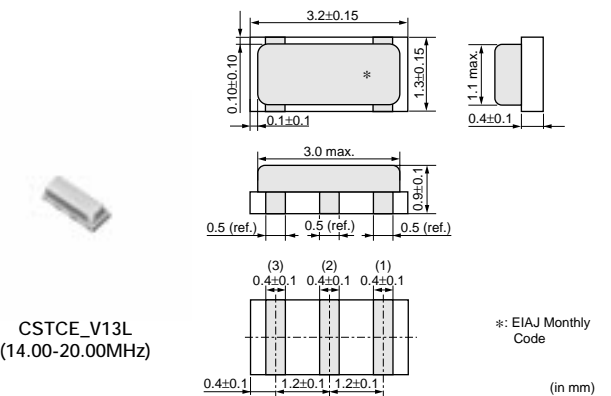
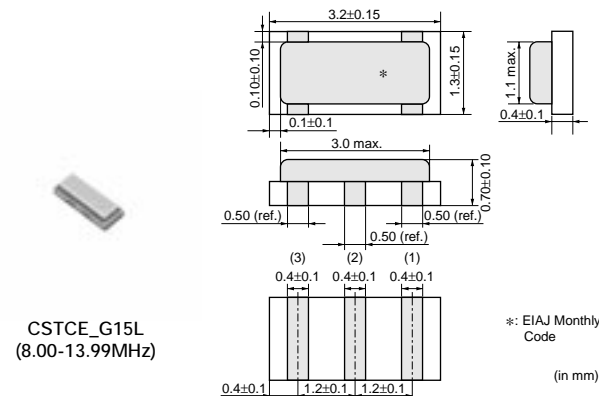
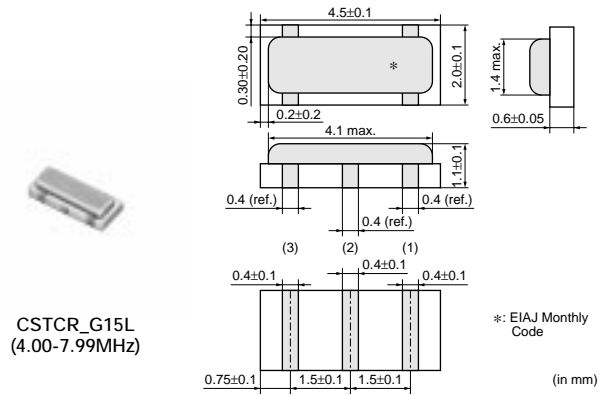
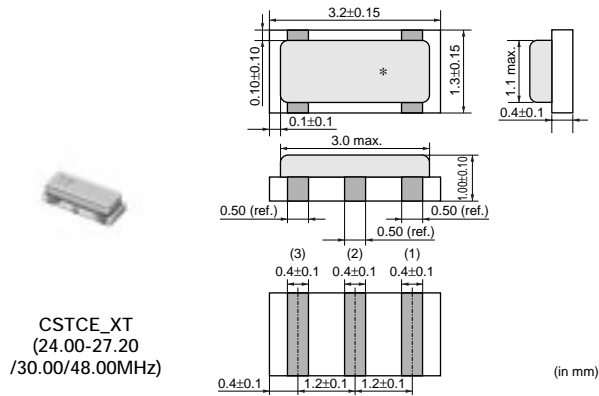
● MHz Chip Type for Automotive -Standard Frequency Tolerance-



| Part Number      | Oscillating Frequency (MHz) | Initial Tolerance | Temp. Stability (%)   | Temp. Range (°C) |
|------------------|-----------------------------|-------------------|---|------------------|
| <b>CSTCC_G_A</b> | 2.00 to 3.99                | ±0.5%             | ±0.4<br>[-0.6% to +0.3%:Built-in Capacitance 47pF type within Freq.2.00 to 3.49MHz] | -40 to 125       |
| <b>CSTCR_G_B</b> | 4.00 to 7.99                | ±0.5%             | ±0.15   | -40 to 125       |
| <b>CSTCE_G_A</b> | 8.00 to 13.99               | ±0.5%             | ±0.2  | -40 to 125       |
| <b>CSTCE_V_C</b> | 14.00 to 20.00              | ±0.5%             | ±0.15   | -40 to 125       |
| <b>CSACV_X_Q</b> | 20.01 to 70.00              | ±0.5%             | ±0.3  | -40 to 125       |
| <b>CSTCV_X_Q</b> | 20.01 to 70.00              | ±0.5%             | ±0.3  | -40 to 125       |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.  
 CSTCE\_V\_C: The size of external electrode is not same as CSTCE\_V.

● MHz Chip Type for General Usage -Tight Frequency Tolerance-



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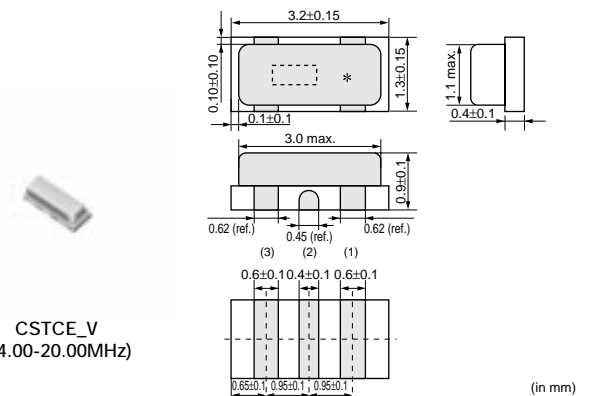
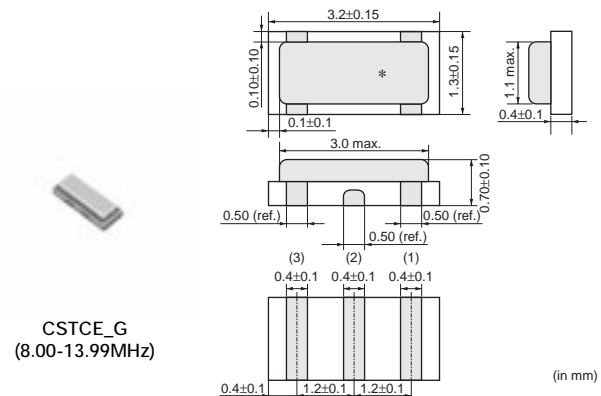
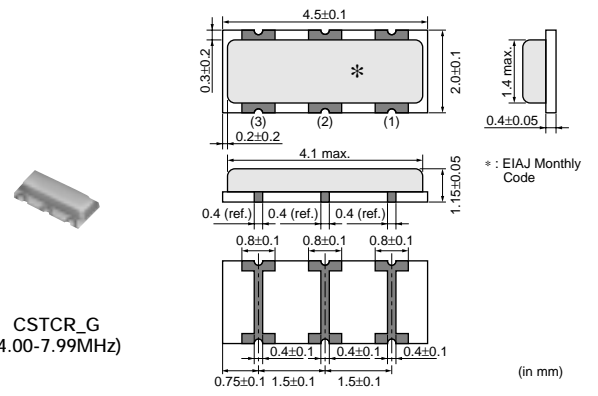
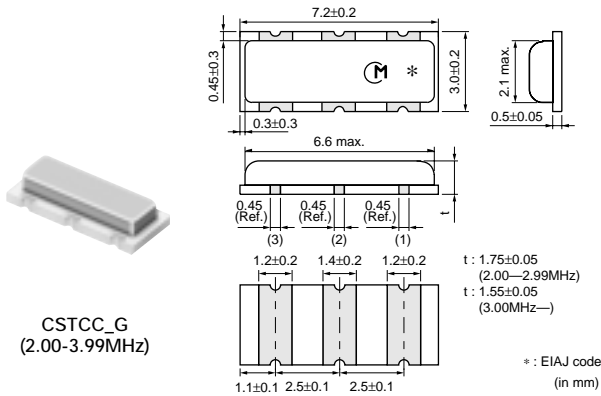
| Part Number | Oscillating Frequency (MHz) | Initial Tolerance | Temp. Stability (%)         | Temp. Range (°C) |
|-------------|-----------------------------|-------------------|-----------------------------|------------------|
| CSTCE_XT    | 24.00 to 27.20 /30.00/48.00 | ±0.027%           | ±0.015                      | 0 to 70          |
| CSTCR_G15L  | 4.00 to 7.99                | ±0.1%             | ±0.08                       | 0 to 70          |
| CSTCE_G15L  | 8.00 to 13.99               | ±0.1%             | ±0.08                       | 0 to 70          |
| CSTCE_V13L  | 14.00 to 20.00              | ±0.1%             | ±0.08                       | 0 to 70          |
| CSTCW_X11   | 20.01 to 29.99              | ±0.1%             | ±0.1                        | 0 to 70          |
| CSTCZ_X1_R  | 30.00 to 48.00              | ±0.15%            | ±0.05<br>[0 to 70°C:±0.03%] | -30 to 85        |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

CSTCE\_XT: Initial tolerance is including frequency aging.

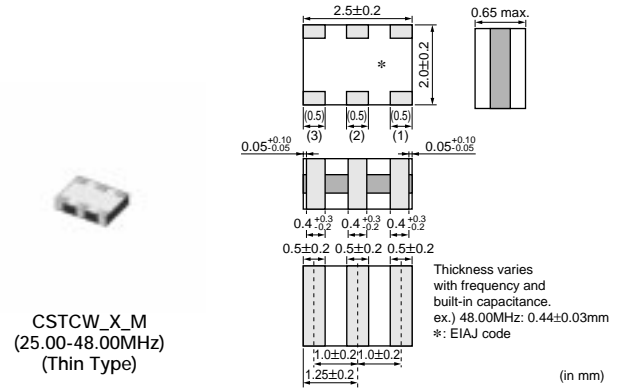
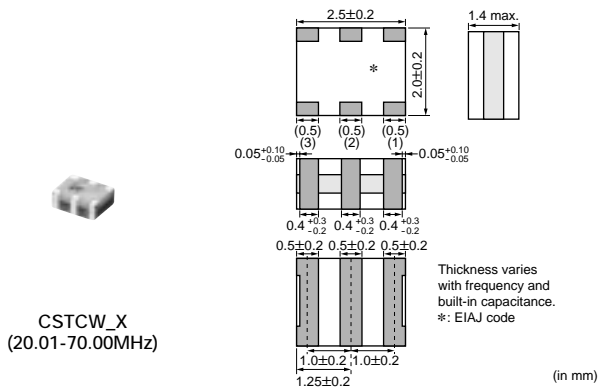
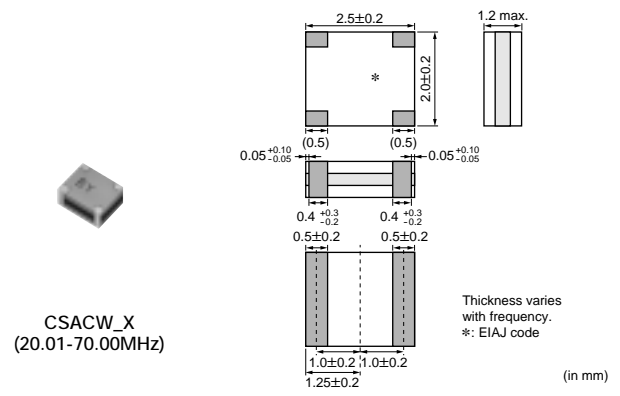
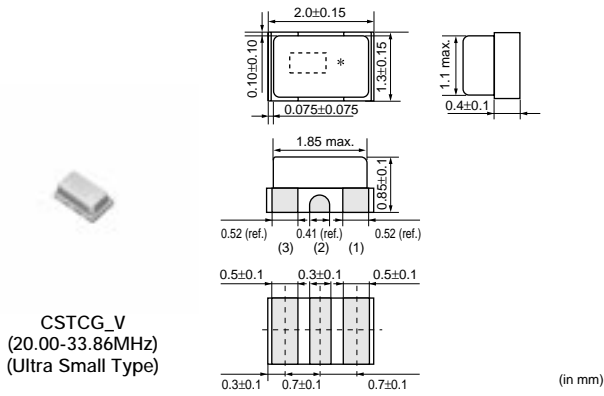
CSTCE\_V13L: The size of external electrode is not same as CSTCE\_V.

● MHz Chip Type for General Usage -Standard Frequency Tolerance-



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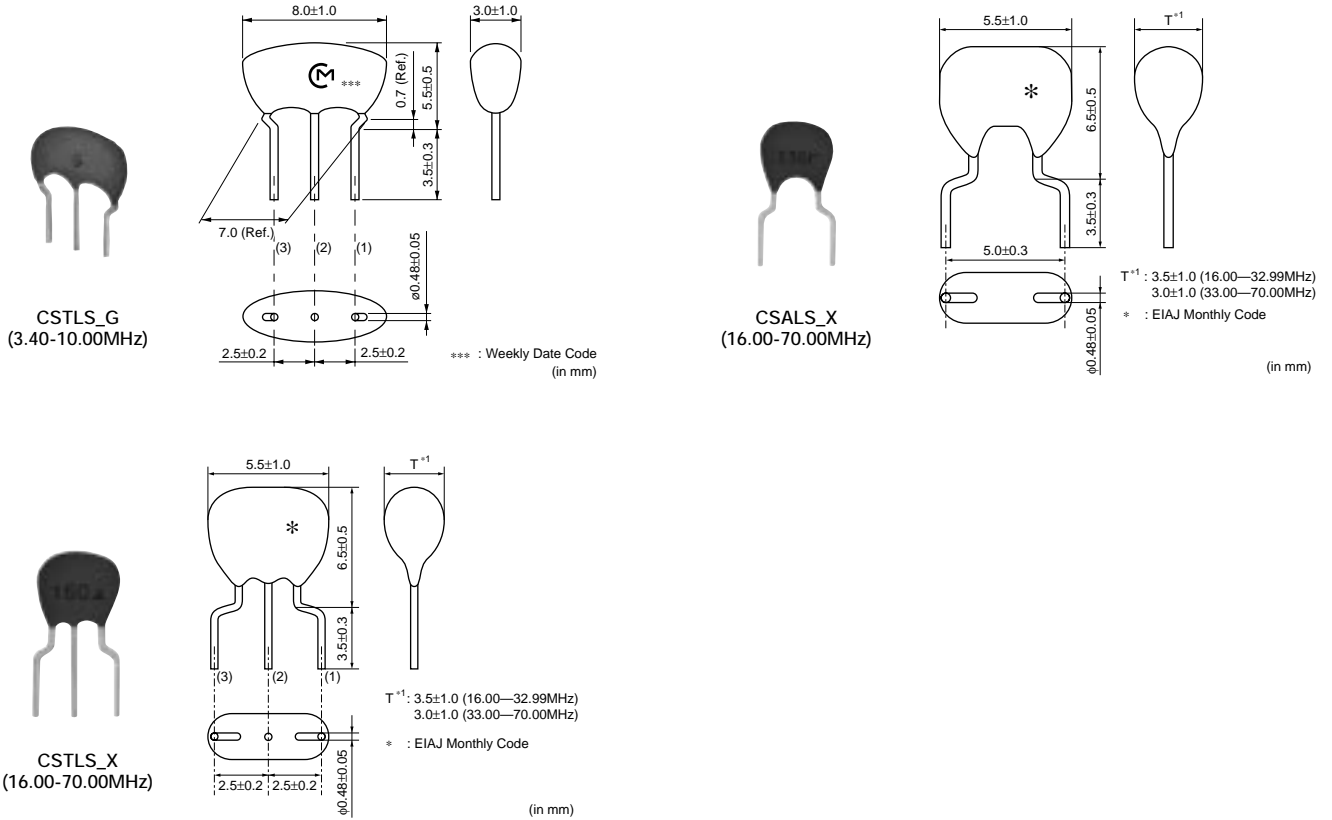


| Part Number      | Oscillating Frequency (MHz) | Initial Tolerance | Temp. Stability (%)  | Temp. Range (°C) |
|------------------|-----------------------------|-------------------|--|------------------|
| <b>CSTCC_G</b>   | 2.00 to 3.99                | ±0.5%             | ±0.3<br>[±0.4%:Built-in Capacitance 47pF type within Freq.2.00 to 3.49MHz] | -20 to 80        |
| <b>CSTCR_G</b>   | 4.00 to 7.99                | ±0.5%             | ±0.2   | -20 to 80        |
| <b>CSTCE_G</b>   | 8.00 to 13.99               | ±0.5%             | ±0.2   | -20 to 80        |
| <b>CSTCE_V</b>   | 14.00 to 20.00              | ±0.5%             | ±0.3   | -20 to 80        |
| <b>CSTCG_V</b>   | 20.00 to 33.86              | ±0.5%             | ±0.3   | -20 to 80        |
| <b>CSACW_X</b>   | 20.01 to 70.00              | ±0.5%             | ±0.2   | -20 to 80        |
| <b>CSTCW_X</b>   | 20.01 to 70.00              | ±0.5%             | ±0.2   | -20 to 80        |
| <b>CSTCW_X_M</b> | 25.00 to 48.00              | ±0.5%             | ±0.2   | -20 to 80        |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.  
CSTCE\_V: The size of external electrode is not same as CSTCE\_V\_C and CSTCE\_V13C.

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● MHz Lead Type for General Usage -Standard Frequency Tolerance-

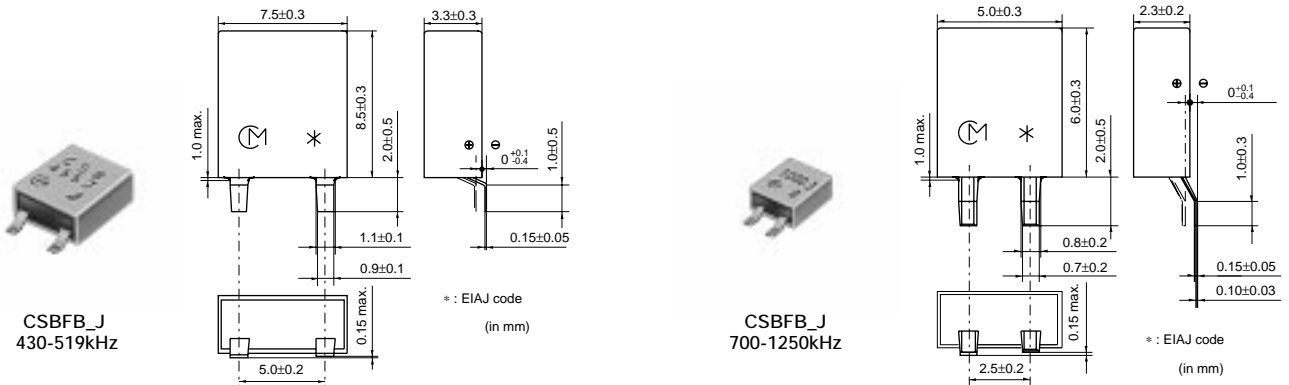


| Part Number    | Oscillating Frequency (MHz) | Initial Tolerance | Temp. Stability (%)                                     | Temp. Range (°C) |
|----------------|-----------------------------|-------------------|---|------------------|
| <b>CSTLS_G</b> | 3.40 to 10.00               | ±0.5%             | ±0.2<br>[-0.4% to +0.2%:Built-in Capacitance 47pF type] | -20 to 80        |
| <b>CSALS_X</b> | 16.00 to 70.00              | ±0.5%             | ±0.2  | -20 to 80        |
| <b>CSTLS_X</b> | 16.00 to 70.00              | ±0.5%             | ±0.2  | -20 to 80        |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.  
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

**CERALOCK® (kHz)**

● Chip Type Two Terminals CSBFB Series



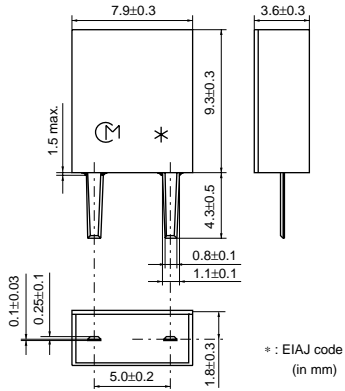
| Part Number    | Oscillating Frequency (kHz) | Initial Tolerance | Temp. Stability (%) | Temp. Range (°C) |
|----------------|-----------------------------|-------------------|---------------------|------------------|
| <b>CSBFB_J</b> | 430 to 519, 700 to 1250     | ±0.5%             | ±0.3                | -20 to 80        |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

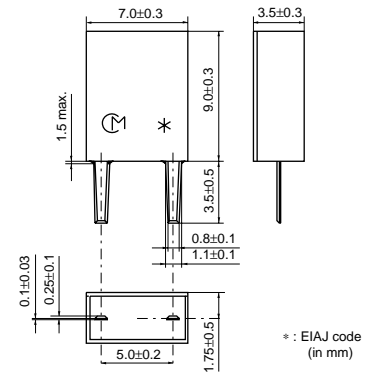
● Lead Type Two Terminals CSBLA Series



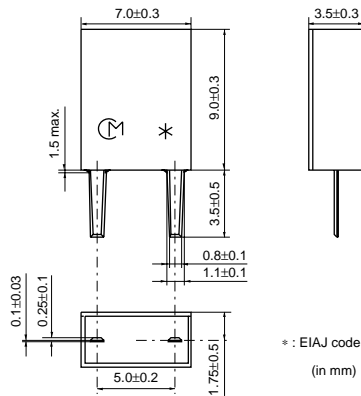
CSBLA\_E  
375-429kHz



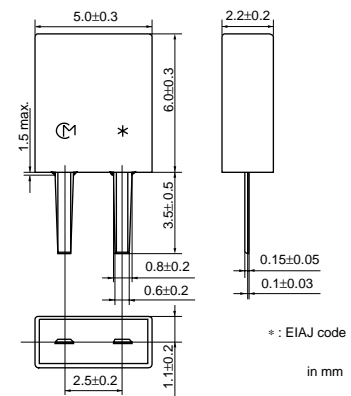
CSBLA\_E  
430-509kHz



CSBLA\_E  
510-699kHz



CSBLA\_J  
700-1250kHz



| Part Number    | Oscillating Frequency (kHz) | Initial Tolerance | Temp. Stability (%) | Temp. Range (°C) |
|----------------|-----------------------------|-------------------|---------------------|------------------|
| <b>CSBLA_E</b> | 375 to 699                  | -                 | ±0.3                | -20 to +80       |
| <b>CSBLA_J</b> | 700 to 1250                 | ±0.5%             | ±0.3                | -20 to 80        |

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Resonators 5

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# 6

## Filters for Audio Visual Equipment

**CERAFIL<sup>®</sup> for AM**

**CERAFIL<sup>®</sup> for FM**

**Discriminators for FM**

**CERAFIL<sup>®</sup> for TV/VCR**

**Traps for TV/VCR**

**SAW Traps**

● Part Numbering

**CERAFIL® for AM**

(Part Number) **SF** **P** **KA** **455K** **D4A** **-R0**  
 ① ② ③ ④ ⑤ ⑥

- ① Product ID
- ② Oscillation/Numbers of Element

| Code     | Oscillation/Numbers of Element |
|----------|--------------------------------|
| <b>U</b> | 1 Element Area Expansion mode  |
| <b>Z</b> | 2 Elements Area Expansion mode |
| <b>P</b> | 4 Elements Area Expansion mode |

- ③ Structure/Size
- ④ Nominal Center Frequency  
Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".
- ⑤ Product Specification
- ⑥ Packaging

**CERAFIL® for FM**

(Part Number) **SF** **E** **LF** **10M7** **FAA0** **-B0**  
 ① ② ③ ④ ⑤ ⑥

- ① Product ID
- ② Oscillation/Numbers of Element

| Code     | Oscillation/Numbers of Element                     |
|----------|--|
| <b>E</b> | 2 Elements Thickness Expander mode                 |
| <b>V</b> | 2 Elements Thickness Expander mode (2nd Harmonic)  |
| <b>K</b> | 2 Elements Thickness Expander mode (3rd Over Tone) |

- ③ Structure/Size
- ④ Nominal Center Frequency  
Expressed by four-digit alphanumerics. The unit is in hertz (Hz). If the unit is "MHz", a decimal point is expressed by capital letter "M".
- ⑤ Product Specification
- ⑥ Packaging

**Discriminators for FM**

(Part Number) **CD** **A** **LF** **10M7** **GA** **001** **-B0**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Product ID
- ② Oscillation

| Code     | Oscillation             |
|----------|-------------------------|
| <b>A</b> | Thickness Expander mode |
| <b>S</b> | Thickness Shear mode    |

- ③ Structure/Size
- ④ Nominal Center Frequency  
Expressed by four-digit alphanumerics. The unit is in hertz (Hz). If the unit is "MHz", a decimal point is expressed by capital letter "M".
- ⑤ Product Specification
- ⑥ IC
- ⑦ Packaging

**CERAFIL® for TV/VCR**

(Part Number) **SF** **S** **KA** **4M50** **CF** **00** **-R1**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Product ID
- ② Oscillation/Numbers of Element

| Code     | Oscillation/Numbers of Element  |
|----------|---------------------------------|
| <b>S</b> | 2 Elements Thickness Shear mode |

- ③ Structure/Size
- ④ Nominal Center Frequency  
Expressed by four-digit alphanumerics. The unit is in hertz (Hz). If the unit is "MHz", a decimal point is expressed by capital letter "M".
- ⑤ Product Specification Code (1)
- ⑥ Product Specification Code (2)
- ⑦ Packaging

### Ceramic Traps

(Part Number) **TP** **S** **KA** **4M00** **B** **00** **-R0**

①   ②   ③   ④   ⑤   ⑥   ⑦

① Product ID

② Trap Point

| Code     | Trap Point   |
|----------|--------------|
| <b>S</b> | Single Traps |
| <b>W</b> | Double Traps |

③ Structure/Size

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). If the unit is "MHz", a decimal point is expressed by capital letter "M".

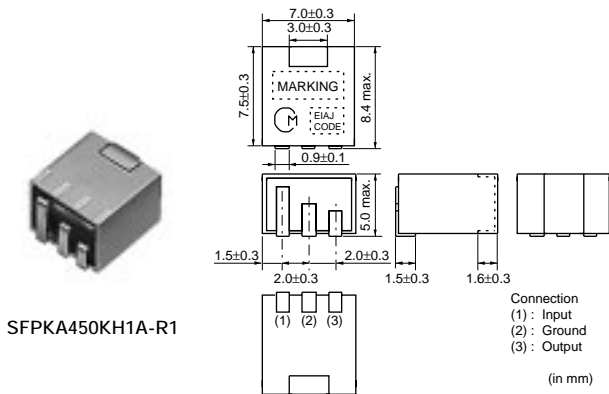
⑤ Product Specification Code (1)

⑥ Product Specification Code (2)

⑦ Packaging

# Ceramic Filters (CERAFIL®) for AM

## ● Chip Type SFPKA Series



SFPKA450KH1A-R1

| Part Number     | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Selectivity (+) (dB) | Selectivity (-) (dB) | Insertion Loss (dB) | Input/Output Impedance (ohm) | Elements |
|-----------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|------------------------------|----------|
| SFPKA450KH1A-R1 | 450.0 ±1.0kHz               | fn±3.0 min.         | 40 min.[fn+9kHz]     | 40 min.[fn-9kHz]     | 6.0 max.            | 2000                         | 4        |
| SFPKA450KG1A-R1 | 450.0 ±1.0kHz               | fn±4.5 min.         | 40 min.[fn+10kHz]    | 40 min.[fn-10kHz]    | 6.0 max.            | 1500                         | 4        |

Area of Insertion Loss: at minimum loss point

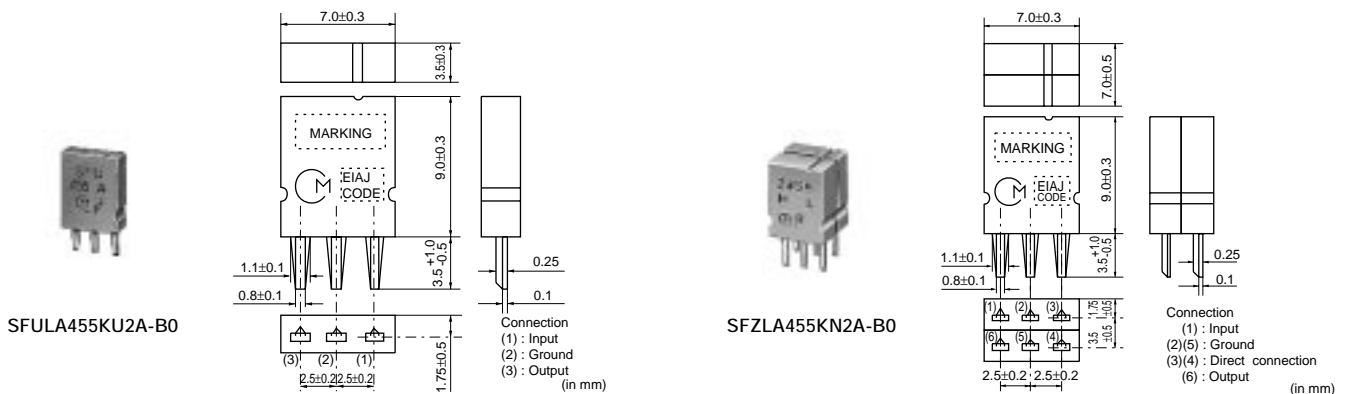
Center frequency (fo) is defined by the center of 6dB bandwidth.

(fn) means nominal center frequency (450kHz).

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

## ● SFULA/SFZLA Series



SFULA455KU2A-B0

SFZLA455KN2A-B0

| Part Number     | Center Frequency (fo) (kHz) | 3dB Bandwidth (kHz) | Selectivity (+) (dB) | Selectivity (-) (dB) | Insertion Loss (dB) | Input/Output Impedance (ohm) | Elements |
|-----------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|------------------------------|----------|
| SFULA455KU2A-B0 | 455.0 ±2.0kHz               | 10.0 ±3.0kHz        | 4 min.[fo+10kHz]     | 6 min.[fo-10kHz]     | 5.0 max.            | 3000                         | 1        |
| SFULA455KU2B-B0 | 462.0 ±2.0kHz               | 10.0 ±3.0kHz        | 4 min.[fo+10kHz]     | 6 min.[fo-10kHz]     | 5.0 max.            | 3000                         | 1        |
| SFZLA455KN2A-B0 | 455.5 ±2.0kHz               | 4.0 ±1.0kHz         | 23 min.[fo+9kHz]     | 23 min.[fo-9kHz]     | 7.0 max.            | 3000                         | 2        |
| SFZLA455KS2A-B0 | 456.0 ±2.0kHz               | 5.5 ±1.0kHz         | 18 min.[fo+9kHz]     | 18 min.[fo-9kHz]     | 7.0 max.            | 3000                         | 2        |
| SFZLA455KT2A-B0 | 456.0 ±2.0kHz               | 7.0 ±1.0kHz         | 16 min.[fo+9kHz]     | 16 min.[fo-9kHz]     | 6.0 max.            | 3000                         | 2        |

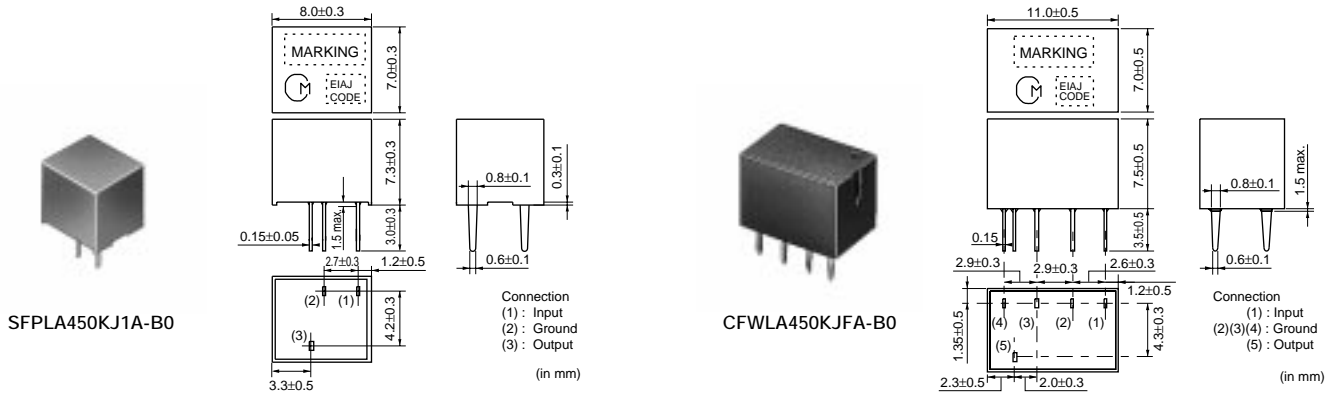
Area of Insertion Loss: at minimum loss point

Center frequency (fo) is defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## ● SFPLA/CFWLA Series



| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Selectivity (+) (dB) | Selectivity (-) (dB) | Insertion Loss (dB) | Input/Output Impedance (ohm) | Elements |
|------------------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|------------------------------|----------|
| <b>SFPLA450KJ1A-B0</b> | 450.0 ±1.0kHz               | fn±2.0 min.         | 40 min.[fn+7.5kHz]   | 40 min.[fn-7.5kHz]   | 6.0 max.            | 2000                         | 4        |
| <b>SFPLA450KH1A-B0</b> | 450.0 ±1.0kHz               | fn±3.0 min.         | 40 min.[fn+9kHz]     | 40 min.[fn-9kHz]     | 6.0 max.            | 2000                         | 4        |
| <b>CFWLA450KJFA-B0</b> | 450.0 (fn)                  | fn±2.0 min.         | 50 min.[fn+7.5kHz]   | 50 min.[fn-7.5kHz]   | 7.0 max.            | 2000                         | 6        |
| <b>CFWLA450KHFA-B0</b> | 450.0 (fn)                  | fn±3.0 min.         | 50 min.[fn+9kHz]     | 50 min.[fn-9kHz]     | 6.0 max.            | 2000                         | 6        |

Area of Insertion Loss: at minimum loss point

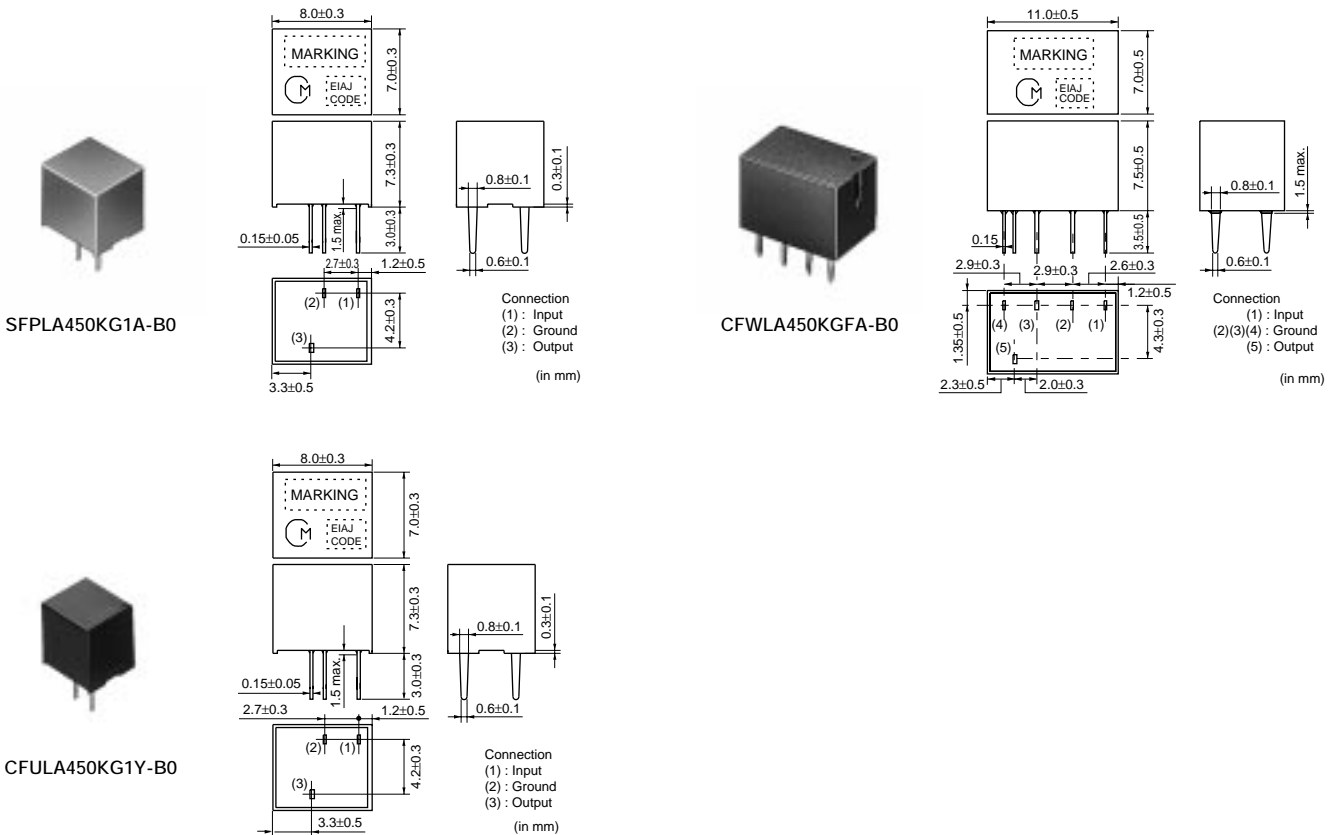
Center frequency (fo) is defined by the center of 6dB bandwidth.

(fn) means nominal center frequency (450kHz)

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## ● SFPLA/CFWLA/CFULA Series (For AM Stereo Wide Band Type)



| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Selectivity (+) (dB) | Selectivity (-) (dB) | Insertion Loss (dB) | GDT 20μsec. Bandwidth (kHz) | Input/Output Impedance (ohm) | Elements |
|------------------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|-----------------------------|------------------------------|----------|
| <b>SFPLA450KG1A-B0</b> | 450.0 ±1.0kHz               | fn±4.5 min.         | 30 min.[fn+9kHz]     | 30 min.[fn-9kHz]     | 6.0 max.            | -                           | 2000                         | 4        |
| <b>SFPLA450KF1A-B0</b> | 450.0 ±1.0kHz               | fn±6.0 min.         | 40 min.[fn+12.5kHz]  | 40 min.[fn-12.5kHz]  | 6.0 max.            | -                           | 2000                         | 4        |
| <b>SFPLA450KE1A-B0</b> | 450.0 ±1.0kHz               | fn±7.5 min.         | 40 min.[fn+15kHz]    | 40 min.[fn-15kHz]    | 6.0 max.            | -                           | 1500                         | 4        |

Continued on the following page.

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| Part Number     | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Selectivity (+) (dB) | Selectivity (-) (dB) | Insertion Loss (dB) | GDT 20μsec. Bandwidth (kHz) | Input/Output Impedance (ohm) | Elements |
|-----------------|-----------------------------|---------------------|----------------------|----------------------|---------------------|-----------------------------|------------------------------|----------|
| SFPLA450KD1A-B0 | 450.0 ±1.0kHz               | fn±10.0 min.        | 40 min.[fn+20kHz]    | 40 min.[fn-20kHz]    | 4.0 max.            | -                           | 1500                         | 4        |
| CFWLA450KGFA-B0 | 450.0 (fn)                  | fn±4.5 min.         | 50 min.[fn+10kHz]    | 50 min.[fn-10kHz]    | 6.0 max.            | -                           | 2000                         | 6        |
| CFWLA450KFFA-B0 | 450.0 (fn)                  | fn±6.0 min.         | 50 min.[fn+12.5kHz]  | 50 min.[fn-12.5kHz]  | 6.0 max.            | -                           | 2000                         | 6        |
| CFWLA450KEFA-B0 | 450.0 (fn)                  | fn±7.5 min.         | 50 min.[fn+15kHz]    | 50 min.[fn-15kHz]    | 6.0 max.            | -                           | 1500                         | 6        |
| CFWLA450KDFA-B0 | 450.0 (fn)                  | fn±10.0 min.        | 50 min.[fn+20kHz]    | 50 min.[fn-20kHz]    | 4.0 max.            | -                           | 1500                         | 6        |
| CFWLA450KG1Y-B0 | 450.0 ±1.0kHz               | fn±4.5 min.         | 50 min.[fn+15kHz]    | 50 min.[fn-15kHz]    | 11.0 max.           | fn±4                        | 2000                         | 6        |
| CFWLA450KF1Y-B0 | 450.0 ±1.0kHz               | fn±6.0 min.         | 50 min.[fn+17.5kHz]  | 50 min.[fn-17.5kHz]  | 10.0 max.           | fn±5                        | 2000                         | 6        |
| CFWLA450KD1Y-B0 | 450.0 ±1.0kHz               | fn±10.0 min.        | 50 min.[fn+25kHz]    | 50 min.[fn-25kHz]    | 8.0 max.            | fn±8                        | 1500                         | 6        |
| CFULA450KG1Y-B0 | 450.0 ±1.0kHz               | fn±4.5 min.         | 40 min.[fn+15kHz]    | 40 min.[fn-15kHz]    | 10.0 max.           | fn±3                        | 2000                         | 4        |
| CFULA450KF1Y-B0 | 450.0 ±1.0kHz               | fn±6.0 min.         | 40 min.[fn+17.5kHz]  | 40 min.[fn-17.5kHz]  | 9.0 max.            | fn±4                        | 2000                         | 4        |
| CFULA450KD1Y-B0 | 450.0 ±1.0kHz               | fn±10.0 min.        | 40 min.[fn+25kHz]    | 40 min.[fn-25kHz]    | 7.0 max.            | fn±7                        | 1500                         | 4        |

Area of Insertion Loss: at minimum loss point

Center frequency (fo) is defined by the center of 6dB bandwidth.

(fn) means nominal center frequency (450kHz)

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

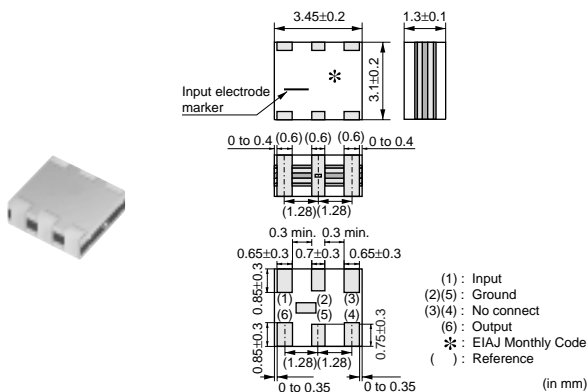
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## Ceramic Filters (CERAFIL®) for FM

6

Filters for Audio Visual Equipment

### ● Chip Type SFECF Series (Standard Type)



| Part Number        | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Ripple (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|--------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------|-------------------------------|------------------------------|-------------------------------|
| SFECF10M7HA00-R0   | 10.700 ±30kHz               | -                                   | 180 ±40kHz          | 470 max.          | 4.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7HF00-R0   | -                           | 10.700                              | fn±25 min.          | 510 max.          | 8.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| SFECF10M7GA00-R0   | 10.700 ±30kHz               | -                                   | 230 ±50kHz          | 510 max.          | 3.5 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7GF00-R0   | -                           | 10.700                              | fn±45 min.          | 560 max.          | 8.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| SFECF10M7FA00-R0   | 10.700 ±30kHz               | -                                   | 280 ±50kHz          | 590 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7FF00-R0   | -                           | 10.700                              | fn±65 min.          | 620 max.          | 7.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| SFECF10M7EA00-R0   | 10.700 ±30kHz               | -                                   | 330 ±50kHz          | 700 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7DA0001-R0 | 10.700 ±30kHz               | -                                   | 420 min.            | 950 max.          | 3.0 ±2.0dB          | 3.0 max.    | 35 min. [within 9MHz to fo]   | 330                          | 25 min. [within fo to 12MHz]  |

Continued on the following page.

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Continued from the preceding page.

| Part Number             | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Ripple (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFECF10M7DF00-R0</b> | -                           | 10.700                              | fn±150 min.         | 990 max.          | 6.0 max. [at fn]    | 3.0 max.    | 20 min. [within 9MHz to fn]   | 330                          | 20 min. [within fn to 12MHz]  |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

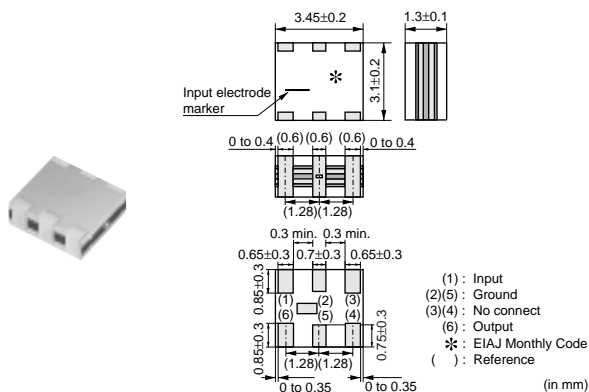
Area of Ripple: within 3dB B.W.

Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

## ● Chip Type SFECF Series (High-reliability Type)



| Part Number               | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Ripple (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|---------------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFECF10M7HA00S0-R0</b> | 10.700 ±30kHz               | -                                   | 180 ±40kHz          | 470 max.          | 4.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| <b>SFECF10M7HF00S0-R0</b> | -                           | 10.700                              | fn±25 min.          | 510 max.          | 8.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| <b>SFECF10M7GA00S0-R0</b> | 10.700 ±30kHz               | -                                   | 230 ±50kHz          | 510 max.          | 3.5 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| <b>SFECF10M7GF00S0-R0</b> | -                           | 10.700                              | fn±45 min.          | 560 max.          | 8.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| <b>SFECF10M7FA00S0-R0</b> | 10.700 ±30kHz               | -                                   | 280 ±50kHz          | 590 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| <b>SFECF10M7FF00S0-R0</b> | -                           | 10.700                              | fn±65 min.          | 630 max.          | 7.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| <b>SFECF10M7EA00S0-R0</b> | 10.700 ±30kHz               | -                                   | 330 ±50kHz          | 700 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| <b>SFECF10M7DF00S0-R0</b> | -                           | 10.700                              | fn±145 min.         | 990 max.          | 6.0 max. [at fn]    | 3.0 max.    | 20 min. [within 9MHz to fn]   | 330                          | 20 min. [within fn to 12MHz]  |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

Area of Ripple: within 3dB B.W.

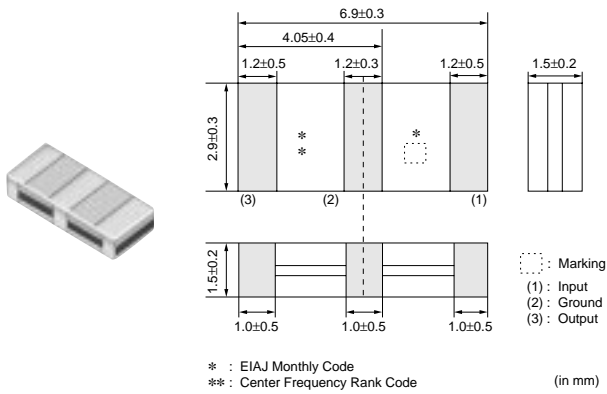
Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

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## ● Chip Type SFECK Series (High-reliability Type)



| Part Number               | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|---------------------------|-----------------------------|-------------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFECK10M7JA00S0-R0</b> | 10.700 ±30kHz               | -                             | 150 ±40kHz          | 380 max.          | 5.5 ±2.0dB          | 35 min.                       | 330                          | 35 min.                       |
| <b>SFECK10M7KA00S0-R0</b> | 10.700 ±30kHz               | -                             | 110 ±30kHz          | 320 max.          | 6.0 ±2.0dB          | 35 min.                       | 330                          | 35 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

Area of Ripple: within 3dB B.W.

Center frequency (fo) defined by the center of 3dB bandwidth.

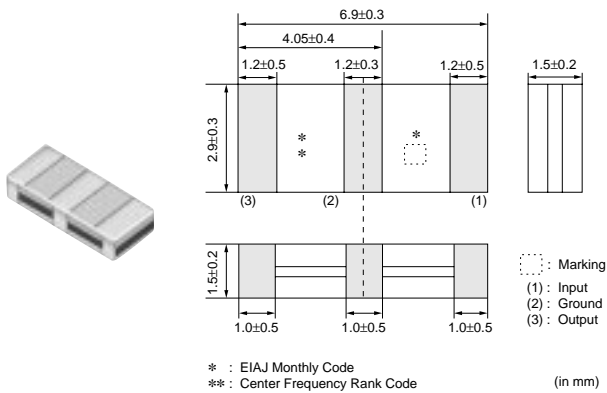
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

6

Filters for Audio Visual Equipment

## ● Chip Type SFECV Series



| Part Number               | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Ripple (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|---------------------------|-----------------------------|-------------------------------|---------------------|-------------------|---------------------|-------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFECV15M0EQ0001-R0</b> | 15.000 ±50kHz               | -                             | 300 min.            | 750 max.          | 7.0 max.            | 1.0 max.    | 30 min.                       | 330                          | 30 min.                       |
| <b>SFECV10M7KA00-R0</b>   | 10.700 ±30kHz               | -                             | 110 ±30kHz          | 320 max.          | 6.0 ±2.0dB          | 1.0 max.    | 35 min.                       | 330                          | 35 min.                       |
| <b>SFECV10M7JA00-R0</b>   | 10.700 ±30kHz               | -                             | 150 ±40kHz          | 380 max.          | 5.5 ±2.0dB          | 1.0 max.    | 35 min.                       | 330                          | 35 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz], SFECV15M0EQ0001-R0: [within 14MHz to fo/fo to 16MHz]

Area of Insertion Loss: at minimum loss point

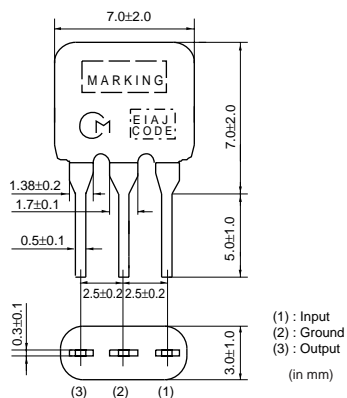
Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.



## ● Standard Lead Type



| Part Number             | Center Frequency (fo) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFELF10M7HA00-B0</b> | 10.700 $\pm 30$ kHz         | 180 $\pm 40$ kHz    | 520 max.          | 7.0 max.            | 40 min.                       | 330                          | 40 min.                       |
| <b>SFELF10M7GA00-B0</b> | 10.700 $\pm 30$ kHz         | 230 $\pm 50$ kHz    | 570 max.          | 4.0 $\pm 2.0$ dB    | 40 min.                       | 330                          | 40 min.                       |
| <b>SFELF10M7FA00-B0</b> | 10.700 $\pm 30$ kHz         | 280 $\pm 50$ kHz    | 650 max.          | 4.0 $\pm 2.0$ dB    | 30 min.                       | 330                          | 30 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

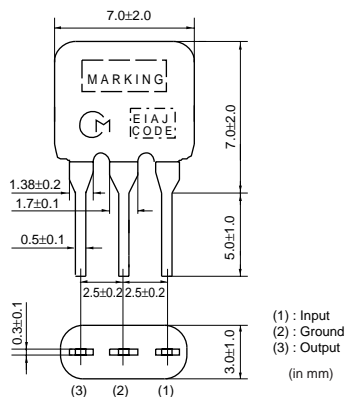
Area of Insertion Loss: at minimum loss point

Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

## ● Low Loss Type



| Part Number             | Center Frequency (fo) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFELF10M7JAA0-B0</b> | 10.700 $\pm 30$ kHz         | 150 $\pm 40$ kHz    | 360 max.          | 4.5 $\pm 2.0$ dB    | 35 min.                       | 330                          | 35 min.                       |
| <b>SFELF10M7HAA0-B0</b> | 10.700 $\pm 30$ kHz         | 180 $\pm 40$ kHz    | 470 max.          | 3.5 $\pm 1.5$ dB    | 35 min.                       | 330                          | 35 min.                       |
| <b>SFELF10M7GAA0-B0</b> | 10.700 $\pm 30$ kHz         | 230 $\pm 50$ kHz    | 520 max.          | 3.0 $\pm 2.0$ dB    | 35 min.                       | 330                          | 35 min.                       |
| <b>SFELF10M7FAA0-B0</b> | 10.700 $\pm 30$ kHz         | 280 $\pm 50$ kHz    | 590 max.          | 2.5 $\pm 2.0$ dB    | 30 min.                       | 330                          | 30 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

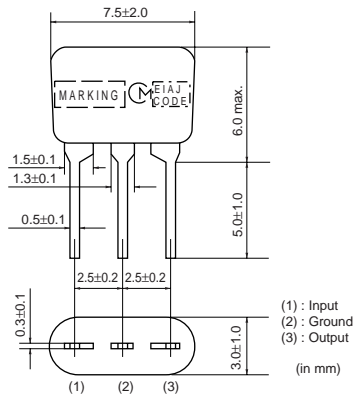
Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

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● Low Profile Type



| Part Number             | Center Frequency (fo) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFELG10M7KA00-B0</b> | 10.700 ±30kHz               | 110 ±30kHz          | 350 max.          | 7.0 ±2.0dB          | 30 min.                       | 330                          | 30 min.                       |
| <b>SFELG10M7JA00-B0</b> | 10.700 ±30kHz               | 150 ±40kHz          | 360 max.          | 4.5 ±2.0dB          | 35 min.                       | 330                          | 35 min.                       |
| <b>SFELG10M7HA00-B0</b> | 10.700 ±30kHz               | 180 ±40kHz          | 470 max.          | 3.5 ±2.0dB          | 35 min.                       | 330                          | 35 min.                       |
| <b>SFELG10M7GA00-B0</b> | 10.700 ±30kHz               | 230 ±50kHz          | 570 max.          | 3.0 ±2.0dB          | 40 min.                       | 330                          | 40 min.                       |
| <b>SFELG10M7FA00-B0</b> | 10.700 ±30kHz               | 280 ±50kHz          | 650 max.          | 3.0 ±2.0dB          | 30 min.                       | 330                          | 30 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

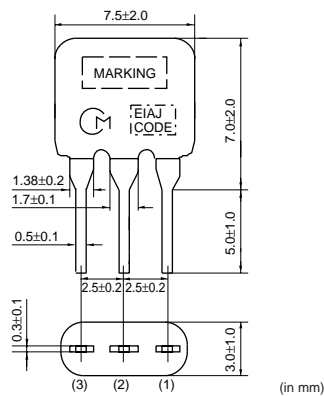
Area of Insertion Loss: at minimum loss point

Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

● Lower Spurious Response Type



| Part Number             | Center Frequency (fo) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFELF10M7KAB0-B0</b> | 10.700 ±30kHz               | 110 ±30kHz          | 350 max.          | 7.0 ±2.0dB          | 45/30 min.                    | 330                          | 30 min.                       |
| <b>SFELF10M7JAB0-B0</b> | 10.700 ±30kHz               | 150 ±40kHz          | 380 max.          | 5.5 ±2.0dB          | 45 min.                       | 330                          | 45 min.                       |
| <b>SFELF10M7HAB0-B0</b> | 10.700 ±30kHz               | 180 ±40kHz          | 520 max.          | 5.0 ±2.0dB          | 45 min.                       | 330                          | 45 min.                       |
| <b>SFELF10M7GAB0-B0</b> | 10.700 ±30kHz               | 230 ±50kHz          | 570 max.          | 3.0 ±2.0dB          | 45 min.                       | 330                          | 45 min.                       |

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| Part Number             | Center Frequency (fo) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFELF10M7FAB0-B0</b> | 10.700<br>±30kHz            | 280 ±50kHz          | 650 max.          | 3.0 ±2.0dB          | 45 min.                       | 330                          | 45 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz], SFELF10M7KAB0-B0: [within 9MHz to fo/fo to 12MHz]

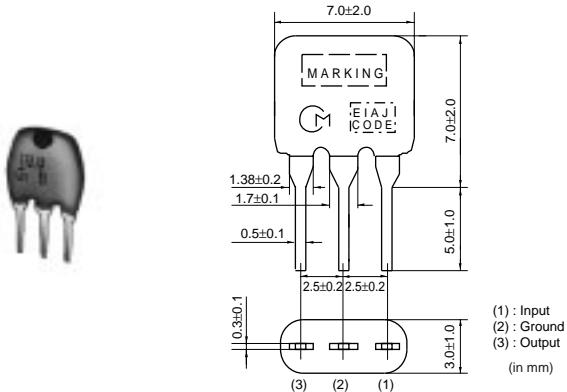
Area of Insertion Loss: at minimum loss point

Center frequency (fo) defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

## Wider Band Width Type



| Part Number             | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|-------------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| <b>SFELF10M7EA00-B0</b> | 10.700<br>±30kHz            | -                                   | 330 ±50kHz          | 680 max.          | 4.0 ±2.0dB          | 30 min.                       | 330                          | 30 min.                       |
| <b>SFELF10M7DF00-B0</b> | -                           | 10.700                              | fn±175 min.         | 950 max.          | 3.0 ±2.0dB          | 20 min.                       | 470                          | 20 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: SFELF10M7DF00-B0: [within 5MHz to 15MHz]

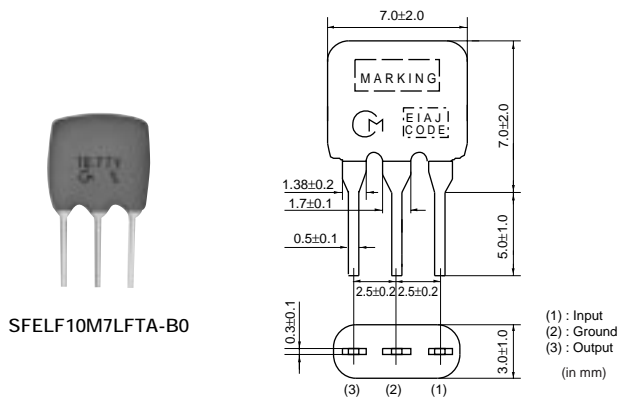
Area of Insertion Loss: at minimum loss point

Center frequency (fo) defined by the center of 3dB bandwidth.

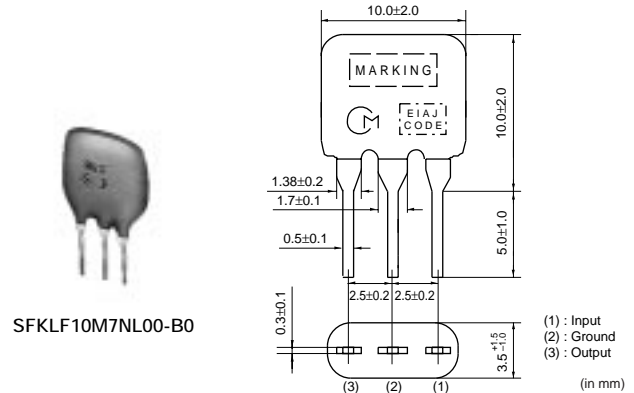
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

## Narrow Band Type



SFELF10M7LFTA-B0

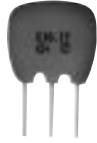


SFKLF10M7NL00-B0

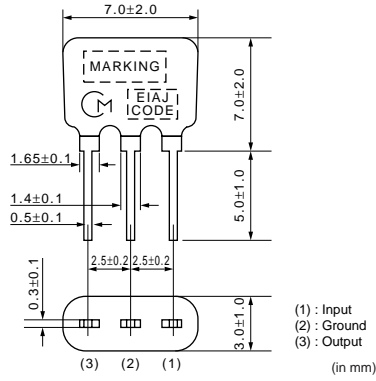
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SFVLF10M7LF00-B0



| Part Number      | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|-------------------------------|
| SFELF10M7KAH0-B0 | 10.700 ±30kHz               | -                                   | 110 ±30kHz          | 350 max.          | 7.0 ±2.0dB          | 30 min.                       | 330                          | 30 min.                       |
| SFELF10M7LFTA-B0 | -                           | 10.700                              | fn±25 min.          | 280 max.          | 7.0 ±2.0dB          | 30 min.                       | 330                          | 30 min.                       |
| SFKLF10M7NL00-B0 | 10.700 ±15kHz               | -                                   | 20 min.             | 95 max.           | 6.0 max.            | 24 min.                       | 600                          | 24 min.                       |
| SFVLF10M7LF00-B0 | -                           | 10.700                              | fn±25 min.          | -                 | 5.5 ±2.5dB          | 30 min.                       | 330                          | 30 min.                       |
| SFVLF10M7MF00-B0 | -                           | 10.700                              | fn±13 min.          | 135 max.          | 5.0 ±2.0dB          | 35 min.                       | 330                          | 35 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz], SFKLF10M7NL00-B0: [within fo-1.0MHz to fo+1.0MHz]

Area of Insertion Loss: at minimum loss point

Center frequency (fo) defined by the center of 3dB bandwidth.

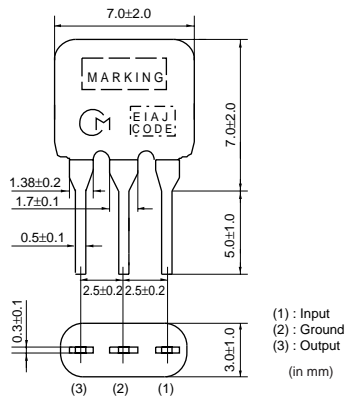
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

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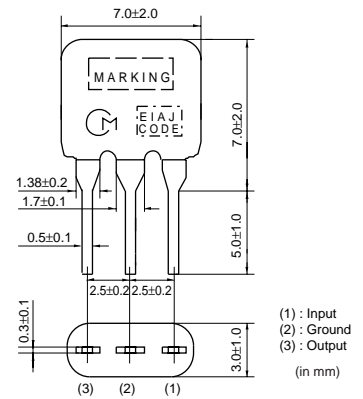
● For FM -IF Tuners



SFELF10M7HA0G-B0



SFELF10M7FA0G-B0



| Part Number      | Center Frequency (fo) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Spurious Attenuation (1) (dB) | GDT Bandwidth (kHz)          | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|------------------|-----------------------------|---------------------|-------------------|---------------------|-------------------------------|------------------------------|------------------------------|-------------------------------|
| SFELF10M7HA0G-B0 | 10.700 ±30kHz               | 180 ±40kHz          | 520 max.          | 7.0 max.            | 40 min.                       | fo±45 min. [within 0.5µsec.] | 330                          | 40 min.                       |
| SFELF10M7GA0G-B0 | 10.700 ±30kHz               | 230 ±50kHz          | 600 max.          | 7.0 max.            | 40 min.                       | fo±60 min. [within 0.5µsec.] | 330                          | 40 min.                       |
| SFELF10M7FA0G-B0 | 10.700 ±30kHz               | 280 ±50kHz          | 650 max.          | 4.0 ±2.0dB          | 30 min.                       | fo±85 min. [within 0.5µsec.] | 330                          | 30 min.                       |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

Center frequency (fo) defined by the center of 3dB bandwidth.

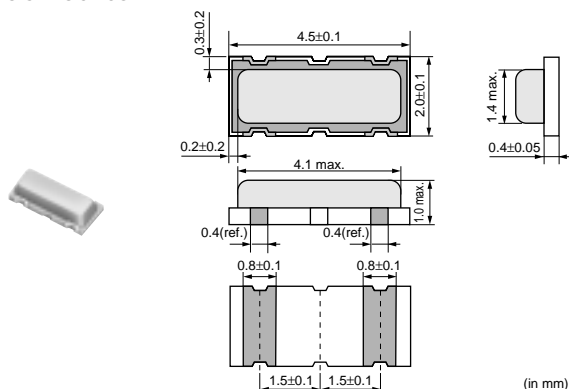
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

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# Ceramic Discriminators for FM

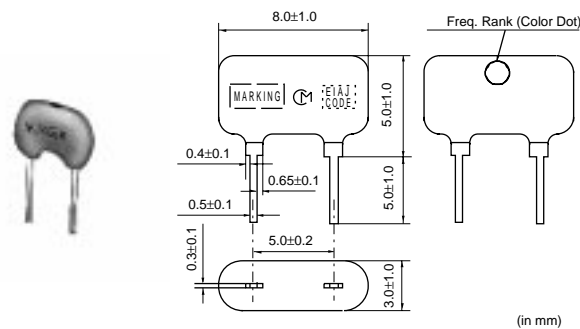
● CDSCB Series



| Part Number        | Center Frequency (fo) (MHz) | Recovered Audio 3dB BW (kHz) | Recovered Audio Output (mV) | Distortion (%) | S Curve (mV) | IC        |
|--------------------|-----------------------------|------------------------------|-----------------------------|----------------|--------------|-----------|
| CDSCB10M7GA105A-R0 | 10.700 ±30kHz               | 220 min.                     | 110 min.                    | 1.5 max.       | -            | TEA5757HL |
| CDSCB10M7GA113-R0  | 10.700 ±30kHz               | 300 min.                     | 110 min.                    | 1.0 max.       | -            | TA2154FN  |
| CDSCB10M7GA119-R0  | 10.700 ±30kHz               | 500 min.                     | 75 min.                     | 1.0 max.       | -            | TRF6901   |
| CDSCB10M7GA121-R0  | 10.700 ±30kHz               | 390 min.                     | 80 min.                     | 1.0 max.       | -            | LV23100V  |
| CDSCB10M7GA135-R0  | 10.700 ±30kHz               | 155 min.                     | 75 min.                     | -              | -            | TH71101   |
| CDSCB10M7GA136-R0  | 10.700 ±30kHz               | 140 min.                     | 120 min.                    | -              | -            | TH7122    |
| CDSCB10M7GF072-R0  | 10.700 (fn)                 | fn±150 min.                  | 130 min.                    | 2.0 max.       | -            | TA31161   |
| CDSCB10M7GF107S-R0 | 10.700 (fn)                 | fn±80 min.                   | 52 min.                     | 3.0 max.       | -            | TA31272FN |
| CDSCB10M7GF109-R0  | 10.700 (fn)                 | fn±100 min.                  | 170 min.                    | 3.0 max.       | -            | TK14588V  |
| CDSCB10M7GF123-R0  | 10.700 (fn)                 | -                            | -                           | -              | 900 min.     | TA31275FN |
| CDSCB10M7GF123S-R0 | 10.700 (fn)                 | -                            | -                           | -              | 900 min.     | TA31275FN |
| CDSCB10M7GF126-R0  | 10.700 (fn)                 | -                            | -                           | -              | 400 min.     | NJM2295AV |

For safety purposes, avoid applying a direct current between the terminals.  
The order quantity should be an integral multiple of the "minimum quantity" shown in the package page.

● CDALF Series



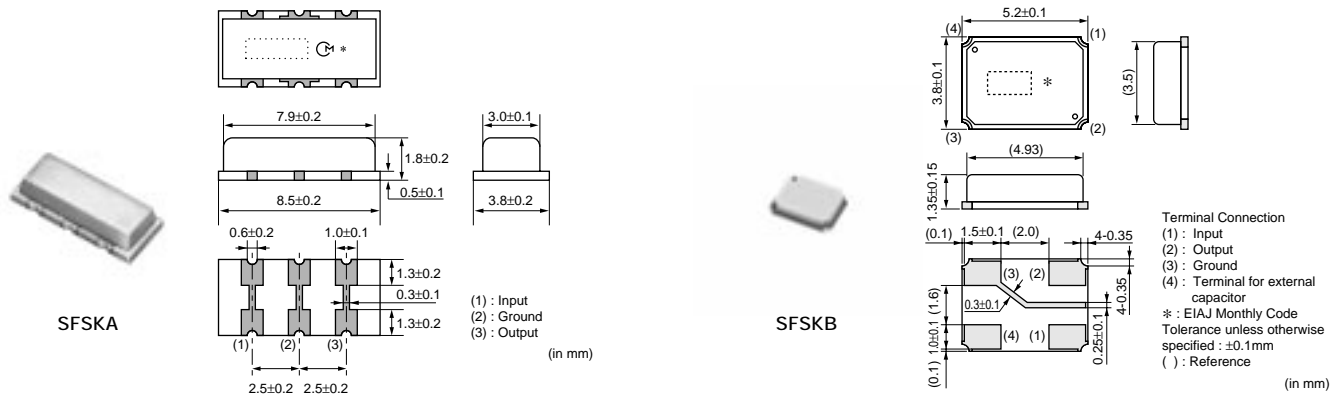
| Part Number        | Center Frequency (fo) (MHz) | Recovered Audio 3dB BW (kHz) | Recovered Audio Output (mV) | Distortion (%) | IC      |
|--------------------|-----------------------------|------------------------------|-----------------------------|----------------|---------|
| CDALF10M7CA005A-B0 | 10.700 ±30kHz               | 100 min.                     | 600 min.                    | 6.0 max.       | LA7770  |
| CDALF10M7CA040-B0  | 10.700 ±30kHz               | 130 min.                     | 40 min.                     | 0.7 max.       | TEA5710 |
| CDALF10M7GA016-B0  | 10.700 ±30kHz               | 300 min.                     | within60 to 90mV            | 0.9 max.       | TA8122F |
| CDALF10M7GA018-B0  | 10.700 ±30kHz               | 300 min.                     | within60 to 90mV            | 0.9 max.       | TA8132N |
| CDALF10M7GA046-B0  | 10.700 ±30kHz               | 330 min.                     | 280 min.                    | 1.0 max.       | LA1832  |
| CDALF10M7GA048-B0  | 10.700 ±30kHz               | 400 min.                     | 700 min.                    | 1.0 max.       | LA1835  |
| CDALF10M7GA092-B0  | 10.700 ±30kHz               | 300 min.                     | 60 min.                     | 1.0 max.       | TA2132P |

(fn) means nominal center frequency (10.700MHz)  
For safety purposes, avoid applying a direct current between the terminals.  
The order quantity should be an integral multiple of the "minimum quantity" shown in the package page.  
CDALF10M7GA018-B0: Color dot is different from standard series.

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# Ceramic Filters (CERAFIL<sup>®</sup>) for TV/VCR

● Chip Type SFSKA/SFSKB Series



| Part Number             | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | 20dB Bandwidth (kHz) | Insertion Loss (dB) | Spurious Attenuation(1) (dB)      | Spurious Attenuation(2) (dB)      | Input/Output Impedance (ohm) |
|-------------------------|-------------------------------------|---------------------|----------------------|---------------------|-----------------------------------|-----------------------------------|------------------------------|
| <b>SFSKA4M50CF00-R3</b> | 4.500                               | fn±60 min.          | 600 max.             | 6.0 max.            | 20 min.<br>[within 0 to fn]       | 15 min.<br>[within fn to 7.0MHz]  | 1000                         |
| <b>SFSKA5M50CF00-R3</b> | 5.500                               | fn±60 min.          | 600 max.             | 6.0 max.            | 25 min.<br>[within 0 to fn]       | 15 min.<br>[within fn to 7.0MHz]  | 600                          |
| <b>SFSKA6M00CF00-R3</b> | 6.000                               | fn±60 min.          | 600 max.             | 6.0 max.            | 25 min.<br>[within 0 to fn]       | 15 min.<br>[within fn to 7.5MHz]  | 470                          |
| <b>SFSKA6M50CF00-R3</b> | 6.500                               | fn±60 min.          | 600 max.             | 6.0 max.            | 25 min.<br>[within 0 to fn]       | 15 min.<br>[within fn to 8.5MHz]  | 470                          |
| <b>SFSKB2M30GF00-R1</b> | 2.300                               | fn±75 min.          | 650 max.             | 6.0 max.            | 25 min.<br>[within 1.3 to 1.8MHz] | 23 min.<br>[within 2.8 to 3.3MHz] | 1000                         |
| <b>SFSKB2M80GF00-R1</b> | 2.800                               | fn±75 min.          | 650 max.             | 6.0 max.            | 25 min.<br>[within 1.8 to 2.3MHz] | 25 min.<br>[within 3.3 to 3.8MHz] | 1000                         |
| <b>SFSKB3M20FF00-R1</b> | 3.200                               | fn±75 min.          | 650 max.             | 6.0 max.            | 30 min.<br>[within 2.2 to 2.8MHz] | 30 min.<br>[within 3.8 to 4.2MHz] | 1000                         |
| <b>SFSKB3M80GF00-R1</b> | 3.800                               | fn±75 min.          | 650 max.             | 6.0 max.            | 30 min.<br>[within 2.8 to 3.2MHz] | 30 min.<br>[within 4.3 to 4.8MHz] | 1000                         |
| <b>SFSKB4M30GF00-R1</b> | 4.300                               | fn±75 min.          | 650 max.             | 6.0 max.            | 30 min.<br>[within 3.3 to 3.8MHz] | 30 min.<br>[within 4.8 to 5.3MHz] | 1000                         |
| <b>SFSKB4M80GF00-R1</b> | 4.800                               | fn±75 min.          | 650 max.             | 6.0 max.            | 30 min.<br>[within 3.8 to 4.3MHz] | 30 min.<br>[within 5.2 to 5.8MHz] | 1000                         |
| <b>SFSKB5M20GF00-R1</b> | 5.200                               | fn±75 min.          | 650 max.             | 6.0 max.            | 30 min.<br>[within 4.2 to 4.8MHz] | 30 min.<br>[within 5.7 to 6.2MHz] | 1000                         |
| <b>SFSKB5M70GF00-R1</b> | 5.700                               | fn±75 min.          | 650 max.             | 6.0 max.            | 30 min.<br>[within 4.7 to 5.2MHz] | 30 min.<br>[within 6.2 to 6.7MHz] | 1000                         |

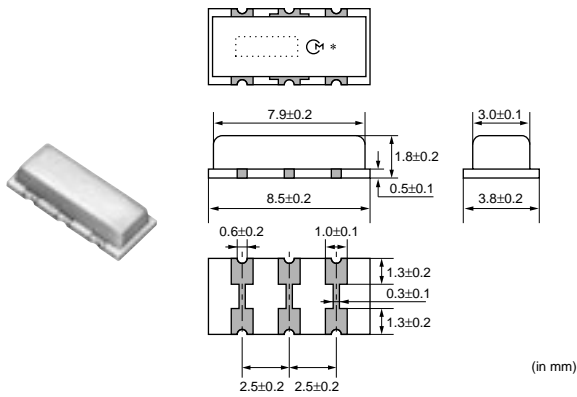
Area of Insertion Loss: at minimum loss point

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the package page.

# Traps for TV/VCR

## Ceramic Traps

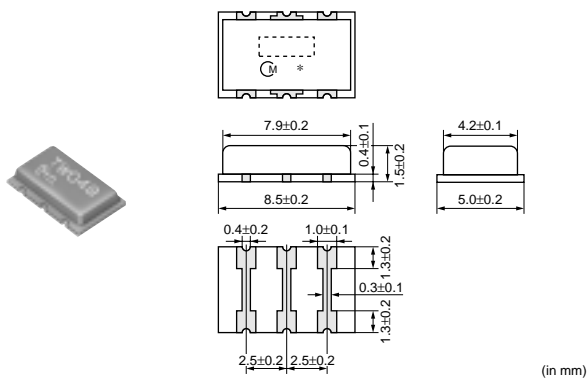
### ● Chip Type TPSKA Series



| Part Number     | Nominal Center Frequency (fn1) (MHz) | Attenuation (at fn1) (dB) | 30dB Attenuation BW (fn1) (kHz) |
|-----------------|--------------------------------------|---------------------------|---------------------------------|
| TPSKA4M50B00-R3 | 4.500                                | 35 min.                   | 50 min.                         |
| TPSKA5M50B00-R3 | 5.500                                | 35 min.                   | 70 min.                         |
| TPSKA6M00B00-R3 | 6.000                                | 35 min.                   | 70 min.                         |
| TPSKA6M50B00-R3 | 6.500                                | 35 min.                   | 70 min.                         |

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

### ● Chip Type Double Trap TPWKA Series

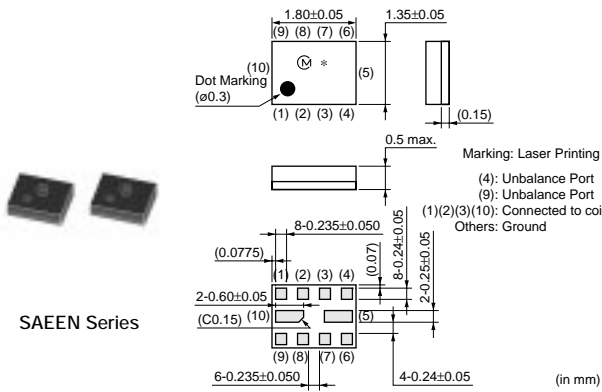
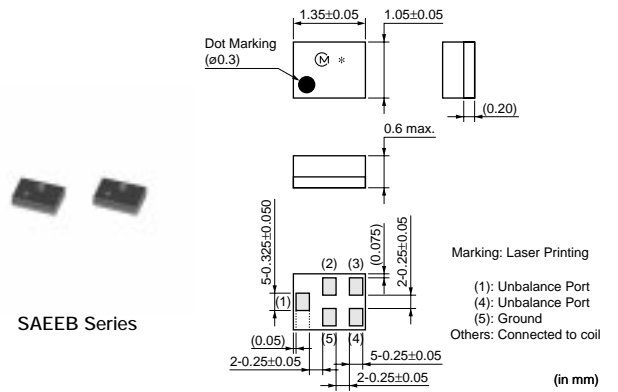
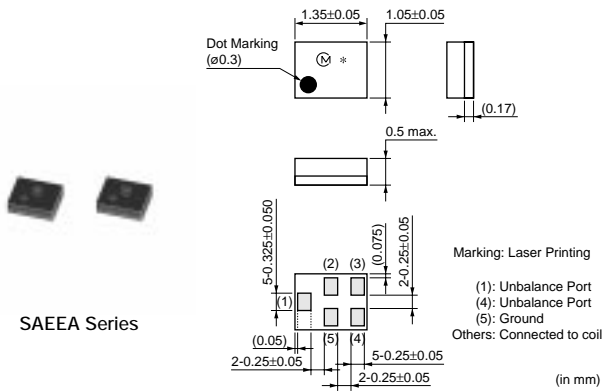


| Part Number     | Nominal Center Frequency (fn1) (MHz) | Nominal Center Frequency (fn2) (MHz) | Attenuation (at fn1) (dB) | Attenuation (at fn2) (dB) | 30dB Attenuation BW (fn1) (kHz) |
|-----------------|--------------------------------------|--------------------------------------|---------------------------|---------------------------|---------------------------------|
| TPWKA5M50B04-R1 | 5.500                                | 5.742                                | 30 min.                   | 30 min.                   | 50 min.                         |

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

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# SAW Traps



| Part Number            | Application | Center Frequency (MHz) | Attenuation (MHz) | Insertion Loss (1) (dB max.) | Insertion Loss (2) (dB max.) | Insertion Loss (3) (dB max.) |
|------------------------|-------------|------------------------|-------------------|------------------------------|------------------------------|------------------------------|
| <b>SAEEA835MBA0F00</b> | ISDB-T      | 835                    | 830 to 840        | 1.5 (470MHz to 710MHz)       | 2.0 (710MHz to 770MHz)       | 40 (830MHz to 840MHz)        |
| <b>SAEEB897MBB0B00</b> | DVB-H       | 897.5                  | 880 to 915        | 2.0 (470MHz to 750MHz)       | 3.4 (750MHz to 798MHz)       | 41 (880MHz to 915MHz)        |
| <b>SAEEN832MWA0B00</b> | ISDB-T      | 832<br>915             | 824 to 840        | 2.1 (470MHz to 710MHz)       | 3.3 (710MHz to 770MHz)       | 37 (824MHz to 840MHz)        |



# 7

## Filters for Communication Equipment

Duplexers  
for RF/Local  
for IF

● Part Numbering

Duplexer Dielectric Filters (GIGAFIL®)  
for RF/Local Dielectric Band Pass Filters (GIGAFIL®)

(Part Number) **DF** **CH3** **1G95** **HDHAA** **-TT1**  
① ② ③ ④ ⑤

① Product ID

| Product ID |                              |
|------------|------------------------------|
| <b>DF</b>  | Microwave Filters (GIGAFIL®) |

② Series

Two capital letters and a number express the series name.

③ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

④ Individual Specification Code

Expressed by five letters plus a hyphen.

⑤ Packaging

| Code       | Packaging |
|------------|-----------|
| <b>T**</b> | Tray      |
| <b>R**</b> | Reel      |

Packaging varies on each product type. Please contact us for details.

SAW Duplexers for Antennas/Duplexers

(Part Number) **SA** **Y** **ZY** **1G95** **CA0** **B** **00** **R05**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

② Function

③ Structure/Size

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Character Design

⑥ Board

⑦ Individual Specification

⑧ Packaging

Chip Multilayer LC Filters for RF/Local and IF

(Part Number) **LF** **B** **32** **836M** **SA** **1** **-747**  
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Function

③ Dimensions (L×W)

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".



⑤ Series

⑥ Design

⑦ Individual Specification Code

SAW Filters for RF/Local and IF

(Part Number) **SA** **F** **EA** **942M** **FL0** **F** **00** **R12**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

② Function

③ Structure/Size

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Character Design

⑥ Board

⑦ Individual Specification

⑧ Packaging

Ceramic Filters (CERAFIL®) for IF

(Part Number) **SF** **P** **KA** **455K** **D4A** **-R0**  
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID / ② Oscillating/Element

| Product ID |                 | Oscillating/Element |                                     |
|------------|-----------------|---------------------|-------------------------------------|
| <b>CF</b>  | Ceramic Filters | <b>U</b>            | 4 Elements Area Expansion mode      |
|            |                 | <b>W</b>            | 6 Elements Area Expansion mode      |
| <b>SF</b>  | Ceramic Filters | <b>P</b>            | 4 Elements Area Expansion mode      |
|            |                 | <b>E</b>            | 2 Elements Thickness Expansion mode |
|            |                 | <b>S</b>            | 2 Elements Thickness Shear mode     |
|            |                 | <b>J</b>            | 4 Elements Thickness Shear mode     |

③ Structure/Size

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "kHz", it is expressed by three figures plus "K". If the unit is "MHz", a decimal point is expressed by the capital letter "M".

⑤ Product Specification

⑥ Individual Specification

⑦ Packaging

## Ceramic Discriminators for IF (MHz)

(Part Number) **CD** **S** **CB** **10M7** **GF** **001** **-R0**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Product ID
- ② Oscillation
- ③ Structure/Size
- ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). If the unit is "MHz", a decimal point is expressed by capital letter "M".

- ⑤ Product Specification
- ⑥ IC
- ⑦ Packaging

## Ceramic Discriminators for IF (kHz)

(Part Number) **CD** **B** **LB** **450K** **C** **A** **X** **16** **-B0**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product ID
- ② Oscillating
- ③ Structure/Size
- ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

- ⑤ Detection
- ⑥ Application

| Code | Application           |
|------|-----------------------|
| A    | Standard              |
| L    | Application with coil |

- ⑦ Element Type

| Code | Element Type     |
|------|------------------|
| X    | Low-capacitance  |
| Y    | High-capacitance |

- ⑧ IC
- ⑨ Packaging

## BGS Filter for IF

(Part Number) **MK** **F** **CC** **40M0** **CD0** **P** **00** **R05**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Function
- ③ Structure/Size
- ④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", a decimal point is expressed by capital letter "M".

- ⑤ Product Specification
- ⑥ Piezoelectric Board Material
- ⑦ Individual Specification Code
- ⑧ Packaging

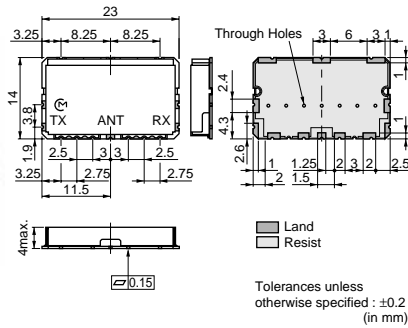
# Duplexers

## Dielectric Duplexers (GIGAFIL®)

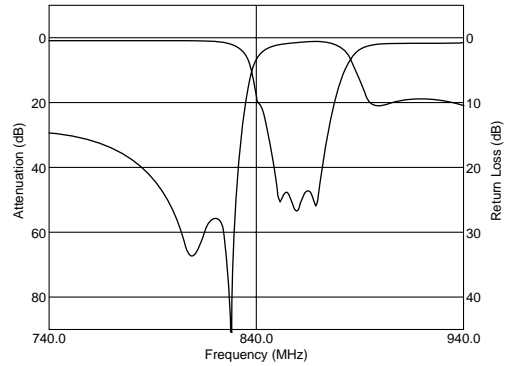
● 800/900MHz



DFYH7815MHDJAA



Pass Band (Tx)



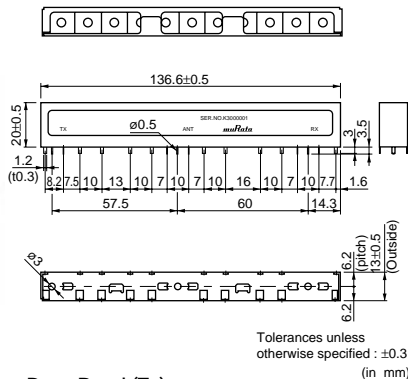
| Part Number    | Center Frequency (Tx) (MHz) | Bandwidth (Tx) (MHz) | Operation Temperature Range (°C) | Insertion Loss at BW (max.) (dB) | Attenuation (dB min.) | Center Frequency (Rx) (MHz) | Bandwidth (Rx) (MHz) | Operation Temperature Range (°C) | Insertion Loss at BW (max.) (dB) | Attenuation (dB min.) |
|----------------|-----------------------------|----------------------|----------------------------------|----------------------------------|-----------------------|-----------------------------|----------------------|----------------------------------|----------------------------------|-----------------------|
| DFYH7815MHDJAA | 815                         | 20                   | -30 to +85                       | 2.0                              | 40 (850 to 870MHz)    | 860                         | 20                   | -30 to +85                       | 4.0                              | 57 (805 to 825MHz)    |
| DFYH7836MHDJAC | 881.5                       | 25                   | -30 to +85                       | 3.0                              | 35 (824 to 849MHz)    | 836.5                       | 25                   | -30 to +85                       | 4.0                              | 45 (869 to 894MHz)    |
| DFYH5897MHDJAA | 897.5                       | 35                   | -30 to +85                       | 2.0                              | 15 (935 to 960MHz)    | 942.5                       | 35                   | -30 to +85                       | 4.3                              | 20 (905 to 915MHz)    |
| DFYH897MHFJAA  | 897.5                       | 35                   | -35 to +85                       | 3.7                              | 30 (925 to 960MHz)    | 942.5                       | 35                   | -35 to +85                       | 4.4                              | 40 (880 to 915MHz)    |

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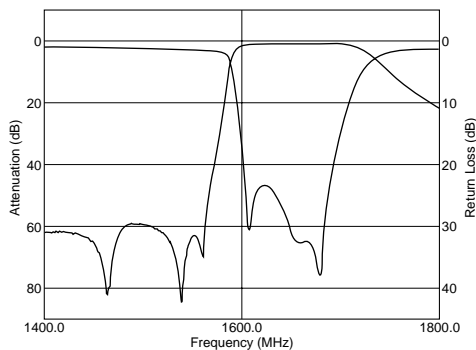
● 1.5GHz-2.5GHz



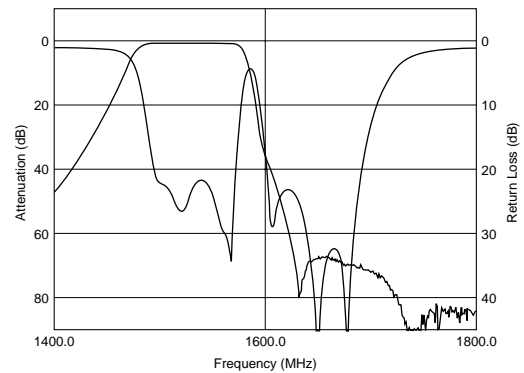
DFYFB1G54THHAA



Pass Band (Tx)



Pass Band (Rx)



| Part Number    | Center Frequency (Tx) (MHz) | Bandwidth (Tx) (MHz) | Operation Temperature Range (°C) | Insertion Loss at BW (max.) (dB) | Attenuation (dB min.) | Center Frequency (Rx) (MHz) | Bandwidth (Rx) (MHz) | Operation Temperature Range (°C) | Insertion Loss at BW (max.) (dB) | Attenuation (dB min.)    |
|----------------|-----------------------------|----------------------|----------------------------------|----------------------------------|-----------------------|-----------------------------|----------------------|----------------------------------|----------------------------------|--------------------------|
| DFYFB1G54THHAA | 1643.5                      | 34                   | 0 to +35                         | 1.0                              | 60 (1525 to 1559MHz)  | 1542                        | 34                   | -30 to +85                       | 1.2                              | 65 (1626.5 to 1660.5MHz) |
| DFYH61G74HDHAA | 1747.5                      | 75                   | -30 to +85                       | 2.3                              | 20 (1805 to 1880MHz)  | 1842.5                      | 75                   | -30 to +85                       | 2.7                              | 20 (1710 to 1785MHz)     |

Continued on the following page.

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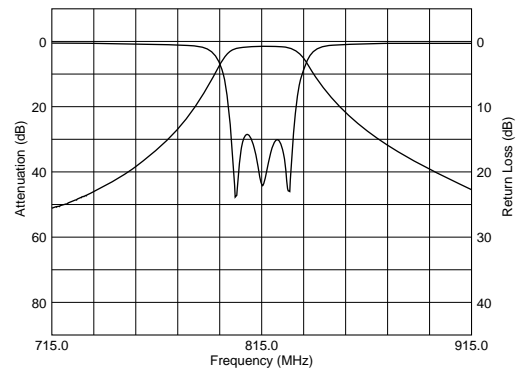
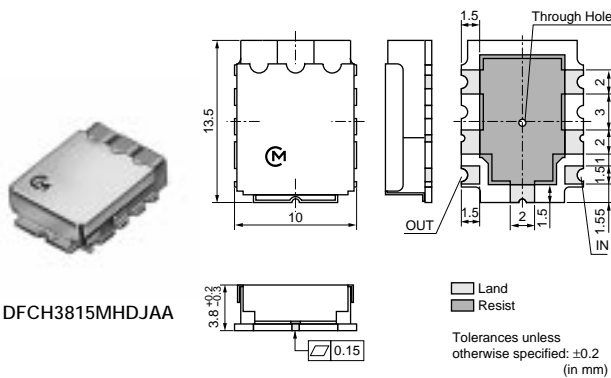
| Part Number            | Application | Center Frequency (Tx->ANT) (MHz) | Insertion Loss (Tx->ANT) (dB max.) | Attenuation (Tx->ANT) (dB min.) | Center Frequency (ANT->Rx) (MHz) | Insertion Loss (ANT->Rx) (dB max.) | Attenuation (ANT->Rx) (dB min.) | Isolation (Tx->Rx) (dB min.)                               |
|------------------------|-------------|----------------------------------|------------------------------------|---------------------------------|----------------------------------|------------------------------------|---------------------------------|--|
| <b>SAYFP836MAJ0F00</b> | UMTS Band5  | 836.5                            | 1.8 (824MHz to 849MHz)             | 42 (869MHz to 894MHz)           | 881.5                            | 2.4 (869MHz to 894MHz)             | 49 (824MHz to 849MHz)           | 54 (824MHz to 849MHz)<br>45 (869MHz to 894MHz)             |
| <b>SAYFP836MCA0F00</b> | UMTS Band5  | 836.5                            | 1.9 (824MHz to 849MHz)             | 44 (869MHz to 894MHz)           | 881.5                            | 2.8 (869MHz to 894MHz)             | 48 (824MHz to 849MHz)           | 55 (824MHz to 849MHz)<br>45 (869MHz to 894MHz)             |
| <b>SAYFP897MBA0B00</b> | UMTS Band8  | 897.5                            | 3.2 (880.48MHz to 914.52MHz)       | 38 (925.48MHz to 959.52MHz)     | 942.5                            | 3.5 (925.48MHz to 959.52MHz)       | 48 (880.48MHz to 914.52MHz)     | 50 (880.48MHz to 914.52MHz)<br>41 (925.48MHz to 959.52MHz) |
| <b>SAYFP897MCA0B00</b> | UMTS Band8  | 897.5                            | 3.2 (880.48MHz to 914.52MHz)       | 39 (925MHz to 960MHz)           | 942.5                            | 3.5 (925MHz to 960MHz)             | 47 (880MHz to 915MHz)           | 52 (880.48MHz to 914.52MHz)<br>43 (925.48MHz to 959.52MHz) |

## for RF/Local

### Dielectric Filters (GIGAFIL®)

#### ● DP Series 800/900MHz

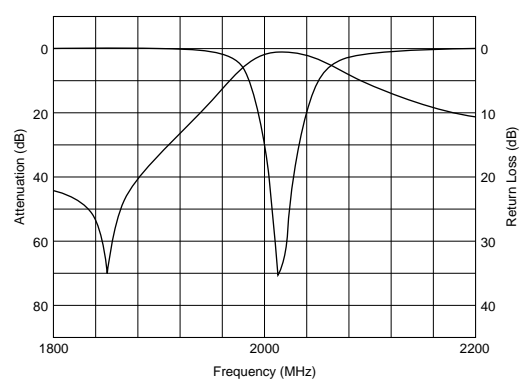
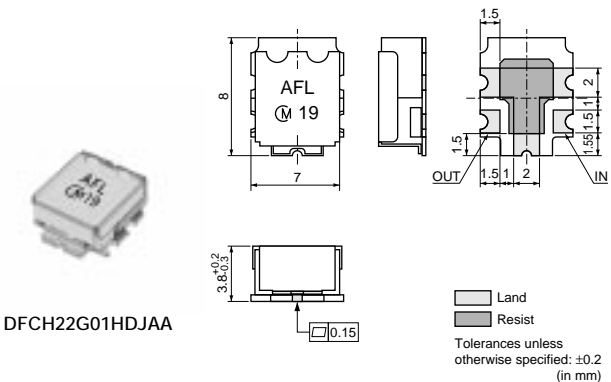
#### Pass Band



| Part Number           | Center Frequency (MHz) | Bandwidth (MHz) | IL at BW (max.) (dB) | Attenuation (dB min.) | Operation Temperature Range |
|-----------------------|------------------------|-----------------|----------------------|-----------------------|-----------------------------|
| <b>DFCH3815MHDJAA</b> | 815                    | 20              | 2.8                  | 36 (Fo±80MHz)         | -35 to +85degree C          |
| <b>DFCH3836MHDJAA</b> | 836.5                  | 25              | 2.6                  | 12 (Fo±32.5MHz)       | -35 to +85degree C          |
| <b>DFCH3860MHDJAA</b> | 860                    | 20              | 2.8                  | 36 (Fo±80MHz)         | -35 to +85degree C          |
| <b>DFCH3881MHDJAA</b> | 881.5                  | 25              | 2.6                  | 12 (Fo±32.5MHz)       | -35 to +85degree C          |
| <b>DFCH3897MHDJAA</b> | 897.5                  | 35              | 3.0                  | 6 (Fo±27.5MHz)        | -35 to +85degree C          |
| <b>DFCH3902MHDJAA</b> | 902.5                  | 25              | 2.6                  | 12 (Fo±32.5MHz)       | -35 to +85degree C          |
| <b>DFCH3942MHDJAA</b> | 942.5                  | 35              | 3.0                  | 6 (Fo±27.5MHz)        | -35 to +85degree C          |
| <b>DFCH3947MHDJAA</b> | 947.5                  | 25              | 2.6                  | 12 (Fo±32.5MHz)       | -35 to +85degree C          |
| <b>DFCH4836MHDJBA</b> | 836.5                  | 25              | 2.4                  | 23 (869 to 960MHz)    | -35 to +85degree C          |
| <b>DFCH4897MHDJAA</b> | 897.5                  | 35              | 4.6                  | 13 (Fo±27.5MHz)       | -35 to +85degree C          |
| <b>DFCH4942MHDJAA</b> | 942.5                  | 35              | 4.6                  | 13 (Fo±27.5MHz)       | -35 to +85degree C          |
| <b>DFCH5897MHDJAB</b> | 897.5                  | 35              | 3.5                  | 20 (925 to 960MHz)    | -35 to +85degree C          |
| <b>DFCH5940MHFJAA</b> | 940.5                  | 79              | 1.6                  | 50(0.3 to 736.2MHz)   | -35 to +85degree C          |

#### ● DP Series 1.5-2.5GHz

#### Pass Band



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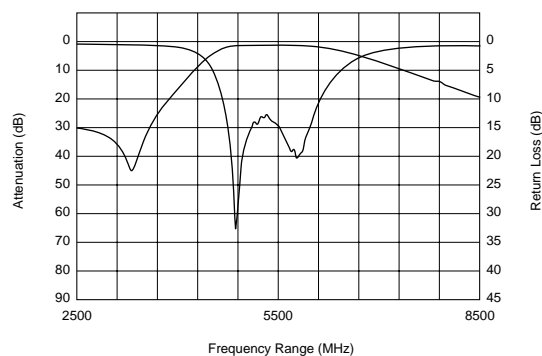
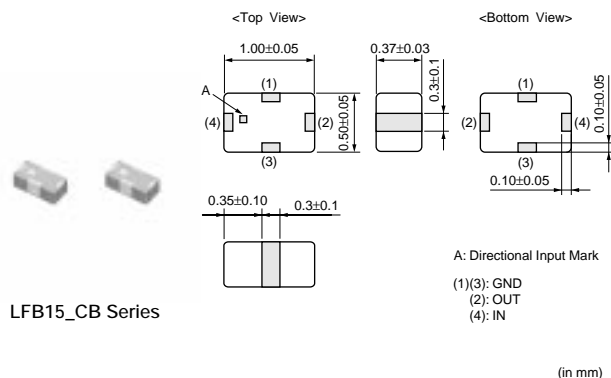
| Part Number    | Center Frequency (MHz) | Bandwidth (MHz) | IL at BW (max.) (dB) | Attenuation (dB min.)    | Operation Temperature Range |
|----------------|------------------------|-----------------|----------------------|--------------------------|-----------------------------|
| DFCH22G01HDJAA | 2017.5                 | 15              | 1.8                  | 22 (1899 to 1915MHz)     | -40 to +85degree C          |
| DFCH22G44HDHAA | 2442                   | 84              | 1.2                  | 15 (Fo±250MHz)           | -35 to +85degree C          |
| DFCH22G45HDHAA | 2450                   | 100             | 1.0                  | 16 (Fo-250MHz)           | -35 to +85degree C          |
| DFCH31G54HDJAA | 1542                   | 34              | 3.0                  | 30 (1626.5 to 1660.5MHz) | -35 to +85degree C          |
| DFCH31G64HDJAA | 1643.5                 | 34              | 3.0                  | 30 (1525 to 1559MHz)     | -35 to +85degree C          |
| DFCH31G74HDJAA | 1747.5                 | 75              | 2.0                  | 8 (Fo±80MHz)             | -35 to +85degree C          |
| DFCH31G84HDJAA | 1842.5                 | 75              | 2.0                  | 8 (Fo±80MHz)             | -35 to +85degree C          |
| DFCH31G88HDJAA | 1880                   | 60              | 2.2                  | 15 (Fo±100MHz)           | -35 to +85degree C          |
| DFCH31G95HDHAA | 1950                   | 60              | 1.8                  | 45 (1550MHz)             | -35 to +85degree C          |
| DFCH31G96HDJAA | 1960                   | 60              | 2.2                  | 15 (Fo±100MHz)           | -35 to +85degree C          |
| DFCH32G01HDNAA | 2017.5                 | 15              | 3.0                  | 38 (1920MHz)             | -35 to +85degree C          |
| DFCH32G14HDHAA | 2140                   | 60              | 1.3                  | 52 (1325 to 1385MHz)     | -35 to +85degree C          |
| DFCH32G44HDHAA | 2442                   | 84              | 2.4                  | 36 (Fo-250MHz)           | -35 to +85degree C          |
| DFCH32G45HDHAA | 2450                   | 100             | 2.3                  | 36 (Fo-250MHz)           | -35 to +85degree C          |
| DFCH32G59HDHBA | 2593                   | 186             | 1.0                  | 30 (1930 to 1990MHz)     | -35 to +85degree C          |
| DFCH41G74HDJAA | 1747.5                 | 75              | 3.6                  | 10 (Fo±57.5MHz)          | -35 to +85degree C          |
| DFCH41G84HDJAA | 1842.5                 | 75              | 3.6                  | 10 (Fo±57.5MHz)          | -35 to +85degree C          |
| DFCH41G88HDJAA | 1880                   | 60              | 4.5                  | 12 (Fo±50MHz)            | -35 to +85degree C          |
| DFCH41G96HDJAA | 1960                   | 60              | 4.5                  | 12 (Fo±50MHz)            | -35 to +85degree C          |
| DFCH42G59HDNAA | 2590                   | 200             | 1.5                  | 30(2210MHz)              | -40 to +85degree C          |
| DFCH51G73HDNBA | 1732.5                 | 45              | 3.7                  | 44 (1 to 1413MHz)        | -35 to +85degree C          |
| DFCH51G76HDNBA | 1760                   | 50              | 3.9                  | 58 (1 to 1443MHz)        | -35 to +85degree C          |
| DFCH51G88HDNAA | 1880                   | 60              | 3.8                  | 26 (1930 to 1990MHz)     | -35 to +85degree C          |
| DFCH51G95HDNBA | 1950                   | 60              | 3.7                  | 25 (2015 to 2400MHz)     | -35 to +85degree C          |
| DFCH52G43HFHAA | 2437                   | 50              | 3.3                  | 28 (2483 to 2570MHz)     | -40 to +85degree C          |
| DFCH52G44HFHAA | 2442                   | 68              | 2.0                  | 16.5 (2500 to 2690MHz)   | -35 to +85degree C          |
| DFCH52G59HFHAA | 2593                   | 234             | 1.4                  | 40(0.3 to 2300MHz)       | -35 to +85degree C          |
| DFCH62G44HFHAA | 2442                   | 68              | 3.5                  | 29 (2500 to 2690MHz)     | -35 to +85degree C          |

## for RF/Local

### Chip Multilayer LC Filters (BPF)

#### ● LFB15(0402)\_CB Series

#### Frequency Characteristics



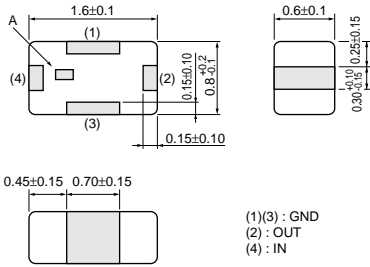
| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Attenuation (Absolute Value) I) (dB) | Attenuation (Absolute Value) II) (dB) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|--------------------------------------|---------------------------------------|-------------|
| LFB155G37CB1C032 | 5375                                | fo±475               | 1.5 max. (at 25°C)        | 10 min. at 3800MHz                   | 5 min. at 7500MHz                     | WLAN/BT     |
| LFB155G50CB1B948 | 5500                                | fo±350               | 1.1 max. (at 25°C)        | 9.5 min. at 4000MHz                  | 4.5 min. at 7500MHz                   | WLAN/BT     |

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● LFB18(0603)/21(0805)/2H(1008)/31(1206)\_SG Series

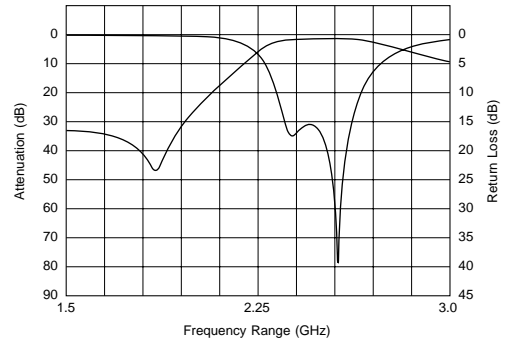


LFB18\_SG Series

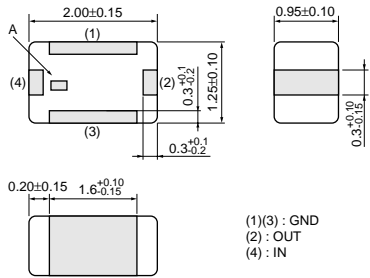


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Frequency Characteristics

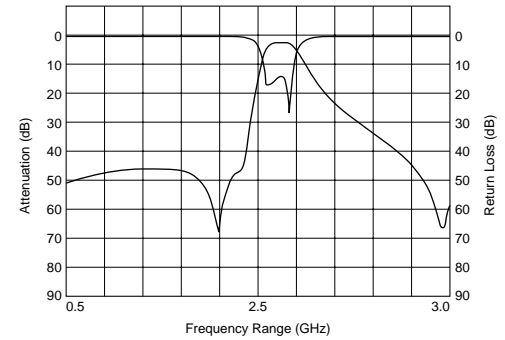


LFB21\_SG Series



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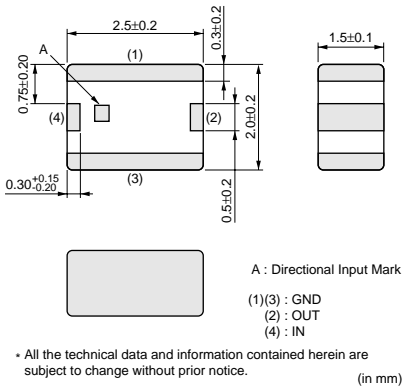
Frequency Characteristics



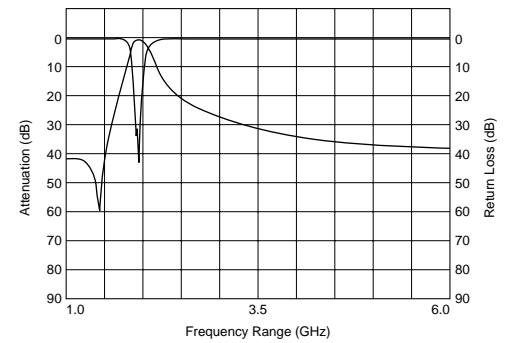
7



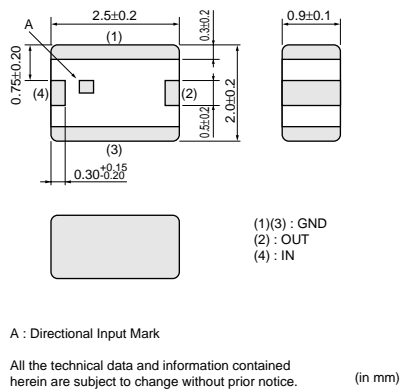
LFB2H\_SG6 Series



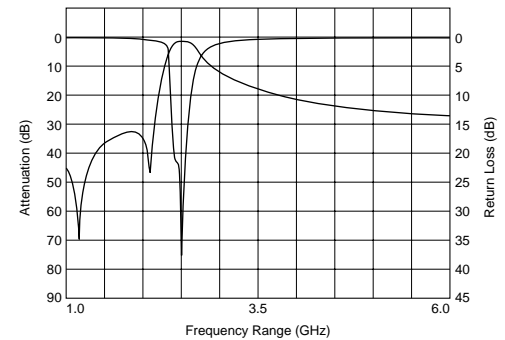
Frequency Characteristics



LFB2H\_SG7 Series



The Characteristics of Spurious



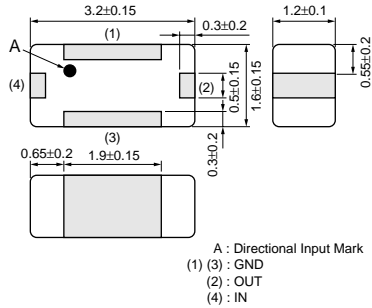
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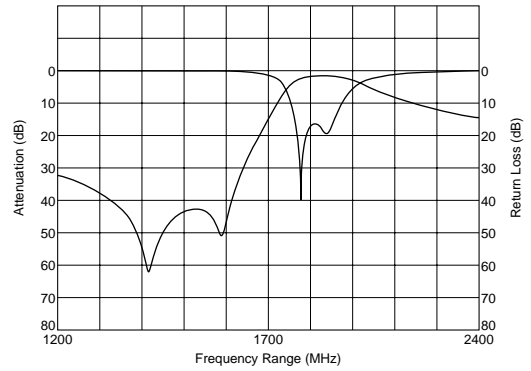


LFB31\_SG1 Series

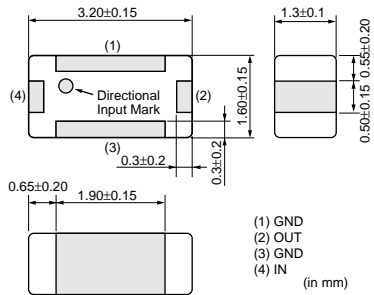


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Frequency Characteristics

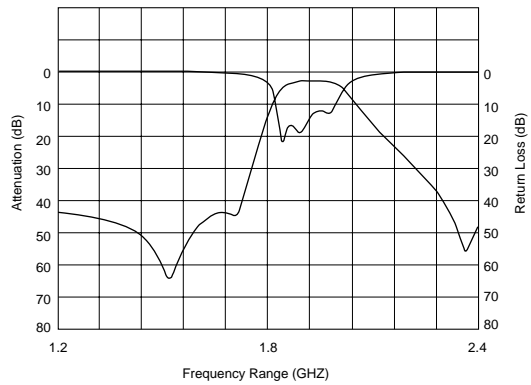


LFB31\_SG2 Series

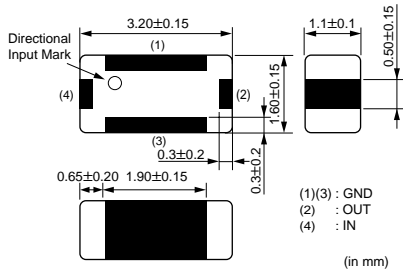


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Frequency Characteristics

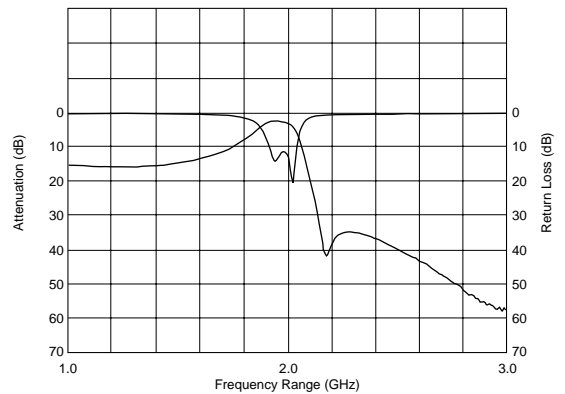


LFB31\_SG3 Series

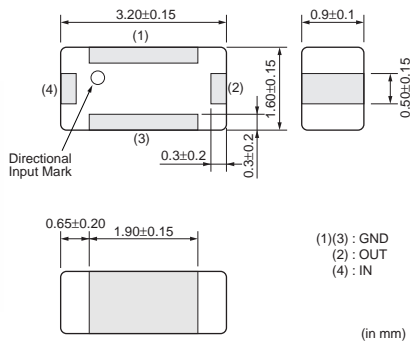


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Frequency Characteristics

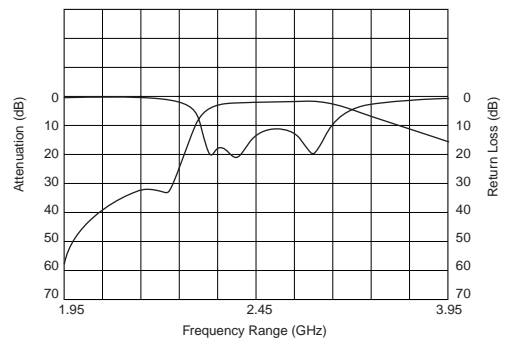


LFB31\_SG7 Series



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Frequency Characteristics



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| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Attenuation (Absolute Value) I (dB) | Attenuation (Absolute Value) II (dB) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|-------------------------------------|--------------------------------------|-------------|
| LFB182G45SG9A213 | 2450                                | fo±50                | 2.2 max. (at 25°C)        | 24 min. at 880~960MHz               | 20 min. at 1710~1990MHz              | WLAN/BT     |
| LFB182G45SG9A246 | 2450                                | fo±50                | 2.2 max. (at 25°C)        | 24.5 min. at 880~960MHz             | 12.5 min. at 1710~1990MHz            | WLAN/BT     |
| LFB182G45SG9A272 | 2450                                | fo±50                | 1.8 max. (at 25°C)        | 25 min. at 880~1000MHz              | 22.5 min. at 1200~1300MHz            | WLAN/BT     |
| LFB182G60SGHB972 | 2600                                | fo±100.0             | 1.9 max. (at 25°C)        | 29.5 min. at 806~849MHz             | 25 min. at 1850~1910MHz              | WIMAX       |
| LFB182G60SGHC149 | 2600                                | fo±100.0             | 2.2 max. (at 25°C)        | 29.5 min. at 806~849MHz             | 30 min. at 1850~1910MHz              | WIMAX       |
| LFB183G60SGJC019 | 3500                                | fo±200               | 1.8 max. (at 25°C)        | 25.5 min. at 806~849MHz             | 21.5 min. at 1850~1910MHz            | WIMAX       |
| LFB185G78SGAB713 | 5787.5                              | fo±62.5              | 2.2 max. (at 25°C)        | 16.5 min. at 4800MHz                | 23.5 min. at 11450~11700MHz          | WLAN/BT     |
| LFB211G90SG8B704 | 1906.5                              | fo±13.5              | 3.0 max. (at 25°C)        | 20 min. at 1660.5~1686.3MHz         | 11 min. at 2126.8~2152.6MHz          | PHS         |
| LFB212G45SG8A127 | 2450                                | fo±50                | 1.5 max. (at 25°C)        | 25 min. at 1200~1300MHz             | 10.0 min. at 2000MHz                 | WLAN/BT     |
| LFB212G45SG8A143 | 2450                                | fo±50                | 2.7 max. (at 25°C)        | 20 min. at 880~1710MHz              | 30 min. at 1710~1990MHz              | WLAN/BT     |
| LFB212G45SG8A166 | 2450                                | fo±50                | 1.4 max. (at 25°C)        | 30 min. at 880~915MHz               | 30 min. at 1710~1910MHz              | WLAN/BT     |
| LFB212G45SG8A192 | 2450                                | fo±50                | 2.6 max. (at 25°C)        | 40 min. at 880~960MHz               | 38 min. at 1710~1990MHz              | WLAN/BT     |
| LFB212G49SG8B830 | 2495                                | fo±195               | 2.4 max. (at 25°C)        | 30 min. at 824~960MHz               | 9 min. at 1710~1990MHz               | WIMAX       |
| LFB213G60SG8B831 | 3600                                | fo±300               | 1.5 max. (at 25°C)        | 32 min. at 824~960MHz               | 24 min. at 1710~1990MHz              | WIMAX       |
| LFB215G12SG8A178 | 5125                                | fo±225               | 1.5 max. (at 25°C)        | 25 min. at 4200MHz                  | 17 min. at 2x(fo±225)MHz             | WLAN/BT     |
| LFB215G12SG8A183 | 5125                                | fo±225               | 1.5 max. (at 25°C)        | 9.0 min. at 4250MHz                 | 10.0 min. at 5900MHz                 | WLAN/BT     |
| LFB215G25SG8A144 | 5250                                | fo±100.0             | 1.5 max. (at 25°C)        | 30 min. at 3450MHz                  | -                                    | WLAN/BT     |
| LFB215G37SG8A180 | 5375                                | fo±475               | 1.8 max. (at 25°C)        | 29.5 min. at 500~4000MHz            | 34.5 min. at 3450MHz                 | WLAN/BT     |
| LFB215G37SG8A185 | 5375                                | fo±475               | 2.2 max. (at 25°C)        | 40 min. at 340~1195MHz              | 21 min. at 2140~3580MHz              | WLAN/BT     |
| LFB215G51SG8A132 | 5512                                | fo±363               | 1.9 max. (at 25°C)        | 30 min. at 500~4000MHz              | 20 min. at 4600MHz                   | WLAN/BT     |
| LFB215G78SG8A170 | 5787.5                              | fo±62.5              | 2.2 max. (at 25°C)        | 35 min. at 3275~3400MHz             | 37 min. at 2x(fo±62.5)MHz            | WLAN/BT     |
| LFB2H1G90SG6A157 | 1906.5                              | fo±13.5              | 1.5 max. (at 25°C)        | 14 min. at 1687MHz                  | 6 min. at 2126MHz                    | PHS         |
| LFB2H2G45SG7A134 | 2450                                | fo±50                | 1.7 max. (at 25°C)        | 25 min. at 1750MHz                  | 25 min. at 2100MHz                   | WLAN/BT     |
| LFB2H2G45SG7A158 | 2450                                | fo±50                | 1.2 max. (at 25°C)        | 30 min. at 880~915MHz               | 30 min. at 1710~1785MHz              | WLAN/BT     |
| LFB2H2G45SG7A159 | 2450                                | fo±50                | 2.1 max. (at 25°C)        | 45 min. at 880~915MHz               | 48 min. at 1710~1990MHz              | WLAN/BT     |
| LFB2H2G45SG7B793 | 2450                                | fo±50                | 3.5 max. (at 25°C)        | 42 min. at 869~915MHz               | 45 min. at 1710~1785MHz              | WLAN/BT     |
| LFB2H2G45SG7C093 | 2450                                | fo±50                | 2.1 max. (at 25°C)        | 45 min. at 824~915MHz               | 48 min. at 1710~1990MHz              | WLAN/BT     |

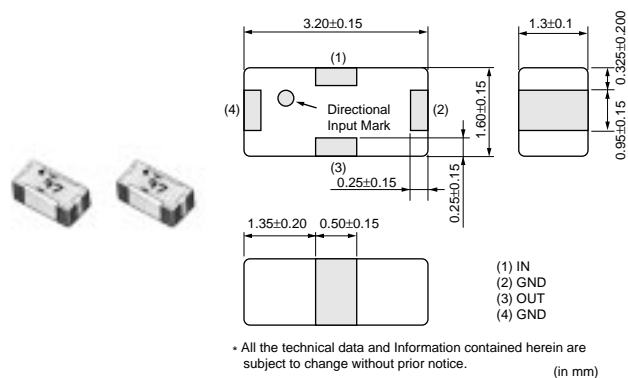
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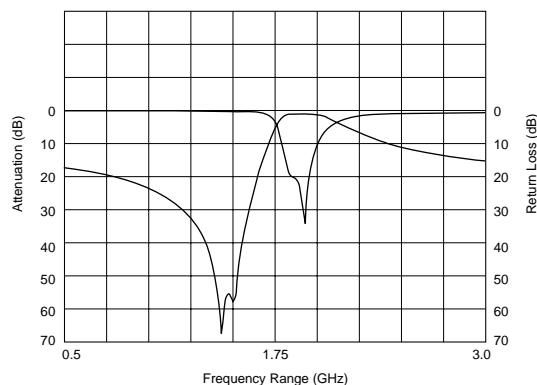
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| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Attenuation (Absolute Value) I (dB) | Attenuation (Absolute Value) II (dB) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|-------------------------------------|--------------------------------------|-------------|
| LFB2H2G45SGDB865 | 2450                                | fo±50                | 3.4 max. (at 25°C)        | 45 min. at 880~915MHz               | 40 min. at 1710~1785MHz              | WLAN/BT     |
| LFB2H2G45SGFB914 | 2450                                | fo±50                | 2.3 max. (at 25°C)        | 44 min. at 824~960MHz               | 40 min. at 1710~1785MHz              | WLAN/BT     |
| LFB2H2G54SG7B881 | 2545                                | fo±145               | 2 max. (at 25°C)          | 39.5 min. at 1910MHz                | 39.5 min. at 1990MHz                 | WIMAX       |
| LFB2H2G59SG7B858 | 2590                                | fo±100               | 2.1 max. (at 25°C)        | 40 min. at 824~915MHz               | 30 min. at 2110~2170MHz              | WIMAX       |
| LFB2H5G78SG7A175 | 5787.5                              | fo±62.5              | 2.5 max. (at 25°C)        | 51.5 min. at 902~928MHz             | 41 min. at 3919~4044MHz              | WLAN/BT     |
| LFB311G90SG1-799 | 1906.5                              | fo +24.5/-13.5MHz    | 2.5 max. (at 25°C)        | 40 min. at 1397.05~1422.85MHz       | 35 min. at 1645.5~1671.3MHz          | PHS         |
| LFB311G90SG2-797 | 1906.5                              | fo±13.5              | 2.7 max. (at 25°C)        | 40 min. at 1427~1454MHz             | 35 min. at 1660~1687MHz              | PHS         |
| LFB311G95SG3A564 | 1950                                | fo±30                | 3.5 max. (at 25°C)        | 20 min. at 2110~2170MHz             | 25 min. at 2490~2550MHz              | UMTS(Band1) |
| LFB312G45SG2A509 | 2450                                | fo±50                | 2 max. (at 25°C)          | 38 min. at 902~928MHz               | 15 min. at 2100~2200MHz              | WLAN/BT     |
| LFB312G45SG7A572 | 2450                                | fo±50                | 2.5 max. (at 25°C)        | 37 min. at 902~928MHz               | 20 min. at 2100~2200MHz              | WLAN/BT     |

## ● LFB31\_SP Series (1206)



Frequency Characteristics



| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Attenuation (Absolute Value) I (dB) | Attenuation (Absolute Value) II (dB) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|-------------------------------------|--------------------------------------|-------------|
| LFB311G90SP1-798 | 1906.5                              | fo±13.5              | 1.0 max. (at 25°C)        | 38 min. at 1405~1440MHz             | 12.0 min. at 1649~1680MHz            | PHS         |
| LFB312G45SP1A502 | 2450                                | fo±50                | 1.2 max. (at 25°C)        | 20 min. at 902~928MHz               | 35 min. at 1500~1550MHz              | WLAN/BT     |

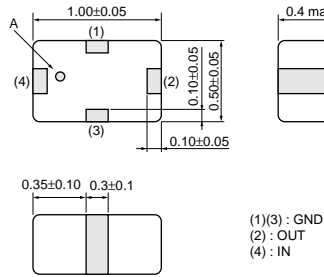
for RF/Local

Chip Multilayer LC Filters (LPF)

● LFL15\_TC (0402) /LFL18\_TC (0603) /LFL21\_TC (0805) Series



LFL15\_TC Series

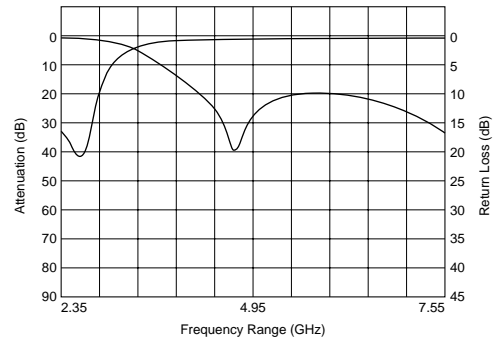


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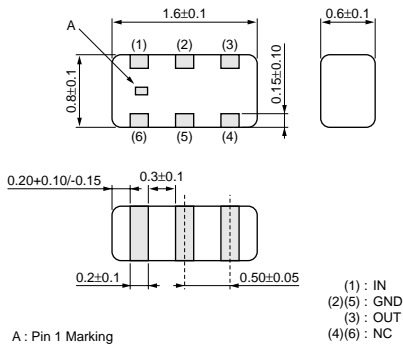
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(in mm)

Frequency Characteristics



LFL18\_TC1 Series

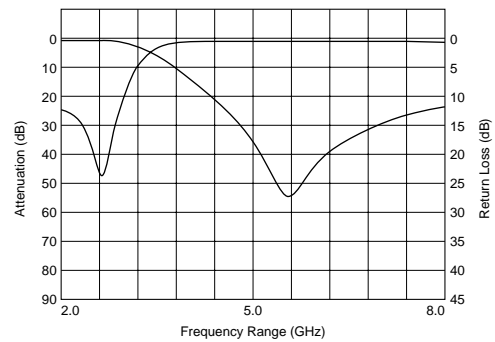


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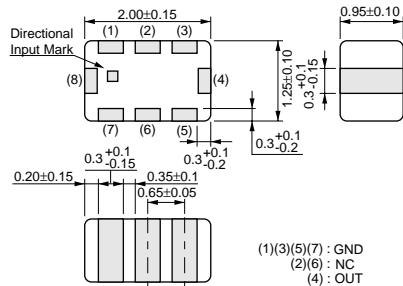
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(in mm)

Frequency Characteristics



LFL21\_TC Series

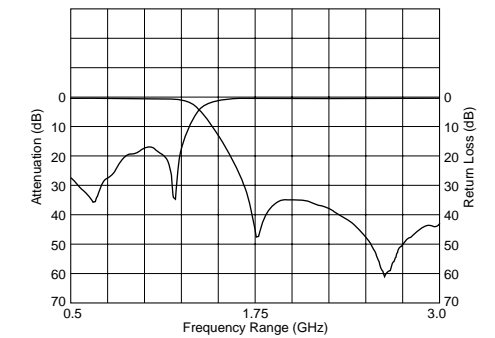


Terminal of "NC" should be fixed to no connected pattern.

\* All the technical data and information contained herein are subject to change without prior notice.

(in mm)

Frequency Characteristics



| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Attenuation (Absolute Value) I) (dB) | Attenuation (Absolute Value) II) (dB) | Application  |
|------------------|-------------------------------------|----------------------|---------------------------|--------------------------------------|---------------------------------------|--------------|
| LFL15620MTC1C037 | 620                                 | fo±150               | 0.4 max. (at 25°C)        | 28 min. at 1920~1980MHz              | -                                     | CDMA         |
| LFL15869MTC1B787 | 869.5                               | fo±45.5              | 0.50 max. (at 25°C)       | 18 min. at 2x(fo±45.5)MHz            | 17 min. at 3x(fo±45.5)MHz             | GSM850/900   |
| LFL151G81TC1B786 | 1810                                | fo±100               | 0.60 max. (at 25°C)       | 23 min. at 3420~3570MHz              | 21 min. at 3700~3820MHz               | GSM1800/1900 |
| LFL152G45TC1A219 | 2450                                | fo±50                | 0.45 max. (at 25°C)       | 21 min. at 2x(fo±50.0)MHz            | 21 min. at 3x(fo±50.0)MHz             | WLAN/BT      |
| LFL182G45TC1A108 | 2450                                | fo±50                | 0.37 max. (at 25°C)       | 27 min. at 4800~5000MHz              | 25 min. at 7200~7500MHz               | WLAN/BT      |
| LFL182G45TC1A202 | 2450                                | fo±50                | 0.40 max. (at 25°C)       | 27 min. at 4800~5000MHz              | 30 min. at 7200~7500MHz               | WLAN/BT      |

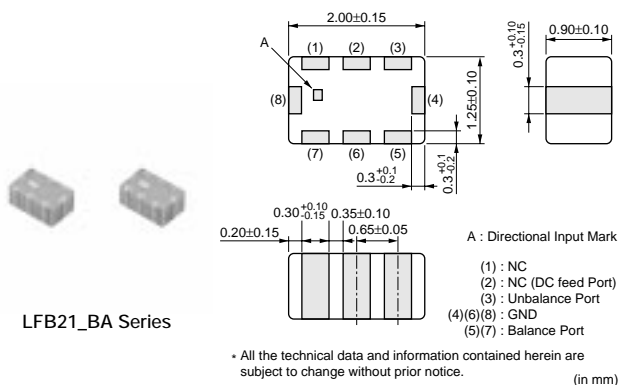
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| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Attenuation (Absolute Value) I (dB) | Attenuation (Absolute Value) II (dB) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|-------------------------------------|--------------------------------------|-------------|
| LFL182G45TC3B746 | 2450                                | fo±50                | 0.60 max. (at 25°C)       | 35 min. at 2x(fo±50)MHz             | 30 min. at 3x(fo±50)MHz              | WLAN/BT     |
| LFL182G50TC1B905 | 2500                                | fo±200               | 0.4 max. (at 25°C)        | 21 min. at 4600~5400MHz             | 22 min. at 6900~8100MHz              | WIMAX       |
| LFL182G54TC1B838 | 2545                                | fo±145               | 0.4 max. (at 25°C)        | 26 min. at 4800~5390MHz             | 23 min. at 7200~8085MHz              | WIMAX       |
| LFL183G55TC2B908 | 3550                                | fo±250               | 0.45 max. (at 25°C)       | 17 min. at 6600~7600MHz             | 20 min. at 9900~11400MHz             | WIMAX       |
| LFL21902MTC1A018 | 902.5                               | fo±12.5              | 0.6 max. (at 25°C)        | 30 min. at 2x(fo±12.5)MHz           | 30 min. at 3x(fo±12.5)MHz            | GSM         |
| LFL211G90TC1A008 | 1907.5                              | fo±12.5              | 0.47 max. (at 25°C)       | 30 min. at 2x(fo±12.5)MHz           | 25 min. at 3x(fo±12.5)MHz            | PHS         |
| LFL211G92TC1A060 | 1920                                | fo±70                | 0.6 max. (at 25°C)        | 24 min. at 3335~3700MHz             | 30 min. at 3700~3820MHz              | UMTS(Band1) |
| LFL212G45TC1A007 | 2450                                | fo±50                | 0.50 max. (at 25°C)       | 27 min. at 2x(fo±50.0)MHz           | 30 min. at 3x(fo±50.0)MHz            | WLAN/BT     |
| LFL215G25TC1A156 | 5250                                | fo±100.0             | 0.70 max. (at 25°C)       | 24 min. at 2x(fo±100)MHz            | 19 min. at 3x(fo±100)MHz             | WLAN/BT     |
| LFL215G37TC1A210 | 5375                                | fo±475               | 0.70 max. (at 25°C)       | 30 min. at 2x(fo±475)MHz            | 20 min. at 3x(fo±475)MHz             | WLAN/BT     |
| LFL215G51TC1A149 | 5512                                | fo±363               | 0.70 max. (at 25°C)       | 30 min. at 2x(fo±363)MHz            | 20 min. at 3x(fo±363)MHz             | WLAN/BT     |
| LFL215G78TC1A155 | 5787.5                              | fo±62.5              | 0.70 max. (at 25°C)       | 30 min. at 2x(fo±62.5)MHz           | 20 min. at 3x(fo±62.5)MHz            | WLAN/BT     |

## for RF/Local

### Chip Multilayer LC Filters (Balanced Filters)



| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Balance Impedance (Differential) (Nom.) (ohm)  | Unbalance Impedance (Nom.) (ohm) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|--|----------------------------------|-------------|
| LFB212G45BA1A220 | 2450.00                             | fo±50.00             | 3.5 max. (at 25°C)        | 34.2 -j95.0ohm (Differential) Source Impedance | 50                               | WLAN/BT     |
| LFB212G45BA1A234 | 2450.00                             | fo±50.00             | 3.5 max. (at 25°C)        | 50   | 50                               | WLAN/BT     |
| LFB212G45BA1B759 | 2450.00                             | fo±50.00             | 3.5 max. (at 25°C)        | 100  | 50                               | WLAN/BT     |
| LFB212G45BA1B763 | 2450.00                             | fo±50.00             | 3.5 max. (at 25°C)        | 50 +j50ohm (Differential) Source Impedance     | 50                               | WLAN/BT     |
| LFB212G45BA1C057 | 2450                                | fo±50                | 2.8 max. (at 25°C)        | Conjugate match to CSR BC4-ROM                 | 50                               | WLAN/BT     |

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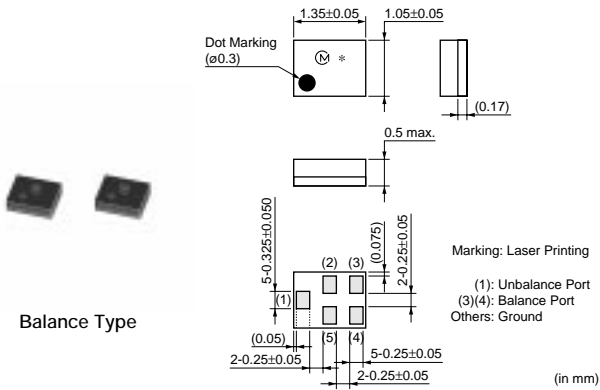
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| Part Number      | Nominal Center Frequency (fo) (MHz) | Bandwidth (BW) (MHz) | Insertion Loss in BW (dB) | Balance Impedance (Differential) (Nom.) (ohm) | Unbalance Impedance (Nom.) (ohm) | Application |
|------------------|-------------------------------------|----------------------|---------------------------|---|----------------------------------|-------------|
| LFB213G55BA1B974 | 3500                                | fo±250               | 3.2 max. (at 25°C)        | 100   | 50                               | WIMAX       |
| LFB215G37BA1A233 | 5375.00                             | fo±475.00            | 2.8 max. (at 25°C)        | 100   | 50                               | WLAN/BT     |
| LFB2H2G44BB5B754 | 2441.75                             | fo±41.75             | 3.3 max. (at 25°C)        | 120   | WLAN/BT                          |             |
| LFB2H2G45BB1A221 | 2450                                | fo±50                | 3.0 max. (at 25°C)        | 75  | 50                               | WLAN/BT     |
| LFB2H2G45BB1A243 | 2450                                | fo±50                | 3.0 max. (at 25°C)        | 100   | 50                               | WLAN/BT     |
| LFB2H2G60BB1B973 | 2600                                | fo±100               | 3.3 max. (at 25°C)        | 100   | 50                               | WIMAX       |
| LFB2H2G60BB1C106 | 2600                                | fo±100               | 3.3 max. (at 25°C)        | 50  | 50                               | WIMAX       |

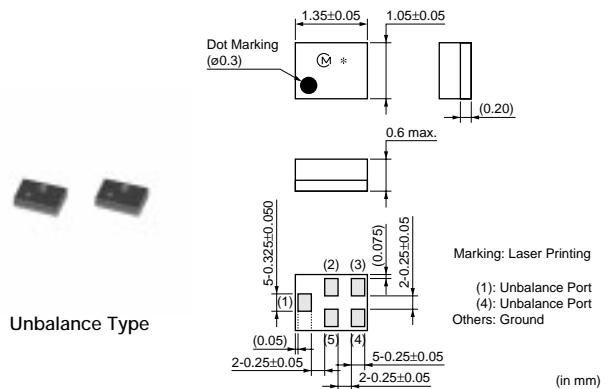
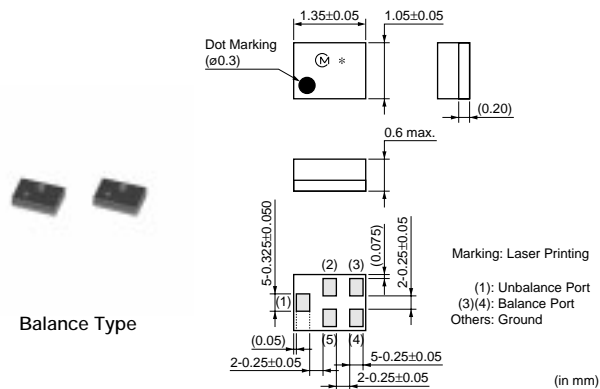
## for RF/Local

### SAW Filters

#### SAFEA Series



#### SAFEB Series



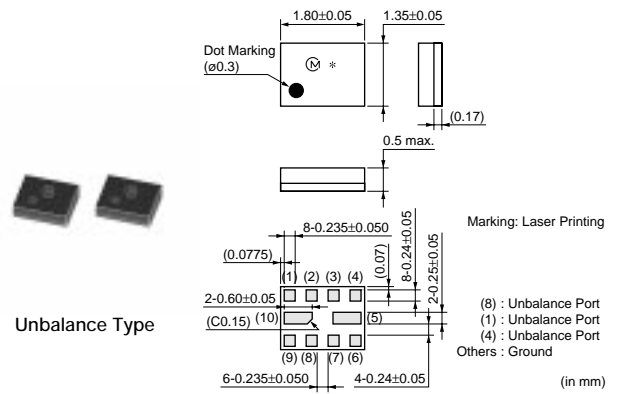
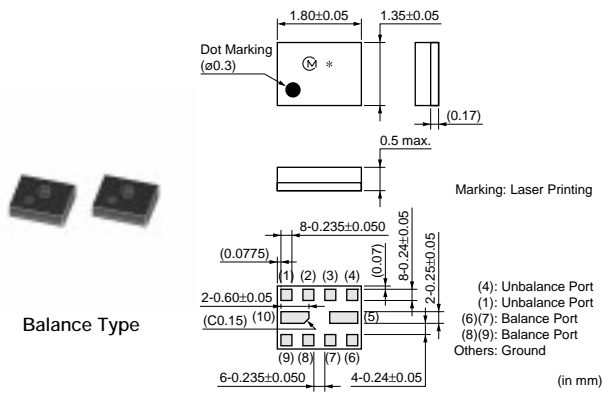
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Filters for Communication Equipment

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## ● SAWEN Series



| Part Number                    | Application  | Center Frequency (MHz) | Insertion Loss (dB max.)                                       | Ripple (dB max.)   | VSWR                              | Input Impedance | Output Impedance        |
|--------------------------------|--------------|------------------------|--|--|-----------------------------------|-----------------|-------------------------|
| <b>SAFEB1G57KE0F00</b>         | GPS          | 1575.5                 | 1.3<br>(1573.92MHz to 1576.92MHz)                              | 0.6<br>(1573.92MHz to 1576.92MHz)                              | 1.7<br>(1573.92MHz to 1576.92MHz) | 50Ω             | 50Ω                     |
| <b>SAFEB1G57FM0F00</b>         | GPS          | 1575.42                | 2.3<br>(1574.22MHz to 1576.62MHz)                              | 0.6<br>(1574.22MHz to 1576.62MHz)                              | 1.5<br>(1574.22MHz to 1576.62MHz) | 50Ω             | 100Ω<br>(Balance)       |
| <b>SAFEB1G57KB0F00</b>         | GPS          | 1575.42                | 0.8<br>(1574.22MHz to 1576.62MHz)                              | 0.5<br>(1574.22MHz to 1576.62MHz)                              | 2.0<br>(1574.22MHz to 1576.62MHz) | 50Ω             | 50Ω                     |
| <b>SAFEA881MFL0F00</b>         | GSM850       | 881.5                  | 1.9<br>(869MHz to 894MHz)                                      | 1.0<br>(869MHz to 894MHz)                                      | 1.7<br>(869MHz to 894MHz)         | 50Ω             | 150Ω//82nH<br>(Balance) |
| <b>SAFEA942MFL0F00</b>         | GSM900       | 942.5                  | 2.3<br>(925MHz to 960MHz)                                      | 1.4<br>(925MHz to 960MHz)                                      | 2.0<br>(925MHz to 960MHz)         | 50Ω             | 150Ω//82nH<br>(Balance) |
| <b>SAFEA1G84FA0F00</b>         | GSM1800      | 1842.5                 | 2.2<br>(1805MHz to 1880MHz)                                    | 1.5<br>(1805MHz to 1880MHz)                                    | 2.1<br>(1805MHz to 1880MHz)       | 50Ω             | 150Ω//18nH<br>(Balance) |
| <b>SAFEA1G96FA0F00</b>         | GSM1900      | 1960                   | 2.6<br>(1930MHz to 1990MHz)                                    | 1.7<br>(1930MHz to 1990MHz)                                    | 2.2<br>(1930MHz to 1990MHz)       | 50Ω             | 150Ω//27nH<br>(Balance) |
| <b>SAWEN881MCN0F00(881.5)</b>  | GSM850/900   | 881.5                  | 2.0<br>(869MHz to 894MHz)                                      | 1.1<br>(869MHz to 894MHz)                                      | 2.0<br>(869MHz to 894MHz)         | 50Ω             | 150Ω//82nH<br>(Balance) |
| <b>SAWEN881MCN0F00(942.5)</b>  | GSM850/900   | 942.5                  | 2.4<br>(925MHz to 960MHz)                                      | 1.5<br>(925MHz to 960MHz)                                      | 2.1<br>(925MHz to 960MHz)         | 50Ω             | 150Ω//82nH<br>(Balance) |
| <b>SAWEN881MCM2F00(881.5)</b>  | GSM850/1900  | 881.5                  | 2.0<br>(869MHz to 894MHz)                                      | 1.1<br>(869MHz to 894MHz)                                      | 2.0<br>(869MHz to 894MHz)         | 50Ω             | 150Ω//82nH<br>(Balance) |
| <b>SAWEN881MCM2F00(1960)</b>   | GSM850/1900  | 1960                   | 2.6<br>(1930MHz to 1990MHz)                                    | 1.8<br>(1930MHz to 1990MHz)                                    | 2.2<br>(1930MHz to 1990MHz)       | 50Ω             | 150Ω//22nH<br>(Balance) |
| <b>SAWEN942MCN0F00(942.5)</b>  | GSM900/1800  | 942.5                  | 2.3<br>(925MHz to 960MHz)                                      | 1.5<br>(925MHz to 960MHz)                                      | 2.0<br>(925MHz to 960MHz)         | 50Ω             | 150Ω//82nH<br>(Balance) |
| <b>SAWEN942MCN0F00(1842.5)</b> | GSM900/1800  | 1842.5                 | 2.5<br>(1805MHz to 1880MHz)                                    | 1.5<br>(1805MHz to 1880MHz)                                    | 2.3<br>(1805MHz to 1880MHz)       | 50Ω             | 150Ω//15nH<br>(Balance) |
| <b>SAWEN1G84CN0F00(1842.5)</b> | GSM1800/1900 | 1842.5                 | 2.5<br>(1805MHz to 1880MHz)                                    | 1.8<br>(1805MHz to 1880MHz)                                    | 2.2<br>(1805MHz to 1880MHz)       | 50Ω             | 150Ω//15nH<br>(Balance) |
| <b>SAWEN1G84CN0F00(1960)</b>   | GSM1800/1900 | 1960                   | 2.6<br>(1930MHz to 1990MHz)                                    | 1.8<br>(1930MHz to 1990MHz)                                    | 2.2<br>(1930MHz to 1990MHz)       | 50Ω             | 150Ω//22nH<br>(Balance) |
| <b>SAFEA859MCL0F00</b>         | JCDMA        | 859                    | 2.9<br>(843MHz to 875MHz)                                      | 2.0<br>(843MHz to 875MHz)                                      | 2.3<br>(843MHz to 875MHz)         | 50Ω             | 100Ω<br>(Balance)       |
| <b>SAFEB911MAL0F00</b>         | JCDMA        | 911.5                  | 2.2<br>(898MHz to 925MHz)                                      | 1.2<br>(898MHz to 925MHz)                                      | 2.0<br>(898MHz to 925MHz)         | 50Ω             | 50Ω                     |
| <b>SAWEN827MAA0F00(827)</b>    | JCDMA        | 827                    | 3.0<br>(824MHz to 830MHz)                                      | 1.3<br>(824MHz to 830MHz)                                      | 2.0<br>(824MHz to 830MHz)         | 50Ω             | 50Ω                     |
| <b>SAWEN827MAA0F00(911.5)</b>  | JCDMA        | 911.5                  | 2.8<br>(898MHz to 925MHz)                                      | 1.2<br>(898MHz to 925MHz)                                      | 2.0<br>(898MHz to 925MHz)         | 50Ω             | 50Ω//10nH<br>(Balance)  |
| <b>SAFEA1G88KB7F00</b>         | CDMA1900     | 1880                   | 3.8<br>(1850MHz to 1910MHz)<br>3.4<br>(1850.5MHz to 1909.5MHz) | 2.7<br>(1850MHz to 1910MHz)<br>2.5<br>(1850.5MHz to 1909.5MHz) | 2.0<br>(1850MHz to 1910MHz)       | 50Ω             | 50Ω                     |

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| Part Number            | Application | Center Frequency (MHz) | Insertion Loss (dB max.)          | Ripple (dB max.)                  | VSWR                              | Input Impedance           | Output Impedance          |
|------------------------|-------------|------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------------------|---------------------------|
| <b>SAFEB1G96AL0F00</b> | CDMA1900    | 1960                   | 4.0<br>(1930.48MHz to 1989.52MHz) | 2.3<br>(1930.48MHz to 1989.52MHz) | 2.2<br>(1930.48MHz to 1989.52MHz) | 50Ω                       | 50Ω                       |
| <b>SAFEB1G96FL0F00</b> | CDMA1900    | 1960                   | 3.3<br>(1930MHz to 1990MHz)       | 1.8<br>(1930MHz to 1990MHz)       | 2.4<br>(1930MHz to 1990MHz)       | 50Ω                       | 100Ω<br>(Balance)         |
| <b>SAFEB2G14AL0F00</b> | WCDMA       | 2140                   | 3.5<br>(2110MHz to 2170MHz)       | 1.6<br>(2110MHz to 2170MHz)       | 2.0<br>(2110MHz to 2170MHz)       | 50Ω                       | 50Ω                       |
| <b>SAFEB2G14FB0F00</b> | WCDMA       | 2140                   | 2.5<br>(2110MHz to 2170MHz)       | 1.5<br>(2110MHz to 2170MHz)       | 1.9<br>(2110MHz to 2170MHz)       | 50Ω                       | 100Ω//27nH<br>(Balance)   |
| <b>SAFEB1G95KA0F00</b> | WCDMA       | 1950                   | 2.9<br>(1920MHz to 1980MHz)       | 2.0<br>(1920MHz to 1980MHz)       | 2.0<br>(1920MHz to 1980MHz)       | 50Ω                       | 50Ω                       |
| <b>SAFEB881MFM0F00</b> | CDMA800     | 881.5                  | 2.2<br>(869MHz to 894MHz)         | 1.5<br>(869MHz to 894MHz)         | 2.0<br>(869MHz to 894MHz)         | 50Ω                       | 100Ω<br>(Balance)         |
| <b>SAFEB836MAL0F00</b> | CDMA800     | 836.5                  | 2.5<br>(824MHz to 849MHz)         | 1.8<br>(824MHz to 849MHz)         | 1.9<br>(824MHz to 849MHz)         | 50Ω                       | 50Ω                       |
| <b>SAFEA2G44AA0F00</b> | Bluetooth   | 2441.75                | 2.8<br>(2400MHz to 2483.5MHz)     | 1.5<br>(2400MHz to 2483.5MHz)     | 2.4<br>(2400MHz to 2483.5MHz)     | 50Ω                       | 50Ω                       |
| <b>SAFEA2G45AD0F00</b> | WLAN        | 2450                   | 2.8<br>(2400MHz to 2500MHz)       | 1.8<br>(2400MHz to 2500MHz)       | 2.4<br>(2400MHz to 2500MHz)       | 50Ω//4.3nH<br>(Unbalance) | 50Ω//3.0nH<br>(Unbalance) |



## Ceramic Filters (CERAFIL®)

### ●SMD Type (kHz)

| Type   | Applications              | General Use |       |                |               |    |                          |    |    |      |    |   | Attenuation (dB) min. |
|--|---------------------------|-------------|-------|----------------|---------------|----|--------------------------|----|----|------|----|---|-----------------------|
|  |                           | AMPS        | PDC   | PAGER CORDLESS | TACS CORDLESS | AM | 6dB Bandwidth (kHz) min. |    |    |      |    |   |                       |
|  | A                         | B           | C     | D              | E             | F  | G                        | H  | J  | K    | L  |   |                       |
|  | ±17.5                     | ±15         | ±12.5 | ±10            | ±7.5          | ±6 | ±4.5                     | ±3 | ±2 | ±1.5 | ±1 |   |                       |
| High Selectivity Series<br>(Plastic Case Type)                         | SFPKA455K□ (4 Elements)   | -           | -     | -              | ●             | ●  | ●                        | ●  | ●  | -    | -  | - | 27 (G to H ; 25)      |
|  | CFUKG455K□ (4 Elements)   | -           | -     | -              | ●             | ●  | ●                        | ●  | ●  | -    | -  | - | 27 (G ; 25)           |
| Narrow Bandwidth GDT Flat Type Miniature Series<br>(Plastic Case Type) | CFUKG455K□X (4 Elements)  | -           | -     | -              | ●             | ●  | ●                        | ●  | ●  | -    | -  | - | 27 (G to H ; 25)      |
| GDT Flat Type Miniature Series<br>(Plastic Case Type)                  | CFUKF455K□ (4 Elements)   | ●           | ●     | ●              | ●             | ●  | -                        | -  | -  | -    | -  | - | 25 (D to E ; 23)      |
| GDT Flat Type High Selectivity SMD Series<br>(Plastic Case Type)       | CFWKA450KBFY (6 Elements) | -           | ●     | -              | -             | -  | -                        | -  | -  | -    | -  | - | 45                    |
| High Selectivity SMD Series<br>(Plastic Case Type)                     | CFWKA450K□ (6 Elements)   | -           | ●     | -              | ●             | ●  | ●                        | ●  | -  | -    | -  | - | 50                    |

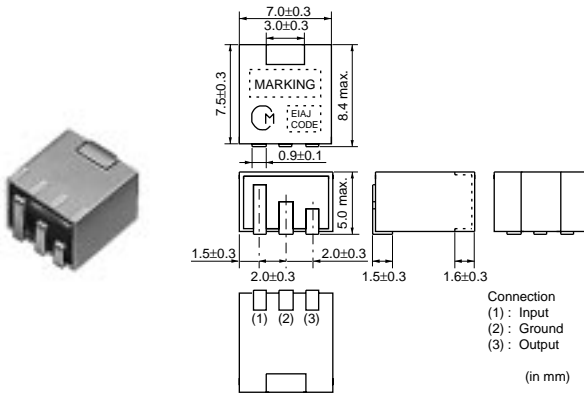
### ●Lead Type (kHz)

| Type                                | Applications             | General Use |       |                |               |    |                          |    |    |      |    |   | Attenuation (dB) min.        |
|-------------------------------------|--------------------------|-------------|-------|----------------|---------------|----|--------------------------|----|----|------|----|---|------------------------------|
|                                     |                          | AMPS        | PDC   | PAGER CORDLESS | TACS CORDLESS | AM | 6dB Bandwidth (kHz) min. |    |    |      |    |   |                              |
|                                     | A                        | B           | C     | D              | E             | F  | G                        | H  | J  | K    | L  |   |                              |
|                                     | ±17.5                    | ±15         | ±12.5 | ±10            | ±7.5          | ±6 | ±4.5                     | ±3 | ±2 | ±1.5 | ±1 |   |                              |
| High Selectivity Low Profile Series | CFULA455K□ (4 Elements)  | -           | ●     | ●              | ●             | ●  | ●                        | ●  | ●  | -    | -  | - | 27 (G ; 25)<br>(H, J ; 35)   |
|                                     | CFWLA455K□ (6 Elements)  | -           | ●     | ●              | ●             | ●  | ●                        | ●  | ●  | ●    | -  | - | 35 (H, J ; 60)               |
| High Selectivity Miniature Series   | CFULB455K□ (4 Elements)  | -           | ●     | ●              | ●             | ●  | ●                        | ●  | ●  | ●    | -  | - | 27 (G ; 25)<br>(H, J ; 35)   |
|                                     | CFWLB455K□ (6 Elements)  | -           | ●     | ●              | ●             | ●  | ●                        | ●  | ●  | ●    | -  | - | 35 (H, J ; 65)               |
| GDT Flat Type Series                | CFULA455K□Y (4 Elements) | -           | ●     | ●              | ●             | ●  | ●                        | ●  | -  | -    | -  | - | 25 (D to F ; 23)<br>(G ; 20) |
|                                     | CFWLA455K□Y (6 Elements) | ●           | ●     | ●              | ●             | ●  | ●                        | ●  | -  | -    | -  | - | 35                           |
| GDT Flat Type Miniature Series      | CFULB455K□Y (4 Elements) | -           | ●     | ●              | ●             | ●  | ●                        | ●  | -  | -    | -  | - | 25 (D to F ; 23)<br>(G ; 20) |
|                                     | CFWLB455K□Y (6 Elements) | ●           | ●     | ●              | ●             | ●  | ●                        | ●  | -  | -    | -  | - | 35                           |

for IF

Ceramic Filters (kHz, MHz)

● kHz SMD Type SFPKA Series

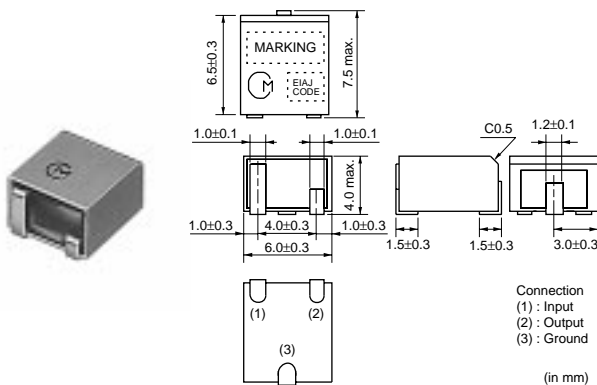


| Part Number     | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Ripple (dB)                  | Input/Output Impedance (ohm) |
|-----------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------------|------------------------------|
| SFPKA455KD4A-R1 | 455<br>±1.5kHz              | fn±10.0<br>min.     | fn±20.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 2.0 max.<br>[within fn±7kHz] | 1500                         |
| SFPKA455KE4A-R1 | 455<br>±1.5kHz              | fn±7.5<br>min.      | fn±15.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±5kHz] | 1500                         |
| SFPKA455KF4A-R1 | 455<br>±1.5kHz              | fn±6.0<br>min.      | fn±12.5 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±4kHz] | 1500                         |
| SFPKA455KG1A-R1 | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±10.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±3kHz] | 1500                         |
| SFPKA455KH1A-R1 | 455<br>±1.0kHz              | fn±3.0<br>min.      | fn±9.0 max.<br>[within 40dB]  | 35 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±2kHz] | 2000                         |

Center frequency (fo) defined by the center of 6dB bandwidth.  
(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.  
The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

● kHz SMD Type CFUKG Series



| Part Number     | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Ripple (dB)                  | Input/Output Impedance (ohm) |
|-----------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------------|------------------------------|
| CFUKG455KD4A-R0 | 455<br>±1.5kHz              | fn±10.0<br>min.     | fn±20.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 2.0 max.<br>[within fn±7kHz] | 1500                         |
| CFUKG455KE4A-R0 | 455<br>±1.5kHz              | fn±7.5<br>min.      | fn±15.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±5kHz] | 1500                         |
| CFUKG455KF4A-R0 | 455<br>±1.5kHz              | fn±6.0<br>min.      | fn±12.5 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±4kHz] | 1500                         |

Continued on the following page.

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Continued from the preceding page.

| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Ripple (dB)                  | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------------|------------------------------|
| <b>CFUKG455KG1A-R0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±10.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.5 max.<br>[within fn±3kHz] | 1500                         |

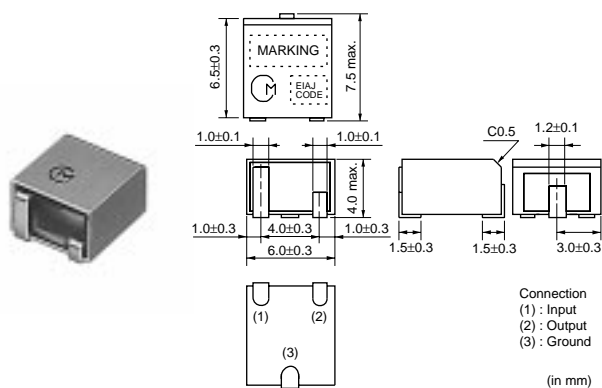
Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

## ● kHz SMD Type CFUKG\_X Series



| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Ripple (dB)                  | GDT Deviation (μs)            | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------------|-------------------------------|------------------------------|
| <b>CFUKG455KE4X-R0</b> | 455<br>±1.5kHz              | fn±7.5<br>min.      | fn±17.5 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±5kHz] | 25.0 max.<br>[within fn±5kHz] | 1500                         |
| <b>CFUKG455KF4X-R0</b> | 455<br>±1.5kHz              | fn±6.0<br>min.      | fn±15.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±4kHz] | 25.0 max.<br>[within fn±4kHz] | 1500                         |
| <b>CFUKG455KG1X-R0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±12.5 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±3kHz] | 25.0 max.<br>[within fn±3kHz] | 1500                         |
| <b>CFUKG455KH1X-R0</b> | 455<br>±1.0kHz              | fn±3.0<br>min.      | fn±10.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 7.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±2kHz] | 25.0 max.<br>[within fn±2kHz] | 1500                         |

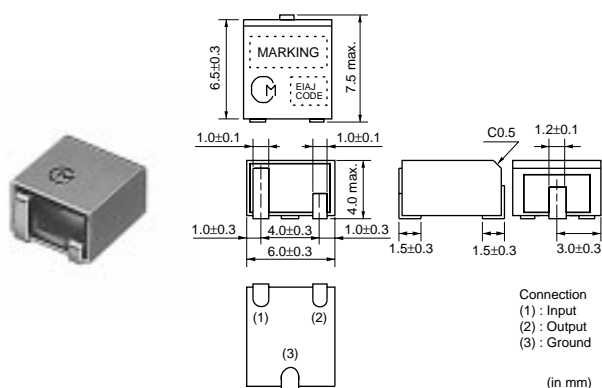
Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

## ● kHz SMD Type CFUKF Series



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| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Ripple (dB)                   | GDT Deviation (μs)             | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|--------------------------------|------------------------------|
| <b>CFUKF455KA2X-R0</b> | 455<br>±2.0kHz              | fn±17.5<br>min.     | fn±40.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±12kHz] | 15.0 max.<br>[within fn±12kHz] | 1000                         |
| <b>CFUKF455KB4X-R0</b> | 455<br>±1.5kHz              | fn±15.0<br>min.     | fn±35.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 5.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±10kHz] | 15.0 max.<br>[within fn±10kHz] | 1000                         |
| <b>CFUKF455KC4X-R0</b> | 455<br>±1.5kHz              | fn±12.5<br>min.     | fn±30.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±8kHz]  | 15.0 max.<br>[within fn±8kHz]  | 1000                         |
| <b>CFUKF455KD1X-R0</b> | 455<br>±1.0kHz              | fn±10.0<br>min.     | fn±25.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 7.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±7kHz]  | 20.0 max.<br>[within fn±7kHz]  | 1500                         |
| <b>CFUKF455KE1X-R0</b> | 455<br>±1.0kHz              | fn±7.5<br>min.      | fn±20.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 8.0 max.<br>[at minimum loss point] | 1.0 max.<br>[within fn±5kHz]  | 20.0 max.<br>[within fn±5kHz]  | 1500                         |

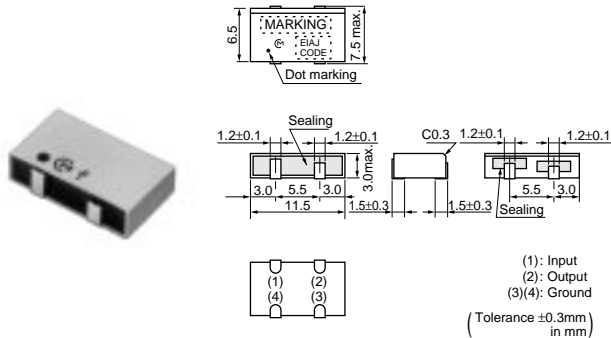
Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

● kHz SMD Type CFWKA Series

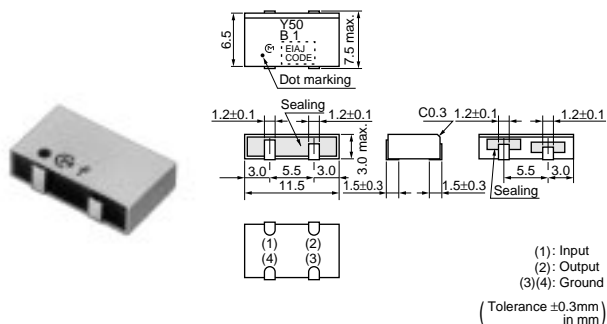


| Part Number               | Nominal Center Frequency (fn) (kHz) | 3dB Bandwidth (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Stop Band Att. (2) (dB)       | Insertion Loss (dB)                 | Ripple (dB)                    | Input/Output Impedance (ohm) |
|---------------------------|-------------------------------------|---------------------|---------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|------------------------------|
| <b>CFWKA450KDFA-R0</b>    | 450.0                               | -                   | fn±10.0<br>min.     | fn±20.0 max.<br>[within 50dB] | 50 min.<br>[within fn±100kHz] | -                             | 4.0 max.<br>[at minimum loss point] | 3.0 max.<br>[within fn±7kHz]   | 1500                         |
| <b>CFWKA450KEFA-R0</b>    | 450.0                               | -                   | fn±7.5<br>min.      | fn±15.0 max.<br>[within 50dB] | 50 min.<br>[within fn±100kHz] | -                             | 6.0 max.<br>[at minimum loss point] | 3.0 max.<br>[within fn±5kHz]   | 1500                         |
| <b>CFWKA450KEFA001-R0</b> | 450.0                               | fn±6.5 min.         | -                   | fn±15.0 max.<br>[within 50dB] | 55 min.<br>[fn±18 to ±33kHz]  | 50 min.<br>[within fn±100kHz] | 4.0 max.<br>[at fn]                 | 3.0 max.<br>[within fn±6.5kHz] | 1500                         |
| <b>CFWKA450KFFA-R0</b>    | 450.0                               | -                   | fn±6.0<br>min.      | fn±12.5 min.<br>[within 50dB] | 50 min.<br>[within fn±100kHz] | -                             | 6.0 max.<br>[at minimum loss point] | 3.0 max.<br>[within fn±4kHz]   | 1500                         |
| <b>CFWKA450KGF A-R0</b>   | 450.0                               | -                   | fn±4.5<br>min.      | fn±11.0 max.<br>[within 50dB] | 50 min.<br>[within fn±100kHz] | -                             | 6.0 max.<br>[at minimum loss point] | 2.0 max.<br>[within fn±3kHz]   | 1500                         |

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

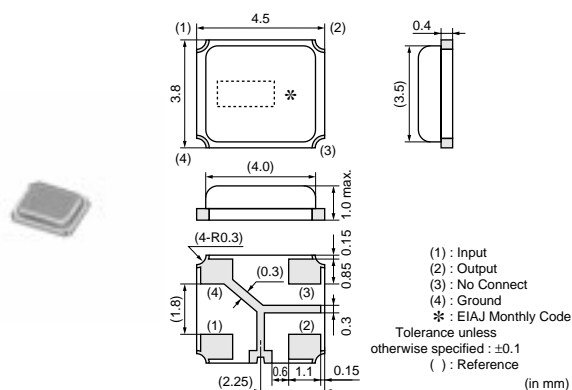
## ● kHz SMD Type CFWKA\_Y Series



| Part Number               | Nominal Center Frequency (fn) (kHz) | 3dB Bandwidth (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)       | Stop Band Attenuation (dB) | Insertion Loss (dB)              | Spurious Response (dB)         | GDT Deviation (μs)          | Input/Output Impedance (ohm) |
|---------------------------|-------------------------------------|---------------------|---------------------|----------------------------|----------------------------|----------------------------------|--------------------------------|-----------------------------|------------------------------|
| <b>CFWKA450KBFY001-R0</b> | 450.0                               | fn±11.5 min.        | fn±13.0 min.        | fn±30.0 max. [within 50dB] | 45 min. [within fn±100kHz] | 4.0 max. [at minimum loss point] | 20 min. [within 0.1 to 1.0MHz] | 30.0 max. [within fn±10kHz] | 1000                         |

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## ● MHz SMD Type SFSCE10M7 Series

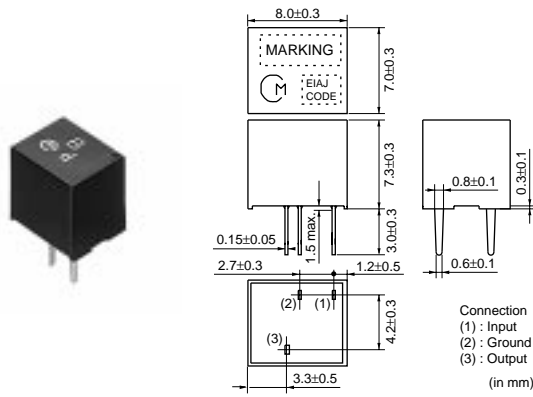


| Part Number             | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Stop Bandwidth (MHz)           | Insertion Loss (dB)              | Ripple (dB)                     | Spurious Response (dB)                           | GDT Deviation (μs)          | Input/Output Impedance (ohm) |
|-------------------------|-------------------------------------|---------------------|--------------------------------|----------------------------------|---------------------------------|--|-----------------------------|------------------------------|
| <b>SFSCE10M7WF03-R0</b> | 10.700                              | fn±500.0 min.       | 2.2 max. (Total) [within 20dB] | 6.0 max. [at minimum loss point] | 2.0 max. [within 3dB Bandwidth] | 30/25 min. [within 5.7MHz to fn / fn to 15.7MHz] | 0.6 max. [within fn±400kHz] | 470                          |
| <b>SFSCE10M7WF04-R0</b> | 10.700                              | fn±400.0 min.       | 1.8 max. (Total) [within 20dB] | 6.0 max. [at minimum loss point] | 1.5 max. [within 3dB Bandwidth] | 35/25 min. [within 5.7MHz to fn / fn to 15.7MHz] | 0.6 max. [within fn±325kHz] | 470                          |
| <b>SFSCE10M7WF05-R0</b> | 10.700                              | fn±325.0 min.       | 1.7 max. (Total) [within 20dB] | 6.0 max. [at minimum loss point] | 1.5 max. [within 3dB Bandwidth] | 40/30 min. [within 5.7MHz to fn / fn to 15.7MHz] | 0.6 max. [within fn±250kHz] | 470                          |

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

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● Plastic Case General Use CFULA Series



Connection  
(1) : Input  
(2) : Ground  
(3) : Output  
(in mm)

| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|------------------------------|
| <b>CFULA455KB2A-B0</b> | 455<br>±2.0kHz              | fn±15.0<br>min.     | fn±30.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 1500                         |
| <b>CFULA455KC2A-B0</b> | 455<br>±2.0kHz              | fn±12.5<br>min.     | fn±24.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 1500                         |
| <b>CFULA455KD4A-B0</b> | 455<br>±1.5kHz              | fn±10.0<br>min.     | fn±20.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 1500                         |
| <b>CFULA455KE4A-B0</b> | 455<br>±1.5kHz              | fn±7.5<br>min.      | fn±15.0 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 1500                         |
| <b>CFULA455KF4A-B0</b> | 455<br>±1.5kHz              | fn±6.0<br>min.      | fn±12.5 max.<br>[within 40dB] | 27 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 2000                         |
| <b>CFULA455KG1A-B0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±10.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 2000                         |
| <b>CFULA455KH1A-B0</b> | 455<br>±1.0kHz              | fn±3.0<br>min.      | fn±9.0 max.<br>[within 40dB]  | 35 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 2000                         |

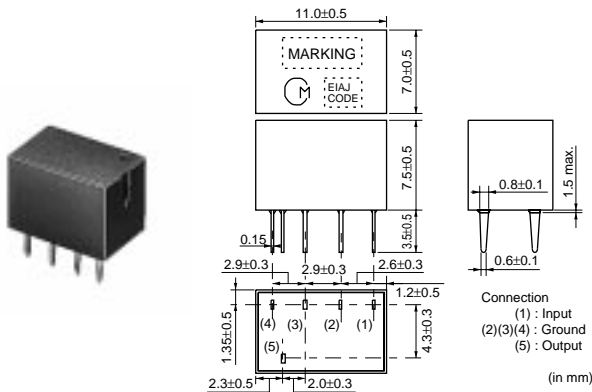
Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

● Plastic Case General Use Type CFWLA Series



Connection  
(1) : Input  
(2)(3)(4) : Ground  
(5) : Output  
(in mm)

| Part Number            | Nominal Center Frequency (fn) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | Ripple (dB)                   | Input/Output Impedance (ohm) |
|------------------------|-------------------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|------------------------------|
| <b>CFWLA455KBFA-B0</b> | 455.0                               | fn±15.0<br>min.     | fn±30.0 max.<br>[within 50dB] | 35 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 3.0 max.<br>[within fn±10kHz] | 1500                         |
| <b>CFWLA455KCFA-B0</b> | 455.0                               | fn±12.5<br>min.     | fn±24.0 max.<br>[within 50dB] | 35 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 3.0 max.<br>[within fn±8kHz]  | 1500                         |
| <b>CFWLA455KDFB-B0</b> | 455.0                               | fn±10.0<br>min.     | fn±20.0 max.<br>[within 50dB] | 35 min.<br>[within fn±100kHz] | 4.0 max.<br>[at minimum loss point] | 3.0 max.<br>[within fn±7kHz]  | 1500                         |

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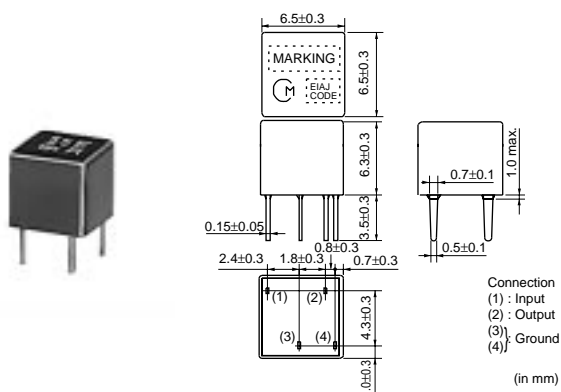
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| Part Number             | Nominal Center Frequency (fn) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)       | Stop Band Attenuation (dB) | Insertion Loss (dB)              | Ripple (dB)                 | Input/Output Impedance (ohm) |
|-------------------------|-------------------------------------|---------------------|----------------------------|----------------------------|----------------------------------|-----------------------------|------------------------------|
| <b>CFWLA455KEFA-B0</b>  | 455.0                               | fn±7.5 min.         | fn±15.0 max. [within 50dB] | 35 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 3.0 max. [within fn±5kHz]   | 1500                         |
| <b>CFWLA455KFFA-B0</b>  | 455.0                               | fn±6.0 min.         | fn±12.5 max. [within 50dB] | 35 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 3.0 max. [within fn±4kHz]   | 2000                         |
| <b>CFWLA455KGF A-B0</b> | 455.0                               | fn±4.5 min.         | fn±10.0 max. [within 50dB] | 35 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 2.0 max. [within fn±3kHz]   | 2000                         |
| <b>CFWLA455KHFA-B0</b>  | 455.0                               | fn±3.0 min.         | fn±9.0 max. [within 50dB]  | 60 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 2.0 max. [within fn±2kHz]   | 2000                         |
| <b>CFWLA455KJFA-B0</b>  | 455.0                               | fn±2.0 min.         | fn±7.5 max. [within 50dB]  | 60 min. [within fn±100kHz] | 7.0 max. [at minimum loss point] | 2.0 max. [within fn±1.5kHz] | 2000                         |

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

## ● Plastic Case Miniaturized Type CFULB Series



| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)       | Stop Band Attenuation (dB) | Insertion Loss (dB)              | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|----------------------------|----------------------------|----------------------------------|------------------------------|
| <b>CFULB455KB2A-B0</b> | 455 ±2.0kHz                 | fn±15.0 min.        | fn±30.0 max. [within 40dB] | 27 min. [within fn±100kHz] | 4.0 max. [at minimum loss point] | 1500                         |
| <b>CFULB455KC2A-B0</b> | 455 ±2.0kHz                 | fn±12.5 min.        | fn±24.0 max. [within 40dB] | 27 min. [within fn±100kHz] | 4.0 max. [at minimum loss point] | 1500                         |
| <b>CFULB455KD4A-B0</b> | 455 ±1.5kHz                 | fn±10.0 min.        | fn±20.0 max. [within 40dB] | 27 min. [within fn±100kHz] | 4.0 max. [at minimum loss point] | 1500                         |
| <b>CFULB455KE4A-B0</b> | 455 ±1.5kHz                 | fn±7.5 min.         | fn±15.0 max. [within 40dB] | 27 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 1500                         |
| <b>CFULB455KF4A-B0</b> | 455 ±1.5kHz                 | fn±6.0 min.         | fn±12.5 max. [within 40dB] | 27 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 2000                         |
| <b>CFULB455KG1A-B0</b> | 455 ±1.0kHz                 | fn±4.5 min.         | fn±10.0 max. [within 40dB] | 25 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 2000                         |
| <b>CFULB455KH1A-B0</b> | 455 ±1.0kHz                 | fn±3.0 min.         | fn±9.0 max. [within 40dB]  | 35 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 2000                         |
| <b>CFULB455KJ1A-B0</b> | 455 ±1.0kHz                 | fn±2.0 min.         | fn±7.5 max. [within 40dB]  | 35 min. [within fn±100kHz] | 6.0 max. [at minimum loss point] | 2000                         |

Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

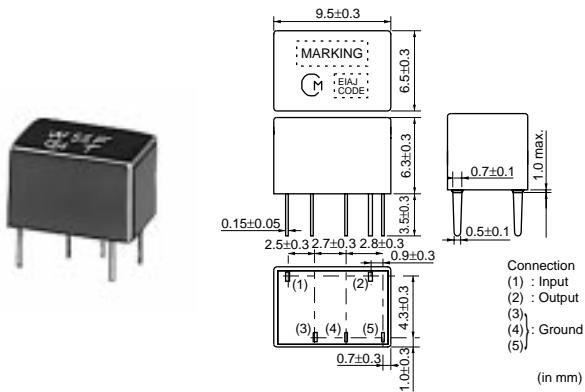
CFULB455K series filters are 4-element ceramic filters and miniature versions of CFULA455K series.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

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## ● Plastic Case Miniaturized CFWLB Series



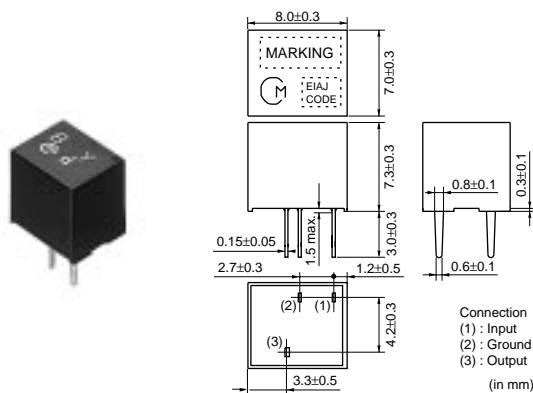
| Part Number               | Nominal Center Frequency (fn) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)       | Stop Band Attenuation (dB)         | Insertion Loss (dB)              | Input/Output Impedance (ohm) |
|---------------------------|-------------------------------------|---------------------|----------------------------|------------------------------------|----------------------------------|------------------------------|
| <b>CFWLB455KBFA-B0</b>    | 455.0                               | fn±15.0 min.        | fn±30.0 max. [within 50dB] | 35 min. [within fn±100kHz]         | 4.0 max. [at minimum loss point] | 1500                         |
| <b>CFWLB455KCFA-B0</b>    | 455.0                               | fn±12.5 min.        | fn±24.0 max. [within 50dB] | 35 min. [within fn±100kHz]         | 4.0 max. [at minimum loss point] | 1500                         |
| <b>CFWLB455KDFA-B0</b>    | 455.0                               | fn±10.0 min.        | fn±20.0 max. [within 50dB] | 35 min. [within fn±100kHz]         | 4.0 max. [at minimum loss point] | 1500                         |
| <b>CFWLB455KEFA-B0</b>    | 455.0                               | fn±7.5 min.         | fn±15.0 max. [within 50dB] | 35 min. [within fn±100kHz]         | 6.0 max. [at minimum loss point] | 1500                         |
| <b>CFWLB455KEFA004-B0</b> | 455.0                               | fn±7.5 min.         | fn±15.0 max. [within 60dB] | 60 min. [within fn±15kHz to 30kHz] | 5.0 max. [at fn]                 | 1500                         |
| <b>CFWLB455KFFA-B0</b>    | 455.0                               | fn±6.0 min.         | fn±12.5 max. [within 50dB] | 35 min. [within fn±100kHz]         | 6.0 max. [at minimum loss point] | 2000                         |
| <b>CFWLB455KGF A-B0</b>   | 455.0                               | fn±4.5 min.         | fn±10.0 max. [within 50dB] | 35 min. [within fn±100kHz]         | 6.0 max. [at minimum loss point] | 2000                         |
| <b>CFWLB455KHFA-B0</b>    | 455.0                               | fn±3.0 min.         | fn±9.0 max. [within 50dB]  | 55 min. [within fn±100kHz]         | 6.0 max. [at minimum loss point] | 2000                         |
| <b>CFWLB455KJFA-B0</b>    | 455.0                               | fn±2.0 min.         | fn±7.0 max. [within 50dB]  | 55 min. [within fn±100kHz]         | 7.0 max. [at minimum loss point] | 2000                         |

CFWLB455K series filters are 4-element ceramic filters and miniature versions of CFWLA455K series.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

## ● Plastic Case Group Delay Flat Type CFULA\_Y Series



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| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                  | GDT Deviation (μs)             | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|--------------------------------------|--------------------------------|------------------------------|
| <b>CFULA455KB4Y-B0</b> | 455<br>±1.5kHz              | fn±15.0<br>min.     | fn±35.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 5.0 max.<br>[at minimum loss point]  | 15.0 max.<br>[within fn±10kHz] | 1500                         |
| <b>CFULA455KC4Y-B0</b> | 455<br>±1.5kHz              | fn±12.5<br>min.     | fn±30.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point]  | 15.0 max.<br>[within fn±8kHz]  | 1500                         |
| <b>CFULA455KD1Y-B0</b> | 455<br>±1.0kHz              | fn±10.0<br>min.     | fn±25.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 7.0 max.<br>[at minimum loss point]  | 20.0 max.<br>[within fn±7kHz]  | 1500                         |
| <b>CFULA455KE1Y-B0</b> | 455<br>±1.0kHz              | fn±7.5<br>min.      | fn±20.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 8.0 max.<br>[at minimum loss point]  | 20.0 max.<br>[within fn±5kHz]  | 1500                         |
| <b>CFULA455KF1Y-B0</b> | 455<br>±1.0kHz              | fn±6.0<br>min.      | fn±17.5 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 9.0 max.<br>[at minimum loss point]  | 20.0 max.<br>[within fn±4kHz]  | 2000                         |
| <b>CFULA455KG1Y-B0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±15.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 10.0 max.<br>[at minimum loss point] | 20.0 max.<br>[within fn±3kHz]  | 2000                         |

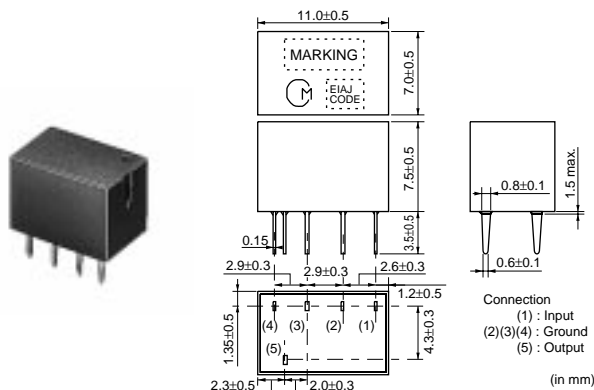
Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

## ● Plastic Case Group Delay Flat Type CFWLA\_Y Series



| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                  | GDT Deviation (μs)             | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|--------------------------------------|--------------------------------|------------------------------|
| <b>CFWLA455KB4Y-B0</b> | 455<br>±1.5kHz              | fn±15.0<br>min.     | fn±35.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point]  | 30.0 max.<br>[within fn±10kHz] | 1500                         |
| <b>CFWLA455KC4Y-B0</b> | 455<br>±1.5kHz              | fn±12.5<br>min.     | fn±30.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 7.0 max.<br>[at minimum loss point]  | 30.0 max.<br>[within fn±8kHz]  | 1500                         |
| <b>CFWLA455KD1Y-B0</b> | 455<br>±1.0kHz              | fn±10.0<br>min.     | fn±25.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 8.0 max.<br>[at minimum loss point]  | 30.0 max.<br>[within fn±7kHz]  | 1500                         |
| <b>CFWLA455KE1Y-B0</b> | 455<br>±1.0kHz              | fn±7.5<br>min.      | fn±20.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 9.0 max.<br>[at minimum loss point]  | 30.0 max.<br>[within fn±5kHz]  | 1500                         |
| <b>CFWLA455KF1Y-B0</b> | 455<br>±1.0kHz              | fn±6.0<br>min.      | fn±17.5 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 10.0 max.<br>[at minimum loss point] | 40.0 max.<br>[within fn±4kHz]  | 2000                         |
| <b>CFWLA455KG1Y-B0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±15.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 11.0 max.<br>[at minimum loss point] | 40.0 max.<br>[within fn±3kHz]  | 2000                         |

Center frequency (fo) defined by the center of 6dB bandwidth.

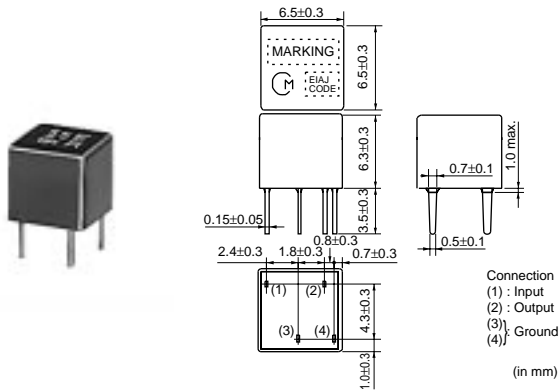
(fn) means nominal center frequency 455kHz.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

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## ● Plastic Case Group Delay Flat Type Miniaturized Type CFULB\_Y Series



| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                  | GDT Deviation (μs)             | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|--------------------------------------|--------------------------------|------------------------------|
| <b>CFULB455KB4Y-B0</b> | 455<br>±1.5kHz              | fn±15.0<br>min.     | fn±35.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 5.0 max.<br>[at minimum loss point]  | 15.0 max.<br>[within fn±10kHz] | 1500                         |
| <b>CFULB455KC4Y-B0</b> | 455<br>±1.5kHz              | fn±12.5<br>min.     | fn±30.0 max.<br>[within 40dB] | 25 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point]  | 15.0 max.<br>[within fn±8kHz]  | 1500                         |
| <b>CFULB455KD1Y-B0</b> | 455<br>±1.0kHz              | fn±10.0<br>min.     | fn±25.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 7.0 max.<br>[at minimum loss point]  | 20.0 max.<br>[within fn±7kHz]  | 1500                         |
| <b>CFULB455KE1Y-B0</b> | 455<br>±1.0kHz              | fn±7.5<br>min.      | fn±20.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 8.0 max.<br>[at minimum loss point]  | 20.0 max.<br>[within fn±5kHz]  | 1500                         |
| <b>CFULB455KF1Y-B0</b> | 455<br>±1.0kHz              | fn±6.0<br>min.      | fn±17.5 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 9.0 max.<br>[at minimum loss point]  | 20.0 max.<br>[within fn±4kHz]  | 2000                         |
| <b>CFULB455KG1Y-B0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±15.0 max.<br>[within 40dB] | 23 min.<br>[within fn±100kHz] | 10.0 max.<br>[at minimum loss point] | 20.0 max.<br>[within fn±3kHz]  | 2000                         |

Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

CFULB455K\_Y series filters are 4-element ceramic filters and miniature versions of CFULA455K\_Y series.

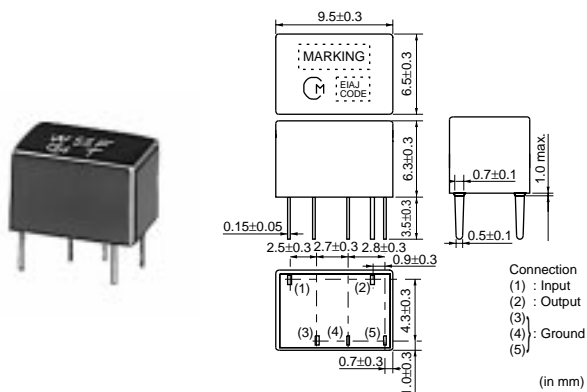
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

7

Filters for Communication Equipment

## ● Plastic Case Group Delay Flat Type CFWL\_B\_Y Series



| Part Number             | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                 | GDT Deviation (μs)             | Input/Output Impedance (ohm) |
|-------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|------------------------------|
| <b>CFWL_B455KB4Y-B0</b> | 455<br>±1.5kHz              | fn±15.0<br>min.     | fn±30.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 6.0 max.<br>[at minimum loss point] | 30.0 max.<br>[within fn±10kHz] | 1500                         |
| <b>CFWL_B455KC4Y-B0</b> | 455<br>±1.5kHz              | fn±12.5<br>min.     | fn±27.5 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 7.0 max.<br>[at minimum loss point] | 30.0 max.<br>[within fn±8kHz]  | 1500                         |
| <b>CFWL_B455KD1Y-B0</b> | 455<br>±1.0kHz              | fn±10.0<br>min.     | fn±25.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 8.0 max.<br>[at minimum loss point] | 30.0 max.<br>[within fn±7kHz]  | 1500                         |
| <b>CFWL_B455KE1Y-B0</b> | 455<br>±1.0kHz              | fn±7.5<br>min.      | fn±20.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 9.0 max.<br>[at minimum loss point] | 30.0 max.<br>[within fn±5kHz]  | 1500                         |

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| Part Number            | Center Frequency (fo) (kHz) | 6dB Bandwidth (kHz) | Stop Bandwidth (kHz)          | Stop Band Attenuation (dB)    | Insertion Loss (dB)                  | GDT Deviation (μs)            | Input/Output Impedance (ohm) |
|------------------------|-----------------------------|---------------------|-------------------------------|-------------------------------|--------------------------------------|-------------------------------|------------------------------|
| <b>CFWLB455KF1Y-B0</b> | 455<br>±1.0kHz              | fn±6.0<br>min.      | fn±17.5 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 10.0 max.<br>[at minimum loss point] | 40.0 max.<br>[within fn±4kHz] | 2000                         |
| <b>CFWLB455KG1Y-B0</b> | 455<br>±1.0kHz              | fn±4.5<br>min.      | fn±15.0 max.<br>[within 50dB] | 40 min.<br>[within fn±100kHz] | 11.0 max.<br>[at minimum loss point] | 40.0 max.<br>[within fn±3kHz] | 2000                         |

Center frequency (fo) defined by the center of 6dB bandwidth.

(fn) means nominal center frequency 455kHz.

CFWLB455K\_Y series filters are 4-element ceramic filters and miniature versions of CFWLA455K\_Y series.

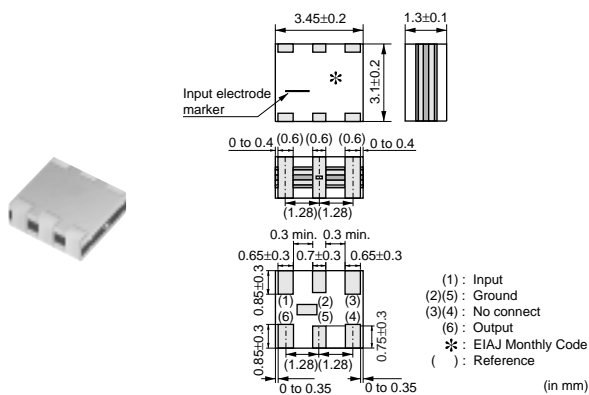
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

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## for IF

### Ceramic Filters (10.7MHz)

#### ● Small Chip Type SFECF Series (Standard Type)



| Part Number               | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Ripple (dB) | Spurious Attenuation (1) (dB)  | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB)   |
|---------------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------|--------------------------------|------------------------------|---------------------------------|
| <b>SFECF10M7HA00-R0</b>   | 10.700<br>±30kHz            | -                                   | 180 ±40kHz          | 470 max.          | 4.0 ±2.0dB          | 1.0 max.    | 30 min.<br>[within 9MHz to fo] | 330                          | 30 min.<br>[within fo to 12MHz] |
| <b>SFECF10M7HF00-R0</b>   | -                           | 10.700                              | fn±25 min.          | 510 max.          | 8.0 max.<br>[at fn] | 1.0 max.    | 30 min.<br>[within 9MHz to fn] | 330                          | 25 min.<br>[within fn to 12MHz] |
| <b>SFECF10M7GA00-R0</b>   | 10.700<br>±30kHz            | -                                   | 230 ±50kHz          | 510 max.          | 3.5 ±2.0dB          | 1.0 max.    | 30 min.<br>[within 9MHz to fo] | 330                          | 30 min.<br>[within fo to 12MHz] |
| <b>SFECF10M7GF00-R0</b>   | -                           | 10.700                              | fn±45 min.          | 560 max.          | 8.0 max.<br>[at fn] | 1.0 max.    | 30 min.<br>[within 9MHz to fn] | 330                          | 25 min.<br>[within fn to 12MHz] |
| <b>SFECF10M7FA00-R0</b>   | 10.700<br>±30kHz            | -                                   | 280 ±50kHz          | 590 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min.<br>[within 9MHz to fo] | 330                          | 30 min.<br>[within fo to 12MHz] |
| <b>SFECF10M7FF00-R0</b>   | -                           | 10.700                              | fn±65 min.          | 620 max.          | 7.0 max.<br>[at fn] | 1.0 max.    | 30 min.<br>[within 9MHz to fn] | 330                          | 25 min.<br>[within fn to 12MHz] |
| <b>SFECF10M7EA00-R0</b>   | 10.700<br>±30kHz            | -                                   | 330 ±50kHz          | 700 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min.<br>[within 9MHz to fo] | 330                          | 30 min.<br>[within fo to 12MHz] |
| <b>SFECF10M7DA0001-R0</b> | 10.700<br>±30kHz            | -                                   | 420 min.            | 950 max.          | 3.0 ±2.0dB          | 3.0 max.    | 35 min.<br>[within 9MHz to fo] | 330                          | 25 min.<br>[within fo to 12MHz] |
| <b>SFECF10M7DF00-R0</b>   | -                           | 10.700                              | fn±150 min.         | 990 max.          | 6.0 max.<br>[at fn] | 3.0 max.    | 20 min.<br>[within 9MHz to fn] | 330                          | 20 min.<br>[within fn to 12MHz] |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

Area of Ripple: within 3dB B.W.

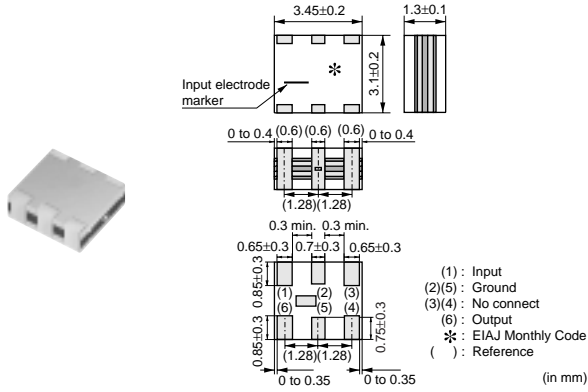
Center frequency (fo) defined by center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

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● Small Chip Type SFECF Series (High-reliability Type)



| Part Number        | Center Frequency (fo) (MHz) | Nominal Center Frequency (fn) (MHz) | 3dB Bandwidth (kHz) | Attenuation (kHz) | Insertion Loss (dB) | Ripple (dB) | Spurious Attenuation (1) (dB) | Input/Output Impedance (ohm) | Spurious Attenuation (2) (dB) |
|--------------------|-----------------------------|-------------------------------------|---------------------|-------------------|---------------------|-------------|-------------------------------|------------------------------|-------------------------------|
| SFECF10M7HA00S0-R0 | 10.700 ±30kHz               | -                                   | 180 ±40kHz          | 470 max.          | 4.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7HF00S0-R0 | -                           | 10.700                              | fn±25 min.          | 510 max.          | 8.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| SFECF10M7GA00S0-R0 | 10.700 ±30kHz               | -                                   | 230 ±50kHz          | 510 max.          | 3.5 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7GF00S0-R0 | -                           | 10.700                              | fn±45 min.          | 560 max.          | 8.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| SFECF10M7FA00S0-R0 | 10.700 ±30kHz               | -                                   | 280 ±50kHz          | 590 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7FF00S0-R0 | -                           | 10.700                              | fn±65 min.          | 630 max.          | 7.0 max. [at fn]    | 1.0 max.    | 30 min. [within 9MHz to fn]   | 330                          | 25 min. [within fn to 12MHz]  |
| SFECF10M7EA00S0-R0 | 10.700 ±30kHz               | -                                   | 330 ±50kHz          | 700 max.          | 3.0 ±2.0dB          | 1.0 max.    | 30 min. [within 9MHz to fo]   | 330                          | 30 min. [within fo to 12MHz]  |
| SFECF10M7DF00S0-R0 | -                           | 10.700                              | fn±145 min.         | 990 max.          | 6.0 max. [at fn]    | 3.0 max.    | 20 min. [within 9MHz to fn]   | 330                          | 20 min. [within fn to 12MHz]  |

Area of Attenuation: [within 20dB]

Area of Spurious Attenuation: [within 9MHz to 12MHz]

Area of Insertion Loss: at minimum loss point

Area of Ripple: within 3dB B.W.

Center frequency (fo) defined by center of 3dB bandwidth.

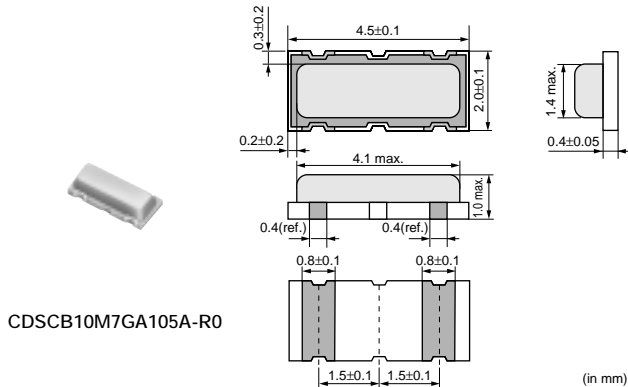
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

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7 Filters for Communication Equipment

for IF

Ceramic Discriminators (10.7MHz)



CDSCB10M7GA105A-R0

(in mm)

| Part Number        | Center Frequency (fo) (MHz) | Recovered Audio 3dB BW (kHz) | Recovered Audio Output (mV) | Distortion (%) | S Curve (mV) | IC        |
|--------------------|-----------------------------|------------------------------|-----------------------------|----------------|--------------|-----------|
| CDSCB10M7GA105A-R0 | 10.700 ±30kHz               | 220 min.                     | 110 min.                    | 1.5 max.       | -            | TEA5757HL |
| CDSCB10M7GA113-R0  | 10.700 ±30kHz               | 300 min.                     | 110 min.                    | 1.0 max.       | -            | TA2154FN  |
| CDSCB10M7GA119-R0  | 10.700 ±30kHz               | 500 min.                     | 75 min.                     | 1.0 max.       | -            | TRF6901   |
| CDSCB10M7GA121-R0  | 10.700 ±30kHz               | 390 min.                     | 80 min.                     | 1.0 max.       | -            | LV23100V  |
| CDSCB10M7GA135-R0  | 10.700 ±30kHz               | 155 min.                     | 75 min.                     | -              | -            | TH71101   |
| CDSCB10M7GA136-R0  | 10.700 ±30kHz               | 140 min.                     | 120 min.                    | -              | -            | TH7122    |
| CDSCB10M7GF072-R0  | 10.700 (fn)                 | fn±150 min.                  | 130 min.                    | 2.0 max.       | -            | TA31161   |
| CDSCB10M7GF107S-R0 | 10.700 (fn)                 | fn±80 min.                   | 52 min.                     | 3.0 max.       | -            | TA31272FN |
| CDSCB10M7GF109-R0  | 10.700 (fn)                 | fn±100 min.                  | 170 min.                    | 3.0 max.       | -            | TK14588V  |
| CDSCB10M7GF123-R0  | 10.700 (fn)                 | -                            | -                           | -              | 900 min.     | TA31275FN |
| CDSCB10M7GF123S-R0 | 10.700 (fn)                 | -                            | -                           | -              | 900 min.     | TA31275FN |
| CDSCB10M7GF126-R0  | 10.700 (fn)                 | -                            | -                           | -              | 400 min.     | NJM2295AV |

For safety purpose, avoid applying a direct current between the terminals.

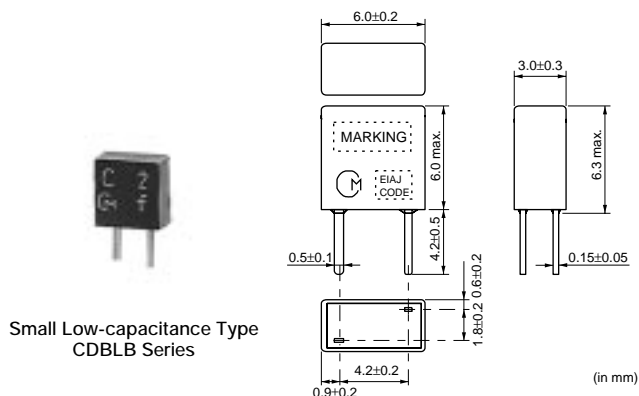
(fn) means nominal center frequency.

The order quantity should be an integral multiple of the "minimum quantity" shown in the package page.

## for IF

### Ceramic Discriminators (455kHz)

#### ● kHz Specified by Impedance Characteristics (Type 1)

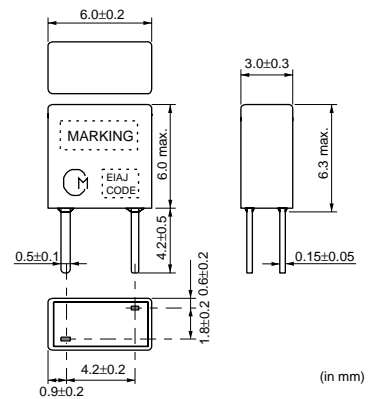
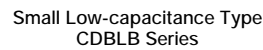
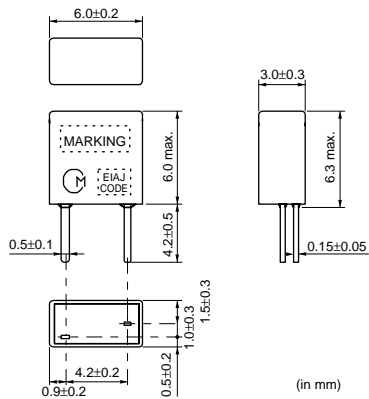
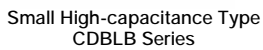
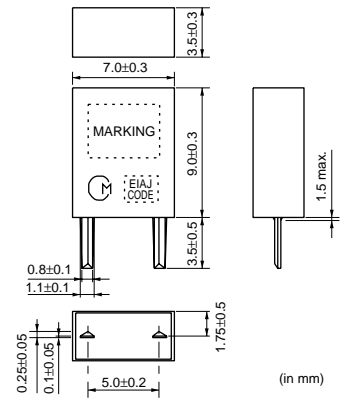
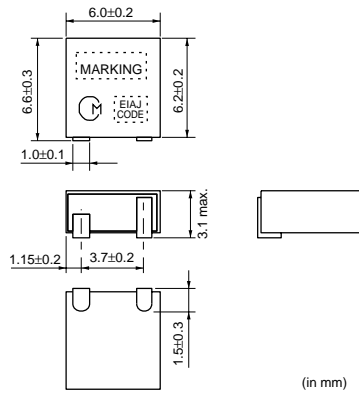


| Part Number       | Nominal Center Frequency (fn) (kHz) | Inclination of Impedance Curve (1) | Inclination of Impedance Curve (2) | Capacitance (C) | IC      |
|-------------------|-------------------------------------|------------------------------------|------------------------------------|-----------------|---------|
| CDBLB455KCAX02-B0 | 455                                 | 447.0±1.5kHz<br>(at  Z =2.05kohm)  | 463.0±1.5kHz<br>(at  Z =10.0kohm)  | 140pF±20%       | TA8104F |
| CDBLB455KCAX31-B0 | 455                                 | 447.0±1.5kHz<br>(at  Z =2.05kohm)  | 463.0±1.5kHz<br>(at  Z =10.0kohm)  | 140pF±20%       | TA31141 |

For safety purposes, avoid applying a direct current between the terminals.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

● kHz Specified by Impedance Characteristics (Type 2)

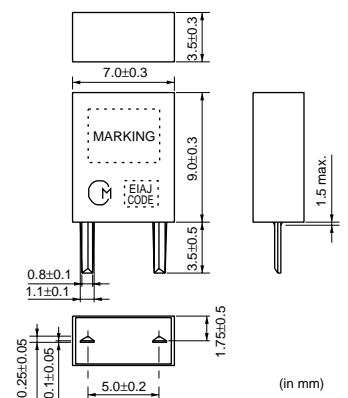
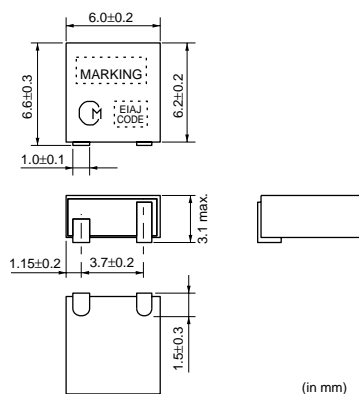


7 Filters for Communication Equipment

| Part Number       | Nominal Center Frequency (fn) | Anti-resonant Frequency (Fa) | Delta F (Fa-Fr) | Resonant Resistance (R) | Capacitance (C) | IC       |
|-------------------|-------------------------------|------------------------------|-----------------|-------------------------|-----------------|----------|
| CDBKB455KCAX33-R0 | -                             | 462.0±1.5kHz                 | 40±4.0kHz       | 200ohm max.             | 150pF±20%       | CXA1474  |
| CDBLA455KCAY03-B0 | -                             | 455.0±1.5kHz                 | 48±5.0kHz       | 70ohm max.              | 600pF±20%       | CXA1184M |
| CDBLB455KCAY03-B0 | -                             | 455.0±1.5kHz                 | 46±5.0kHz       | 70ohm max.              | 550pF±20%       | CXA1184M |
| CDBLB455KCAX15-B0 | -                             | 463.5±1.0kHz                 | 43±2.0kHz       | 300ohm max.             | 140pF±20%       | CXA1183M |
| CDBLB455KCAX25-B0 | -                             | 465.0±1.5kHz                 | 45±4.0kHz       | 300ohm max.             | 135pF±20%       | CXA1484  |
| CDBLB455KCAX33-B0 | -                             | 465.0±1.5kHz                 | 45±4.0kHz       | 300ohm max.             | 135pF±20%       | CXA1474  |

For safety purposes, avoid applying a direct current between the terminals.  
 The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

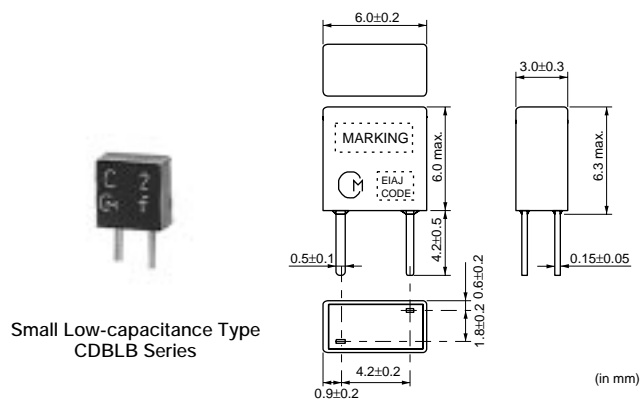
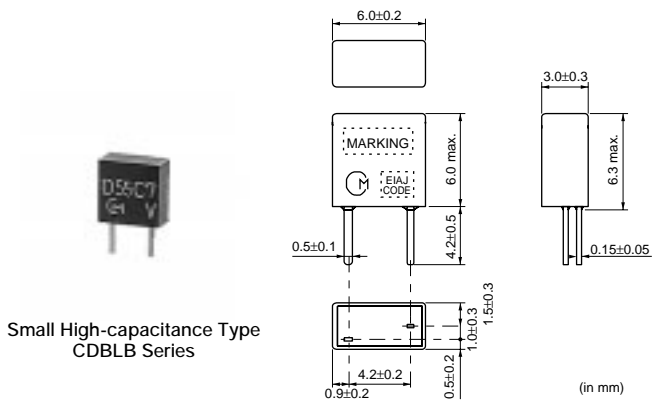
● kHz Specified by Recovered Audio Characteristics



Continued on the following page. ↗

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| Part Number               | Nominal Center Frequency (fn) (kHz) | Recovered Audio 3dB BW (kHz) | Recovered Audio Output (mV) | Distortion (at fn) (%) | Distortion (%)                | IC                      |
|---------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------|-------------------------------|-------------------------|
| <b>CDBKB450KCAY79-R0</b>  | 450                                 | fn±3.0 min.                  | 145 ±40                     | -                      | -                             | TB32302FG               |
| <b>CDBKB455KCAY07-R0</b>  | 455                                 | fn±4.0 min.                  | 350 ±60                     | 3.0 max.               | -                             | MC3357                  |
| <b>CDBKB455KCAY09-R0</b>  | 455                                 | fn±4.0 min.                  | 120 ±40                     | 1.5 max.               | -                             | NE604N                  |
| <b>CDBKB455KCAY13-R0</b>  | 455                                 | fn±4.0 min.                  | 330 ±50                     | 4.0 max.               | -                             | CXA1003BM               |
| <b>CDBKB455KCAY16-R0</b>  | 455                                 | fn±4.0 min.                  | 175 ±40                     | 2.0 max.               | -                             | MC3372                  |
| <b>CDBKB455KCAY24-R0</b>  | 455                                 | fn±4.0 min.                  | 100 ±40                     | 2.0 max.               | -                             | TA31136                 |
| <b>CDBKB455KCAY27-R0</b>  | 455                                 | fn±4.0 min.                  | 90 ±30                      | 2.0 max.               | -                             | TK10487                 |
| <b>CDBKB455KCAY28-R0</b>  | 455                                 | fn±4.0 min.                  | 40 ±20                      | 3.0 max.               | -                             | TA31142F                |
| <b>CDBKB455KCAY29-R0</b>  | 455                                 | fn±4.0 min.                  | 100 ±30                     | 2.5 max.               | -                             | NE605                   |
| <b>CDBKB455KCAY35-R0</b>  | 455                                 | fn±4.0 min.                  | 100 ±40                     | 2.5 max.               | -                             | TK10930                 |
| <b>CDBKB455KCAY40-R0</b>  | 455                                 | fn±4.0 min.                  | 40 ±20                      | 3.5 max.               | -                             | TA31145                 |
| <b>CDBKB455KCAY49-R0</b>  | 455                                 | fn±4.0 min.                  | 45 ±10                      | 3.0 max.               | -                             | MC3361                  |
| <b>CDBKB455KCAY50-R0</b>  | 455                                 | fn±4.0 min.                  | 64 ±6.4                     | 4.0 max.               | -                             | CXA3117N                |
| <b>CDBKB455KCAY66-R0</b>  | 455                                 | fn±4.2 min.                  | 40 ±10                      | 4.0 max.               | -                             | NJM2590                 |
| <b>CDBKB455KCLX36-R0</b>  | 455                                 | fn±13.0 min.                 | 90 ±30                      | 2.5 max.               | 5.0 max.<br>[within fn ±6kHz] | NE(SA)606<br>/NE(SA)616 |
| <b>CDBKB455KCLX39-R0</b>  | 455                                 | fn±11.0 min.                 | 130 ±20                     | 2.5 max.               | 7.0 max.<br>[within fn ±8kHz] | NE607<br>/NE617         |
| <b>CDBKB455KCLY13-R0</b>  | 455                                 | fn±13.0 min.                 | 120 ±30                     | 1.5 max.               | 5.0 max.<br>[within fn ±8kHz] | CXA1003BM               |
| <b>CDBLA455KCAY07-B0</b>  | 455                                 | fn±4.0 min.                  | 340 ±60                     | 2.5 max.               | -                             | MC3357                  |
| <b>CDBLA455KCAY09-B0</b>  | 455                                 | fn±5.0 min.                  | 100 min.                    | 1.5 max.               | -                             | NE604N                  |
| <b>CDBLA455KCAY13A-B0</b> | 455                                 | fn±4.0 min.                  | 350 ±50                     | 3.0 max.               | -                             | CXA1003BM               |

Continued on the following page.

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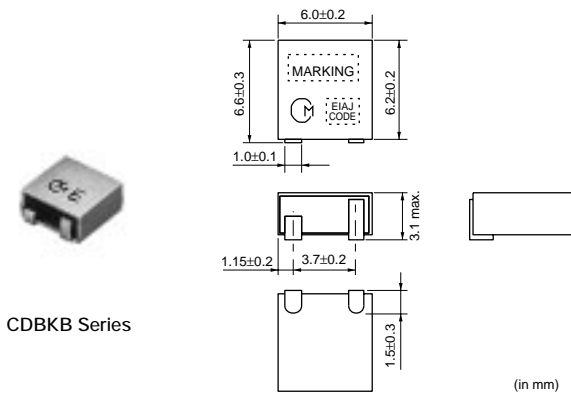
| Part Number               | Nominal Center Frequency (fn) (kHz) | Recovered Audio 3dB BW (kHz) | Recovered Audio Output (mV) | Distortion (at fn) (%) | Distortion (%)                | IC                  |
|---------------------------|-------------------------------------|------------------------------|-----------------------------|------------------------|-------------------------------|---------------------|
| <b>CDBLA455KCAY16-B0</b>  | 455                                 | fn±4.0 min.                  | 185 ±40                     | 2.0 max.               | -                             | MC3372              |
| <b>CDBLA455KCAY24-B0</b>  | 455                                 | fn±4.0 min.                  | 100 ±40                     | 2.0 max.               | -                             | TA31136             |
| <b>CDBLA455KCAY28-B0</b>  | 455                                 | fn±4.0 min.                  | 40 ±20                      | 3.0 max.               | -                             | TA31142             |
| <b>CDBLA455KCAY34-B0</b>  | 455                                 | fn±4.0 min.                  | 65 ±20                      | 2.5 max.               | -                             | MC13136             |
| <b>CDBLA455KCLY09-B0</b>  | 455                                 | fn±15.0 min.                 | 70 ±20                      | 1.5 max.               | 3.5 max.<br>[within fn ±8kHz] | NE604N              |
| <b>CDBLA455KCLY13-B0</b>  | 455                                 | fn±15.0 min.                 | 110 ±30                     | 1.5 max.               | 5.0 max.<br>[within fn ±8kHz] | CXA1003BM           |
| <b>CDBLB455KCAY07-B0</b>  | 455                                 | fn±4.0 min.                  | 340 ±60                     | 3.0 max.               | -                             | MC3357              |
| <b>CDBLB455KCAY13A-B0</b> | 455                                 | fn±4.0 min.                  | 350 ±50                     | 3.0 max.               | -                             | CXA1003BM           |
| <b>CDBLB455KCAY24-B0</b>  | 455                                 | fn±4.0 min.                  | 100 ±40                     | 2.0 max.               | -                             | TA31136             |
| <b>CDBLB455KCAY28-B0</b>  | 455                                 | fn±4.0 min.                  | 40 ±20                      | 3.0 max.               | -                             | TA31142FN           |
| <b>CDBLB455KCAY34-B0</b>  | 455                                 | fn±4.0 min.                  | 65 ±20                      | 2.5 max.               | -                             | MC13136             |
| <b>CDBLB455KCAY40-B0</b>  | 455                                 | fn±4.0 min.                  | 40 ±20                      | 3.0 max.               | -                             | TA31145             |
| <b>CDBLB455KCAY42-B0</b>  | 455                                 | fn±4.0 min.                  | 40 ±15                      | 3.0 max.               | -                             | TK14590<br>/TK14591 |
| <b>CDBLB455KCAY49-B0</b>  | 455                                 | fn±4.0 min.                  | 45 ±10                      | 3.0 max.               | -                             | MC3361              |
| <b>CDBLB455KCAY50-B0</b>  | 455                                 | fn±4.0 min.                  | 64 ±6.4                     | 4.0 max.               | -                             | CXA3117N            |
| <b>CDBLB455KCLY09-B0</b>  | 455                                 | fn±15.0 min.                 | 70 ±20                      | 1.5 max.               | 3.5 max.<br>[within fn ±8kHz] | NE604N              |
| <b>CDBLB455KCLY13-B0</b>  | 455                                 | fn±15.0 min.                 | 110 ±30                     | 1.5 max.               | 5.0 max.<br>[within fn ±8kHz] | CXA1003BM           |
| <b>CDBLB455KCAX16-B0</b>  | 455                                 | fn±4.0 min.                  | 185 ±40                     | 2.0 max.               | -                             | MC3372              |
| <b>CDBLB455KCAX18-B0</b>  | 455                                 | fn±3.0 min.                  | 180 ±40                     | 2.0 max.               | -                             | MC3371              |
| <b>CDBLB455KCAX36-B0</b>  | 455                                 | fn±3.5 min.                  | 100 ±25                     | 3.5 max.               | -                             | NE606<br>/NE616     |

For safety purposes, avoid applying a direct current between the terminals.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.



## ● kHz Specified by S Curve Characteristics



CDBKB Series

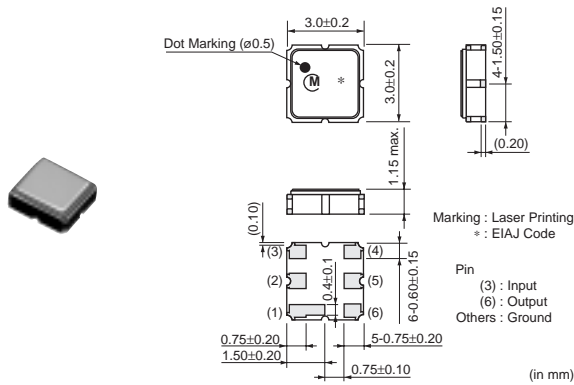
| Part Number              | Nominal Center Frequency (fn) (kHz) | S Curve (1) at fn (mV) | S Curve (2) (mV) | IC      |
|--------------------------|-------------------------------------|------------------------|------------------|---------|
| <b>CDBKB455KCAY54-R0</b> | 455                                 | 165 ±20                | 170 ±20          | TA31149 |

For safety purposes, avoid applying a direct current between the terminals.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in package page in this catalog.

## for IF

### BGS Filters



| Part Number            | Nominal Center Frequency(fn) (MHz) | 3dB Bandwidth (MHz) |
|------------------------|------------------------------------|---------------------|
| <b>MKFCC40M0CD0P00</b> | 40.00                              | fn±1.5 min.         |

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# 8

## Microwave Components

### Isolators

### Chip Multilayer Hybrid Couplers

### Hybrid Dividers

### Chip Multilayer Diplexers

### Chip Multilayer Hybrid Baluns

### Chip Antennas

### High Frequency Monolithic Ceramic Capacitors

### High Frequency Single Layer Microchip Capacitors

### Thin Film Circuit Substrate (RUSUB®)

### Coaxial Connectors

### Coaxial Connectors with Switches

● Part Numbering

**Isolators**

(Part Number) **CE** **S30** **1G95** **DCB000** **RAB**  
 ① ② ③ ④ ⑤

① Product ID

| Product ID |           |
|------------|-----------|
| <b>CE</b>  | Isolators |

② Series

| Code       | Series        |
|------------|---------------|
| <b>G23</b> | 2.0×2.0×1.0mm |
| <b>S20</b> | 3.2×2.5×1.2mm |
| <b>S30</b> | 3.2×3.2×1.6mm |
| <b>S32</b> | 3.2×3.2×1.5mm |
| <b>S40</b> | 4.0×4.0×1.7mm |

③ Nominal Center Frequency

Expressed by four-digits alphanumeric. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

④ Individual Specification Code

Expressed by three letters and one figure.

⑤ Packaging

| Code       | Packaging                            |
|------------|--------------------------------------|
| <b>RA1</b> | 1000 pcs. /Reel (CES20, CEG23)       |
| <b>RAB</b> | 500 pcs. /Reel (CES30, CES32, CES40) |
| <b>RB2</b> | 2000 pcs. /Reel (CES30, CES40)       |
| <b>RB3</b> | 3000 pcs. /Reel (CES32)              |
| <b>RB4</b> | 4000 pcs. /Reel (CES20)              |
| <b>RB5</b> | 5000 pcs. /Reel (CEG23)              |

**Chip Multilayer Hybrid Couplers/Chip Multilayer Hybrid Dividers**

(Part Number) **LD** **C** **21** **897M** **20** **B** **-027**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Function

③ Dimension (L×W)

④ Nominal Center Frequency

Expressed by four-digits alphanumeric. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Coupling

⑥ Design

⑦ Individual Specification Code

**Chip Multilayer Hybrid Baluns**

(Part Number) **LD** **B** **21** **836M** **20** **C** **-001**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Function

③ Dimension (L×W)

④ Nominal Center Frequency

Expressed by four-digits alphanumeric. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Balance Impedance

⑥ Design

⑦ Individual Specification Code

**Chip Multilayer Antenna**

(Part Number) **LD** **A** **31** **2G73** **13** **F** **-237**  
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Function

③ Dimension (L×W)

④ Nominal Center Frequency

Expressed by four-digits alphanumeric. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Dimension (T)

⑥ Design

⑦ Individual Specification Code

## Chip Dielectric Antennas

(Part Number) **AN** **C** **V1** **2G44** **SAA127** **R** **B** **3**

①
②
③
④
⑤
⑥
⑦
⑧

- ① Product ID
- ② Function
- ③ Series
- ④ Nominal Center Frequency

Expressed by four-digits alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

- ⑤ Individual Specification Code
- ⑥ Package Product ID
- ⑦ Package Detail(1)
- ⑧ Package Detail(2)

## High Frequency Single Layer Microchip Capacitors

(Part Number) **CL** **B** **05** **B5** **390** **K** **1** **000** **TC1**

①
②
③
④
⑤
⑥
⑦
⑧
⑨

- ① Product ID
- ② Series
- ③ Size

| Code | Size (L×W)  |
|------|-------------|
| 0A   | 0.25×0.25mm |
| 0B   | 0.30×0.25mm |
| 0C   | 0.35×0.25mm |
| 0D   | 0.38×0.38mm |
| 0E   | 0.55×0.38mm |
| 0H   | 0.71×0.38mm |
| 05   | 0.50×0.50mm |
| 0G   | 0.70×0.50mm |
| 0K   | 0.90×0.50mm |
| 0F   | 0.64×0.64mm |
| 1A   | 1.00×0.64mm |
| 0J   | 0.76×0.76mm |
| 1B   | 1.09×0.76mm |
| 09   | 0.90×0.90mm |
| 1E   | 1.49×0.90mm |
| 1C   | 1.27×1.27mm |
| 1G   | 1.73×1.27mm |
| 2C   | 2.19×1.27mm |
| 1H   | 1.78×1.78mm |
| 2L   | 2.95×1.78mm |
| 2E   | 2.29×2.29mm |
| 3G   | 3.71×2.29mm |

### ④ Temperature Characteristics

| Code | Temperature Range | Capacitance Change |
|------|-------------------|--------------------|
| 5C   | -25 to 85°C       | 0±30ppm/°C         |
| 6U   | -25 to 85°C       | -750±60ppm/°C      |
| 7K   | -25 to 85°C       | -2200±500ppm/°C    |
| B5   | -25 to 85°C       | ±10%               |
| F9   | -25 to 85°C       | +30,-80%           |
| W1   | -25 to 85°C       | +30,-90%           |

\*Reference Temp. : 25°C



**5** Capacitance

Expressed by three-digit alphanumerics. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers.

If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

**6** Capacitance Tolerance

| Code     | Capacitance Tolerance |
|----------|-----------------------|
| <b>B</b> | ±0.1pF                |
| <b>K</b> | ±10%                  |
| <b>M</b> | ±20%                  |
| <b>Z</b> | +80%, -20%            |

**7** Number of Electrodes

**8** Individual Specification Code

**9** Packaging

| Code       | Packaging |
|------------|-----------|
| <b>TC1</b> | Tray      |

**Coaxial Connectors (Chip Type Receptacle)**

(Part Number) **MM** **8130** **-26** **00** **R** **B8**  
①    ②    ③    ④    ⑤    ⑥

**1** Product ID

| Product ID |   |
|------------|---|
| <b>MM</b>  | Microwave Coaxial Connectors (Chip Type Receptacle) |

**2** Series

| Code        | Series   |
|-------------|----------|
| <b>4829</b> | HSC Type |
| <b>8130</b> | SWF Type |
| <b>8430</b> | SWD Type |
| <b>9329</b> | GSC Type |

**3** Individual Specification Code (1)

| Code       | Individual Specification Code (1) |
|------------|-----------------------------------|
| <b>-26</b> | Switch Connector SMD Type         |
| <b>-27</b> | Connector SMD Type                |

**4** Individual Specification Code (2)

| Code      | Individual Specification Code (2) |
|-----------|-----------------------------------|
| <b>00</b> | Serial                            |

**5** Package Product ID

| Code     | Package Product ID |
|----------|--------------------|
| <b>B</b> | Bulk               |
| <b>R</b> | Reel               |



**6** Package Detail

| Code      | Package Detail                        |
|-----------|---------------------------------------|
| <b>A1</b> | SWD, GSC Type 1000pcs. /Reel (ø178mm) |
| <b>A4</b> | HSC Type, 4000pcs. /Reel (ø178mm)     |
| <b>B0</b> | HSC Type, 10000pcs. /Reel (ø330mm)    |
| <b>B3</b> | SWD Type, 3000pcs. /Reel (ø330mm)     |
| <b>B5</b> | GSC Type, 5000pcs. /Reel (ø330mm)     |
| <b>B8</b> | SWF Type, 8000pcs. /Reel (ø330mm)     |

**Coaxial Connectors (with Cable)**

(Part Number) **MX** **HP** **32**     
①    ②    ③    ④    ⑤    ⑥

**1** Product ID

| Product ID |                                 |
|------------|---------------------------------|
| <b>MX</b>  | Coaxial Connectors (with Cable) |

**2** Connector (1)

| Code      | Connector (1) |
|-----------|---------------|
| <b>HP</b> | HSC Type      |
| <b>TK</b> | GSC Type      |

**3** Cable

| Code      | Cable                                 |
|-----------|---------------------------------------|
| <b>32</b> | 0.4D, PFA, Single Shield Line, Spiral |
| <b>92</b> | 0.4D, PFA, Single Shield Line, Spiral |

**4** Connector (2)

| Code      | Connector (2)  |
|-----------|----------------|
| <b>HP</b> | HSC Type       |
| <b>TK</b> | GSC Type       |
| <b>XX</b> | None Connector |

**5** Length

Expressed by four figures. The unit is mm. From first to third figures are significant, and the fourth figure expresses the number of zeros which follow the three figures.

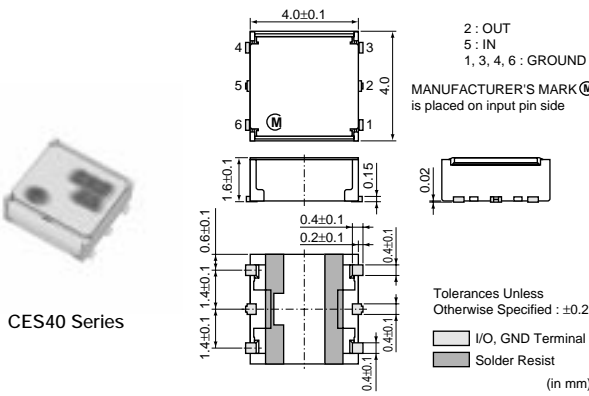
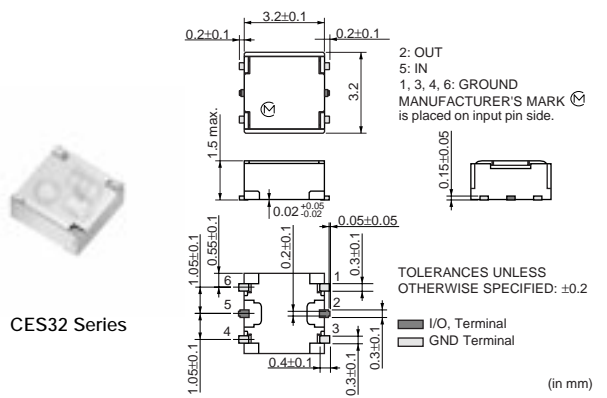
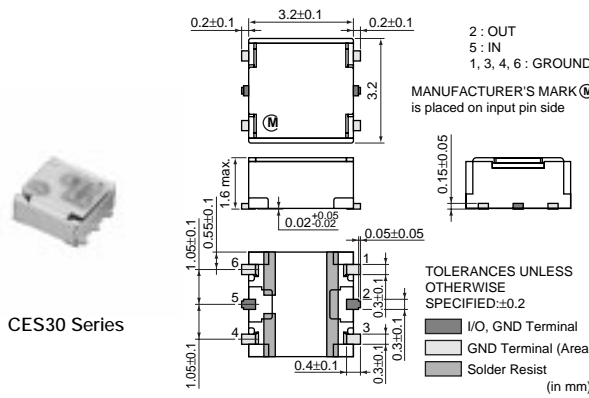
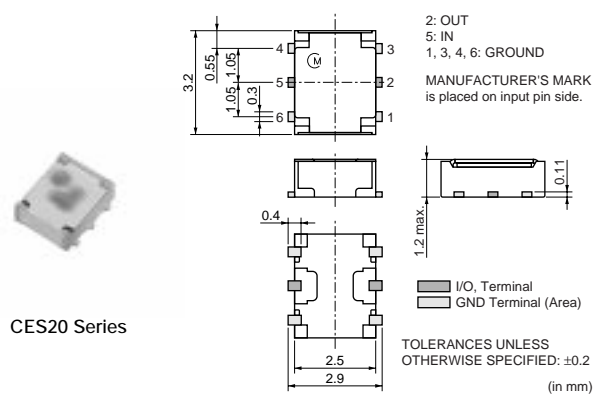
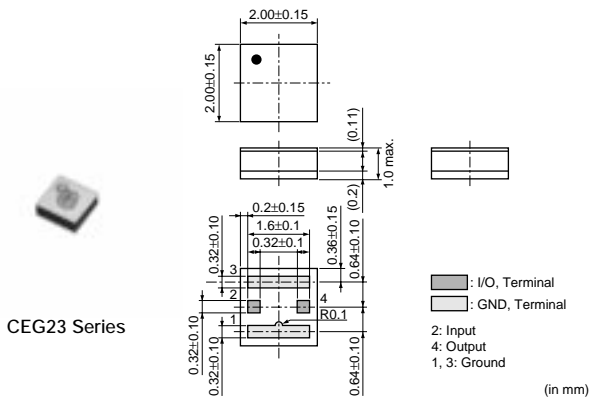
Ex.)

| Code        | Length                         |
|-------------|--------------------------------|
| <b>5000</b> | 500mm = 500 x 10 <sup>0</sup>  |
| <b>1001</b> | 1000mm = 100 x 10 <sup>1</sup> |

**6** Individual Specification Code

Expressed by two sign.

# Isolators



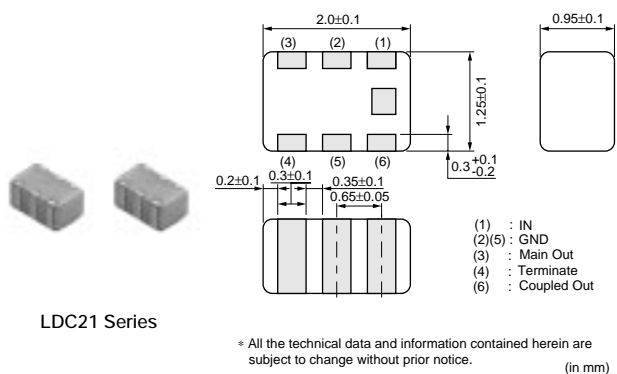
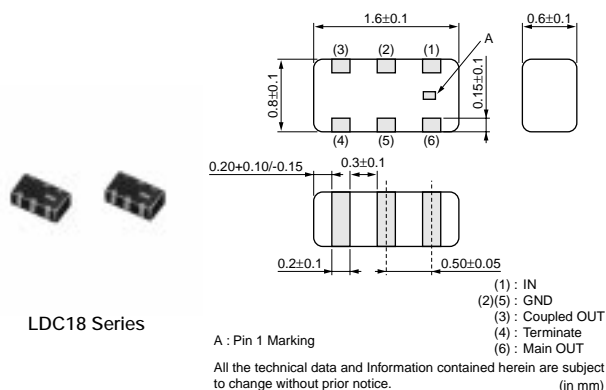
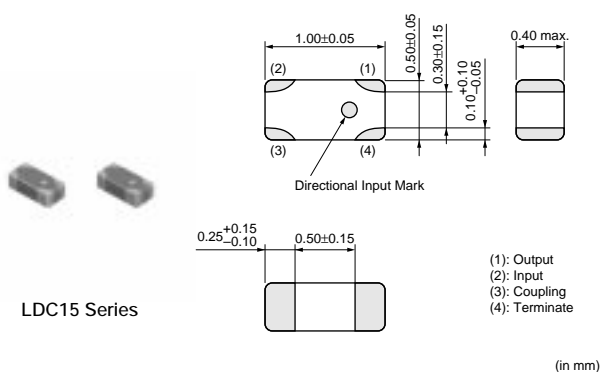
8 Microwave Components

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| Part Number     | Fo (MHz) | IL at BW (max.) (dB) | Isolation (min.) (dB) | Rating Power (max.) (W) |
|-----------------|----------|----------------------|-----------------------|-------------------------|
| CEG23836MDCB000 | 836.5    | 0.65                 | 10                    | 1.2                     |
| CEG23874MFCB000 | 874.5    | 0.75                 | 3.5                   | 1.2                     |
| CEG23897MDCB000 | 897.5    | 0.68                 | 9                     | 1.2                     |
| CEG23911MDCB000 | 911.5    | 0.65                 | 10                    | 1.2                     |
| CEG231G73DCB100 | 1732.5   | 0.65                 | 10                    | 1.2                     |
| CEG231G76CCB100 | 1767.4   | 0.65                 | 10                    | 1.2                     |
| CEG231G88DCB100 | 1880     | 0.65                 | 10                    | 1.2                     |
| CEG231G95DCB100 | 1950     | 0.65                 | 10                    | 1.2                     |
| CES201G90CCB000 | 1900     | 0.6                  | 13.5                  | 2.5                     |
| CES202G01BCB000 | 2017.5   | 0.62                 | 13.5                  | 2.5                     |
| CES202G59ECB000 | 2592.5   | 0.9                  | 6                     | 2.5                     |
| CES301G74DCB000 | 1747.5   | 0.74                 | 10.5                  | 2.5                     |
| CES301G76CCB000 | 1765     | 0.7                  | 12                    | 2.5                     |
| CES301G84DCB000 | 1842.5   | 0.68                 | 11                    | 2.5                     |
| CES301G88DCB000 | 1880     | 0.64                 | 13                    | 2.5                     |
| CES301G90CCB000 | 1900     | 0.62                 | 14.5                  | 2.5                     |
| CES301G95DCB000 | 1950     | 0.6                  | 13                    | 2.5                     |
| CES301G96DCB000 | 1960     | 0.6                  | 13                    | 2.5                     |
| CES302G14DCB000 | 2140     | 0.62                 | 13                    | 2.5                     |
| CES321G95ECB000 | 1952.5   | 0.80                 | 9.0                   | 2.5                     |
| CES40836MDCB000 | 836.5    | 0.75                 | 10.5                  | 2.5                     |
| CES40881MDCB000 | 881.5    | 0.73                 | 10                    | 2.5                     |
| CES40897MDCB000 | 897.5    | 0.75                 | 10                    | 2.5                     |
| CES40906MDCB000 | 906      | 0.78                 | 10                    | 2.5                     |
| CES40942MDCB000 | 942.5    | 0.85                 | 10                    | 2.5                     |

# Chip Multilayer Hybrid Couplers

## Directional Coupler



| Part Number      | Frequency Range (MHz) | Coupling (dB) | Insertion Loss (dB) | Isolation (min.) (dB) | VSWR (max.) | Characteristic Impedance (Nom.) (ohm) | Power Capacity (W)  | Application   |
|------------------|-----------------------|---------------|---------------------|-----------------------|-------------|---------------------------------------|---------------------|---------------|
| LDC15450M25Q-360 | 450 ±50MHz            | 25.1 ±1.8dB   | 0.15 max. (at 25°C) | 38.0                  | 1.5         | 50                                    | 3 max. (50ohm Load) | CDMA450       |
| LDC15707M21Q-360 | 707 ±9MHz             | 21.1 ±1.0dB   | 0.23 max. (at 25°C) | 35.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band12)  |
| LDC15836M30Q-392 | 836.5 ±12.5MHz        | 30.6 ±1.0dB   | 0.20 max. (at 25°C) | 38.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band5)   |
| LDC15874M27Q-359 | 874 ±51MHz            | 27.2 ±1.0dB   | 0.20 max. (at 25°C) | 42.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band5/8) |
| LDC15897M26Q-359 | 897.5 ±17.5MHz        | 26.9 ±1.0dB   | 0.20 max. (at 25°C) | 42.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band8)   |
| LDC151G4418Q-352 | 1441 ±12MHz           | 18.9 ±1.0dB   | 0.23 max. (at 25°C) | 32.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | WCDMA         |
| LDC151G7313Q-360 | 1732.5 ±22.5MHz       | 13.6 ±1.0dB   | 0.42 max. (at 25°C) | 24.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band4)   |
| LDC151G7424Q-392 | 1747 ±37.5MHz         | 24.1 ±1.0dB   | 0.20 max. (at 25°C) | 30.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band4)   |
| LDC151G7421Q-359 | 1747.5 ±37.5MHz       | 21.2 ±1.0dB   | 0.22 max. (at 25°C) | 35.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band3)   |
| LDC151G8117Q-352 | 1810 ±100MHz          | 17.0 ±1.2dB   | 0.25 max. (at 25°C) | 32.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | GSM           |
| LDC151G8620Q-359 | 1865 ±115MHz          | 20.5 ±1.0dB   | 0.22 max. (at 25°C) | 34.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band2)   |
| LDC151G8824Q-393 | 1880 ±30MHz           | 24.7 ±1.0dB   | 0.20 max. (at 25°C) | 32.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band2)   |
| LDC151G9120Q-359 | 1915 ±65MHz           | 20.4 ±1.0dB   | 0.22 max. (at 25°C) | 34.0                  | 1.4         | 50                                    | 3 max. (50ohm Load) | UMTS(Band1)   |

Continued on the following page.

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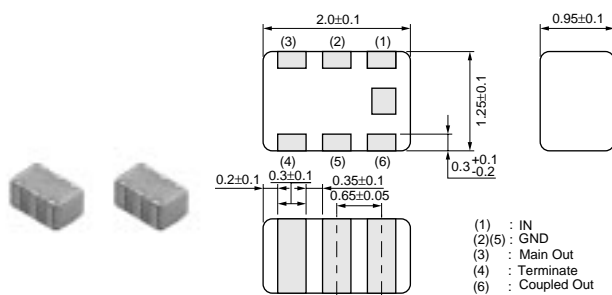
Continued from the preceding page.

| Part Number      | Frequency Range (MHz) | Coupling (dB)  | Insertion Loss (dB)    | Isolation (min.) (dB) | VSWR (max.) | Characteristic Impedance (Nom.) (ohm) | Power Capacity (W)     | Application |
|------------------|-----------------------|----------------|------------------------|-----------------------|-------------|---------------------------------------|------------------------|-------------|
| LDC151G9523Q-392 | 1950<br>±30MHz        | 23.2<br>±1.0dB | 0.20 max.<br>(at 25°C) | 30.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band1) |
| LDC152G1419Q-359 | 2140<br>±30MHz        | 19.4<br>±1.0dB | 0.26 max.<br>(at 25°C) | 33.0                  | 1.5         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band1) |
| LDC152G3518Q-359 | 2350<br>±50MHz        | 18.7<br>±1.0dB | 0.28 max.<br>(at 25°C) | 31.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | WLAN        |
| LDC152G4518Q-359 | 2450<br>±50MHz        | 18.4<br>±1.0dB | 0.29 max.<br>(at 25°C) | 31.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | WLAN        |
| LDC152G5318Q-359 | 2535<br>±35MHz        | 18.1<br>±1.0dB | 0.30 max.<br>(at 25°C) | 31.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band7) |
| LDC18836M32Q-370 | 836.5<br>±12.5MHz     | 32.2<br>±1.2dB | 0.17 max.<br>(at 25°C) | 44.0                  | 1.5         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band5) |
| LDC18897M20Q-361 | 897.5<br>±17.5MHz     | 20.5<br>±1.0dB | 0.22 max.<br>(at 25°C) | 33.0                  | 1.5         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band8) |
| LDC181G7426Q-370 | 1747.5<br>±37.5MHz    | 26.0<br>±1.2dB | 0.17 max.<br>(at 25°C) | 49.0                  | 1.5         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band4) |
| LDC181G8825Q-370 | 1880.0<br>±30.0MHz    | 25.3<br>±1.2dB | 0.22 max.<br>(at 25°C) | 25.5                  | 1.5         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band2) |
| LDC181G9525Q-370 | 1950.0<br>±30.0MHz    | 25.0<br>±1.2dB | 0.22 max.<br>(at 25°C) | 44.0                  | 1.5         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band1) |
| LDC21836M20B-027 | 836.5<br>±12.5MHz     | 20.6<br>±1.0dB | 0.15 max.<br>(at 25°C) | 28.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | CDMA        |
| LDC211G8820B-042 | 1880.0<br>±30.0MHz    | 20.0<br>±1.0dB | 0.23 max.<br>(at 25°C) | 26.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | CDMA        |
| LDC211G9517B-031 | 1950.0<br>±30.0MHz    | 17.3<br>±1.0dB | 0.27 max.<br>(at 25°C) | 21.0                  | 1.4         | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band1) |

Operating Temperature Range: -40°C to +85°C

## Chip Multilayer Hybrid Couplers

Couplers with Integrated LPF



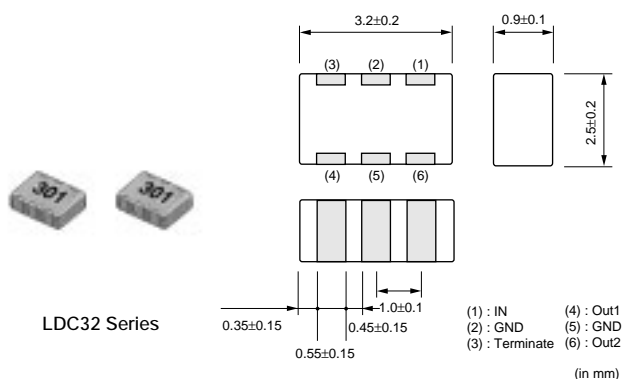
LDC21 Series

\* All the technical data and information contained herein are subject to change without prior notice. (in mm)

| Part Number      | Frequency Range (MHz) | Coupling (dB)  | Insertion Loss (dB)    | Attenuation (Absolute Value) (dB)           | Isolation (min.) (dB) | Characteristic Impedance (Nom.) (ohm) | Power Capacity (W)     | Application |
|------------------|-----------------------|----------------|------------------------|---|-----------------------|---------------------------------------|------------------------|-------------|
| LDC211G9518H-073 | 1950.0<br>±30.0MHz    | 18.0<br>±1.0dB | 0.45 max.<br>(at 25°C) | 24.0 min.<br>at 2x(f <sub>o</sub> ±30.0)MHz | 30.0                  | 50                                    | 3 max.<br>(50ohm Load) | UMTS(Band1) |

# Chip Multilayer Hybrid Couplers

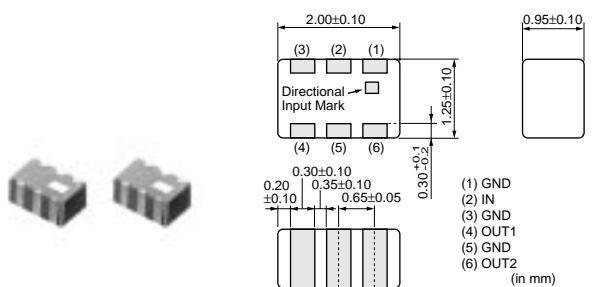
## 3dB Hybrid



| Part Number             | Insertion Loss (dB) | Amplitude Balance (max.) (dB) | Phase Deviation (°) | Isolation (min.) (dB) | VSWR (max.) | Power Capacity (W)  |
|-------------------------|---------------------|-------------------------------|---------------------|-----------------------|-------------|---------------------|
| <b>LDC32900M03B-703</b> | 3.3 ±0.48dB         | 1.0                           | 90 ±3.0°            | 20.5                  | 1.43        | 3 max. (50ohm Load) |

Characteristic Impedance: 50ohm    Operating Temperature Range: -25°C to +85°C

# Hybrid Dividers



LDD21 Series

100ohm external resistor is required between Out 1 and Out 2.

All the technical data and information contained herein are subject to change without prior notice.

| Part Number             | Frequency Range (MHz) | Insertion Loss (OUT1,OUT2) (dB) | Isolation (min.) (dB) | VSWR (max.) | Application |
|-------------------------|-----------------------|---------------------------------|-----------------------|-------------|-------------|
| <b>LDD182G4503A-196</b> | 2450.0 ±50.0MHz       | 3.4 ±0.6dB                      | 15.0                  | 1.5         | WLAN/BT     |
| <b>LDD211G7503A-067</b> | 1750.0 ±30.0MHz       | 3.4 ±0.4dB                      | 20.0                  | 1.5         | CDMA        |
| <b>LDD212G1403A-075</b> | 2140.0 ±30.0MHz       | 3.4 ±0.4dB                      | 22.0                  | 1.5         | UMTS(Band1) |
| <b>LDD21967M03A-068</b> | 967.0 ±13.0MHz        | 3.4 ±0.4dB                      | 20.0                  | 1.4         | CDMA        |

Characteristics Impedance (Nominal): 50ohm    Operating Temperature Range: -40°C to +85°C

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# Chip Multilayer Diplexers

**LFD18\_DP**  
3, 4, 5, 6 Series

(1) : GND  
(2) : P1 (\*1)  
(3) : P3 (\*2)  
(4) : P2 (\*3)

DP3.5 Type  
(\*1) Higher Frequency Port  
(\*2) Common Port  
(\*3) Lower Frequency Port

DP4.6 Type  
(\*1) Lower Frequency Port  
(\*2) Common Port  
(\*3) Higher Frequency Port

All the technical data and information contained herein are subject to change without prior notice. (in mm)

**LFD21\_DP**  
1, 2, 3, 4 Series

(\*)1 Lower Frequency Port  
(\*)2 Higher Frequency Port  
(\*)3 Common Port  
Terminal of "NC" should be fixed to the no connected pattern.

All the technical data and information contained herein are subject to change without prior notice. (in mm)

| Part Number      | Frequency Range (f1) (MHz) | Frequency Range (f2) (MHz) | Insertion Loss (I) (P1-P3 in f1) (dB) | Insertion Loss (II) (P2-P3 in f1) (dB) | Attenuation [P1-P3](in f2) (dB) | Attenuation [P2-P3](in f1) (dB) |
|------------------|----------------------------|----------------------------|---------------------------------------|--|---------------------------------|---------------------------------|
| LFD181G57DP5B910 | 2450 ±50.0MHz              | 1575.5 ±1.5MHz             | 0.8 max. (at 25°C)                    | 0.65 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD181G57DP6B913 | 1575.5 ±1.5MHz             | 2450 ±50.0MHz              | 0.65 max. (at 25°C)                   | 0.80 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD181G57DPFC087 | 2450 ±50.0MHz              | 1575 ±3.0MHz               | 0.5 max. (at 25°C)                    | 0.35 max. (at 25°C)                    | 22 min.                         | 13 min.                         |
| LFD181G57DPGC092 | 1575 ±3.0MHz               | 2450 ±50.0MHz              | 0.35 max. (at 25°C)                   | 0.5 max. (at 25°C)                     | 13 min.                         | 22 min.                         |
| LFD182G45DP3A299 | 5375 ±475.0MHz             | 2450 ±50.0MHz              | 0.60 max. (at 25°C)                   | 0.40 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD182G45DP3B888 | 5375 ±475.0MHz             | 2450 ±50.0MHz              | 0.60 max. (at 25°C)                   | 0.40 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD182G45DP4B720 | 5375 ±475.0MHz             | 2450 ±50.0MHz              | 0.40 max. (at 25°C)                   | 0.60 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD182G45DP4B889 | 5375 ±475.0MHz             | 2450 ±50.0MHz              | 0.40 max. (at 25°C)                   | 0.60 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD212G45DP3A140 | 5250 ±100.0MHz             | 2450 ±50.0MHz              | 0.65 max. (at 25°C)                   | 0.50 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD212G45DP3A151 | 5487.5 ±337.5MHz           | 2450 ±50.0MHz              | 0.75 max. (at 25°C)                   | 0.50 max. (at 25°C)                    | 20 min.                         | 16 min.                         |
| LFD212G45DP3A188 | 5375 ±475.0MHz             | 2450 ±50.0MHz              | 0.75 max. (at 25°C)                   | 0.50 max. (at 25°C)                    | 21 min.                         | 17 min.                         |
| LFD212G45DP4A189 | 2450 ±50.0MHz              | 5375 ±475.0MHz             | 0.5 max. (at 25°C)                    | 0.75 max. (at 25°C)                    | 17 min.                         | 21 min.                         |
| LFD21859MDP1A049 | 1920 ±70.0MHz              | 859 ±35.0MHz               | 0.45 max. (at 25°C)                   | 0.40 max. (at 25°C)                    | 19 min.                         | 20 min.                         |
| LFD21859MDP2A076 | 859 ±35.0MHz               | 1920 ±70.0MHz              | 0.40 max. (at 25°C)                   | 0.45 max. (at 25°C)                    | 20 min.                         | 19 min.                         |
| LFD21874MDP1A084 | 1575.5 ±3.0MHz             | 874 ±51.0MHz               | 0.60 max. (at 25°C)                   | 0.55 max. (at 25°C)                    | 25 min.                         | 23 min.                         |
| LFD21874MDP2A181 | 874 ±51.0MHz               | 1575.5 ±3.0MHz             | 0.55 max. (at 25°C)                   | 0.60 max. (at 25°C)                    | 23 min.                         | 25 min.                         |
| LFD21884MDP1A062 | 1906.5 ±13.0MHz            | 884 ±74.0MHz               | 0.45 max. (at 25°C)                   | 0.50 max. (at 25°C)                    | 20 min.                         | 20 min.                         |
| LFD21892MDP1A141 | 1850 ±140.0MHz             | 892 ±68.0MHz               | 0.60 max. (at 25°C)                   | 0.40 max. (at 25°C)                    | 19 min.                         | 17 min.                         |
| LFD21892MDP2B860 | 892 ±68.0MHz               | 1850 ±140.0MHz             | 0.40 max. (at 25°C)                   | 0.60 max. (at 25°C)                    | 17 min.                         | 19 min.                         |
| LFD21892MDPFC065 | 1940 ±230.0MHz             | 892 ±68.0MHz               | 0.45 max. (at 25°C)                   | 0.27 max. (at 25°C)                    | 19 min.                         | 13 min.                         |
| LFD21892MDPGC103 | 892 ±68.0MHz               | 1940 ±230.0MHz             | 0.27 max. (at 25°C)                   | 0.45 max. (at 25°C)                    | 13 min.                         | 19 min.                         |
| LFD21920MDP1A048 | 1795 ±85.0MHz              | 920 ±40.0MHz               | 0.55 max. (at 25°C)                   | 0.50 max. (at 25°C)                    | 20 min.                         | 16 min.                         |

8 Microwave Components

# Chip Multilayer Hybrid Baluns

**LDB18 Series**

G Type  
(1) : Unbalance port  
(2)(5) : GND  
(3)(4) : Balance port  
(6) : NC

C Type  
(1) : Unbalance port  
(2)(5) : NC  
(3) : GND  
(4)(6) : Balance port

\*Terminal of "NC" should be fixed to the no connected pattern.  
All the technical data and information contained herein are subject to change without prior notice. (in mm)

**LDB21 Series**

(1) : Unbalance Port  
(2)(5) : GND  
(3)(4) : Balance Port  
(6) : NC

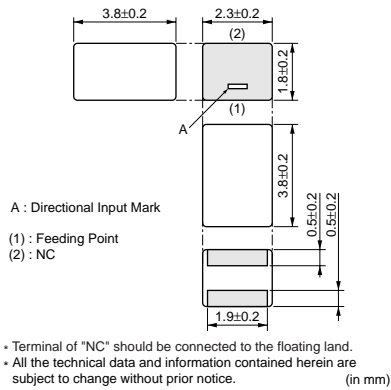
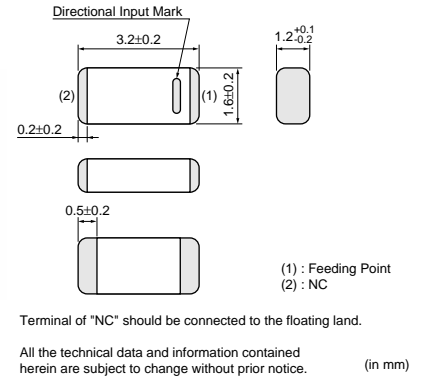
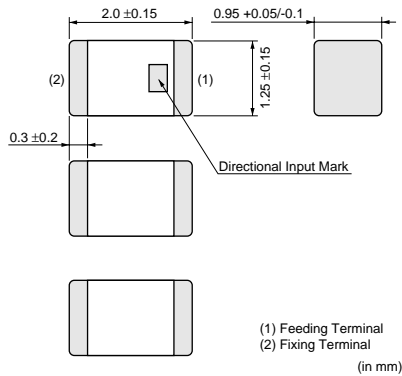
\* Terminal of "NC" should be connected to the floating land.  
\* All the technical data and information contained herein are subject to change without prior notice. in mm

| Part Number      | Frequency Range (MHz) | Insertion Loss I) (dB) | Insertion Loss II) (dB) | Unbalance Impedance (Nom.) (ohm) | Balance Impedance (Nom.) (ohm) | Application |
|------------------|-----------------------|------------------------|-------------------------|----------------------------------|--------------------------------|-------------|
| LDB181G8115G-120 | 1810 ±100MHz          | 1.1 max. (at 25°C)     | 1.2 max. (-40~+85°C)    | 50                               | 150                            | GSM         |
| LDB181G8120G-120 | 1810 ±100MHz          | 1.2 max. (at 25°C)     | 1.3 max. (-40~+85°C)    | 50                               | 200                            | GSM         |
| LDB181G9505C-110 | 1955.0 ±35.0MHz       | 1.2 max. (at 25°C)     | 1.3 max. (-40~+85°C)    | 50                               | 50                             | GSM         |
| LDB181G9510C-110 | 1955.0 ±35.0MHz       | 1.2 max. (at 25°C)     | 1.3 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB182G4505C-110 | 2450.0 ±50.0MHz       | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 50                             | WLAN/BT     |
| LDB182G4510C-110 | 2450.0 ±50.0MHz       | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 100                            | WLAN/BT     |
| LDB182G4510G-120 | 2450.0 ±50.0MHz       | 1.1 max. (at 25°C)     | 1.2 max. (-40~+85°C)    | 50                               | 100                            | WLAN/BT     |
| LDB182G4520C-110 | 2450.0 ±50.0MHz       | 1.3 max. (at 25°C)     | 1.4 max. (-40~+85°C)    | 50                               | 200                            | WLAN/BT     |
| LDB182G5005G-120 | 2500 ±200MHz          | 1.15 max. (at 25°C)    | 1.25 max. (-40~+85°C)   | 50                               | 50                             | WIMAX       |
| LDB182G5010G-120 | 2500 ±200MHz          | 1.1 max. (at 25°C)     | 1.2 max. (-40~+85°C)    | 50                               | 100                            | WIMAX       |
| LDB183G4505G-120 | 3450 ±150MHz          | 1.25 max. (at 25°C)    | 1.35 max. (-40~+85°C)   | 50                               | 50                             | WIMAX       |
| LDB183G4510G-120 | 3450 ±150MHz          | 1.25 max. (at 25°C)    | 1.35 max. (-40~+85°C)   | 50                               | 100                            | WIMAX       |
| LDB183G6005G-120 | 3600 ±300MHz          | 1.3 max. (at 25°C)     | 1.4 max. (-40~+85°C)    | 50                               | 50                             | WIMAX       |
| LDB183G6010G-120 | 3600 ±300MHz          | 1.4 max. (at 25°C)     | 1.5 max. (-40~+85°C)    | 50                               | 100                            | WIMAX       |
| LDB183G7010C-110 | 3700.0 ±300.0MHz      | 1.4 max. (at 25°C)     | 1.5 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB184G5010C-110 | 4500.0 ±300.0MHz      | 1.1 max. (at 25°C)     | 1.2 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB185G3705G-120 | 5375 ±475MHz          | 1.50 max. (at 25°C)    | 1.65 max. (-40~+85°C)   | 50                               | 50                             | WLAN/BT     |
| LDB185G3710G-120 | 5375 ±475MHz          | 1.20 max. (at 25°C)    | 1.35 max. (-40~+85°C)   | 50                               | 100                            | WLAN/BT     |
| LDB18869M10G-120 | 869.5 ±45.5MHz        | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB18869M15G-120 | 869.5 ±45.5MHz        | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 150                            | GSM         |
| LDB211G8105C-001 | 1815 ±105MHz          | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 50                             | GSM         |
| LDB211G8110C-001 | 1810 ±100MHz          | 0.8 max. (at 25°C)     | 0.9 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB211G8115C-001 | 1810 ±100MHz          | 0.8 max. (at 25°C)     | 0.9 max. (-40~+85°C)    | 50                               | 150                            | GSM         |
| LDB211G8120C-002 | 1810 ±100MHz          | 0.8 max. (at 25°C)     | 0.9 max. (-40~+85°C)    | 50                               | 200                            | GSM         |
| LDB212G4005C-001 | 2400 ±100MHz          | 0.8 max. (at 25°C)     | 0.9 max. (-40~+85°C)    | 50                               | 50                             | WLAN/BT     |
| LDB212G4010C-001 | 2400 ±100MHz          | 0.9 max. (at 25°C)     | 1.0 max. (-40~+85°C)    | 50                               | 100                            | WLAN/BT     |
| LDB212G4020C-001 | 2400 ±100MHz          | 0.95 max. (at 25°C)    | 1.05 max. (-40~+85°C)   | 50                               | 200                            | WLAN/BT     |
| LDB213G7010C-002 | 3700 ±300MHz          | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB213G7020C-001 | 3700 ±300MHz          | 2.2 max. (at 25°C)     | 2.3 max. (-40~+85°C)    | 50                               | 200                            | GSM         |
| LDB215G1210C-001 | 5125 ±225MHz          | 1.10 max. (at 25°C)    | 1.25 max. (-40~+85°C)   | 50                               | 100                            | WLAN/BT     |
| LDB215G2505C-001 | 5250 ±100MHz          | 1.10 max. (at 25°C)    | 1.25 max. (-40~+85°C)   | 50                               | 50                             | WLAN/BT     |
| LDB215G2510C-001 | 5250 ±100MHz          | 0.95 max. (at 25°C)    | 1.10 max. (-40~+85°C)   | 50                               | 100                            | WLAN/BT     |
| LDB215G2520C-001 | 5250 ±100MHz          | 1.10 max. (at 25°C)    | 1.25 max. (-40~+85°C)   | 50                               | 200                            | WLAN/BT     |
| LDB215G3710C-001 | 5375 ±475MHz          | 0.95 max. (at 25°C)    | 1.10 max. (-40~+85°C)   | 50                               | 100                            | WLAN/BT     |
| LDB215G5105C-001 | 5512 ±363MHz          | 1.10 max. (at 25°C)    | 1.25 max. (-40~+85°C)   | 50                               | 50                             | WLAN/BT     |
| LDB215G5110C-001 | 5512 ±363MHz          | 0.95 max. (at 25°C)    | 1.10 max. (-40~+85°C)   | 50                               | 100                            | WLAN/BT     |
| LDB215G5120C-001 | 5512 ±363MHz          | 1.10 max. (at 25°C)    | 1.25 max. (-40~+85°C)   | 50                               | 200                            | WLAN/BT     |
| LDB21869M10C-001 | 869.5 ±45.5MHz        | 1.0 max. (at 25°C)     | 1.1 max. (-40~+85°C)    | 50                               | 100                            | GSM         |
| LDB21869M15C-001 | 869.5 ±45.5MHz        | 1.2 max. (at 25°C)     | 1.3 max. (-40~+85°C)    | 50                               | 150                            | GSM         |
| LDB21869M20C-001 | 869.5 ±45.5MHz        | 1.2 max. (at 25°C)     | 1.3 max. (-40~+85°C)    | 50                               | 200                            | GSM         |
| LDB21881M05C-001 | 881.5 ±12.5MHz        | 1.4 max. (at 25°C)     | 1.5 max. (-40~+85°C)    | 50                               | 50                             | GSM         |
| LDB21881M20C-001 | 881.5 ±12.5MHz        | 1.4 max. (at 25°C)     | 1.5 max. (-40~+85°C)    | 50                               | 200                            | GSM         |
| LDB21942M05C-001 | 942.5 ±17.5MHz        | 1.4 max. (at 25°C)     | 1.5 max. (-40~+85°C)    | 50                               | 50                             | GSM         |
| LDB21942M20C-001 | 942.5 ±17.5MHz        | 1.3 max. (at 25°C)     | 1.4 max. (-40~+85°C)    | 50                               | 200                            | GSM         |
| LDM182G4505CC001 | 2450 ±50MHz           | 0.88 max. (at 25°C)    | 0.98 max. (-40~+85°C)   | 50                               | 50                             | WLAN/BT     |
| LDM182G4510CC001 | 2450 ±50MHz           | 0.75 max. (at 25°C)    | 0.85 max. (-40~+85°C)   | 50                               | 100                            | WLAN/BT     |
| LDM182G5005CC001 | 2500 ±200MHz          | 0.9 max. (at 25°C)     | 1.0 max. (-40~+85°C)    | 50                               | 50                             | WLAN/BT     |

## Chip Antennas

### Chip Antennas

#### ● LDA Series


**LDA2H2G6540G-254**

**LDA312G7313F-237**

**LDA212G3110K-282**


| Part Number      | Fo (MHz) | Bandwidth | VSWR (max.) |
|------------------|----------|-----------|-------------|
| LDA212G3110K-282 | 2330     | -         | -           |
| LDA212G4410K-283 | 2460     | -         | -           |
| LDA212G6310K-284 | 2630     | -         | -           |
| LDA212G8610K-285 | 2860     | -         | -           |
| LDA213G1610K-286 | 3160     | -         | -           |
| LDA2H2G6540G-254 | 2650     | -         | -           |
| LDA312G4413H-280 | 2442     | -         | -           |
| LDA312G7313F-237 | 2730     | -         | -           |
| LDA313G0313F-240 | 3030     | -         | -           |
| LDA313G3313F-243 | 3330     | -         | -           |
| LDA315G2013F-246 | 5200     | -         | -           |
| LDA316G2013F-250 | 6200     | -         | -           |

## ● ANC Series

**ANCG11G57SAA136**

(1) Feeding Electrode  
(2) Fixing Electrode  
(in mm)

**ANCG11G57SAA137**

(1) Feeding terminal  
(2) Ground terminal  
(3) Connect to GND through fine tuning component

(4) Impedance matching element (C)  
(5) Fine tuning element (C or L)

(in mm)

**ANCG11G57SAA160**

(1) Feeding Electrode  
(2) GND Electrode  
(3) Floating Pad

(Depends on the circumstances, it is connected to GND through fine tuning component.)

(in mm)

**ANCG12G44SAA145**  
**ANCG12G44SAA148**

(1) Feeding electrode  
(2) Fixing electrode  
(3) Floating pad  
(Depends on the circumstances, it is connected to GND through fine tuning component.)

(in mm)

**ANCV11G57SAA128**

(1) Feeding Electrode  
(2) Fixing Electrode

(in mm)

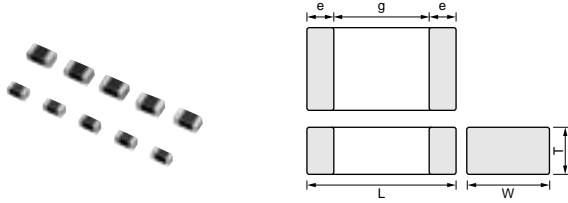
| Part Number     | Fo (MHz) | Bandwidth (MHz) | VSWR (max.) |
|-----------------|----------|-----------------|-------------|
| ANCG11G57SAA136 | 1575     | 2               | 3.0         |
| ANCG11G57SAA137 | 1575     | 2               | 3.0         |
| ANCG11G57SAA146 | 1575     | 2               | 3.5         |
| ANCG11G57SAA160 | 1575     | 2               | 3.5         |
| ANCG12G44SAA145 | 2442     | 84              | 4.0         |
| ANCG12G44SAA148 | 2442     | 84              | 4.0         |
| ANCV11G57SAA128 | 1575     | 2               | 3.0         |
| ANCV11G57SAA144 | 1575     | 2               | 3.5         |

ANCG series are available on ground plane. Please contact us for detail specifications.

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 • This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

# High Frequency Monolithic Ceramic Capacitors

High Frequency High-Q/Low ESR Type GQM Series



| Part Number             | Dimensions (mm) |            |            |            |        |
|-------------------------|-----------------|------------|------------|------------|--------|
|                         | L               | W          | T          | e          | g min. |
| <b>GQM187</b>           | 1.6 ±0.15       | 0.8 ±0.15  | 0.7 ±0.1   | 0.2 to 0.5 | 0.5    |
| <b>GQM188</b>           | 1.6 ±0.1        | 0.8 ±0.1   | 0.8 ±0.1   | 0.2 to 0.5 | 0.5    |
| <b>GQM219 (50,100V)</b> | 2.0 ±0.1        | 1.25 ±0.1  | 0.85 ±0.1  | 0.2 to 0.7 | 0.7    |
| <b>GQM219 (250V)</b>    | 2.0 ±0.15       | 1.25 ±0.15 | 0.85 ±0.15 | 0.2 to 0.7 | 0.7    |

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 1.6x0.8(18)<0603>  |                    |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 250(2E)            | 100(2A)            |
| Capacitance       | Tolerance  | Part Number        |                    |
| 0.10pF(R10)       | ±0.1pF(B)  | GQM1875C2ER10BB12D |                    |
| 0.20pF(R20)       | ±0.1pF(B)  | GQM1875C2ER20BB12D |                    |
| 0.30pF(R30)       | ±0.1pF(B)  | GQM1875C2ER30BB12D |                    |
|                   | ±0.25pF(C) | GQM1875C2ER30CB12D |                    |
| 0.40pF(R40)       | ±0.1pF(B)  | GQM1875C2ER40BB12D |                    |
|                   | ±0.25pF(C) | GQM1875C2ER40CB12D |                    |
| 0.50pF(R50)       | ±0.1pF(B)  | GQM1875C2ER50BB12D | GQM1885C2AR50BB01D |
|                   | ±0.25pF(C) | GQM1875C2ER50CB12D | GQM1885C2AR50CB01D |
| 0.75pF(R75)       | ±0.1pF(B)  | GQM1875C2ER75BB12D | GQM1885C2AR75BB01D |
|                   | ±0.25pF(C) | GQM1875C2ER75CB12D | GQM1885C2AR75CB01D |
| 1.0pF(1R0)        | ±0.1pF(B)  | GQM1875C2E1R0BB12D | GQM1885C2A1R0BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R0CB12D | GQM1885C2A1R0CB01D |
| 1.1pF(1R1)        | ±0.1pF(B)  | GQM1875C2E1R1BB12D | GQM1885C2A1R1BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R1CB12D | GQM1885C2A1R1CB01D |
| 1.2pF(1R2)        | ±0.1pF(B)  | GQM1875C2E1R2BB12D | GQM1885C2A1R2BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R2CB12D | GQM1885C2A1R2CB01D |
| 1.3pF(1R3)        | ±0.1pF(B)  | GQM1875C2E1R3BB12D | GQM1885C2A1R3BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R3CB12D | GQM1885C2A1R3CB01D |
| 1.5pF(1R5)        | ±0.1pF(B)  | GQM1875C2E1R5BB12D | GQM1885C2A1R5BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R5CB12D | GQM1885C2A1R5CB01D |
| 1.6pF(1R6)        | ±0.1pF(B)  | GQM1875C2E1R6BB12D | GQM1885C2A1R6BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R6CB12D | GQM1885C2A1R6CB01D |
| 1.8pF(1R8)        | ±0.1pF(B)  | GQM1875C2E1R8BB12D | GQM1885C2A1R8BB01D |
|                   | ±0.25pF(C) | GQM1875C2E1R8CB12D | GQM1885C2A1R8CB01D |
| 2.0pF(2R0)        | ±0.1pF(B)  | GQM1875C2E2R0BB12D | GQM1885C2A2R0BB01D |
|                   | ±0.25pF(C) | GQM1875C2E2R0CB12D | GQM1885C2A2R0CB01D |
| 2.2pF(2R2)        | ±0.1pF(B)  | GQM1875C2E2R2BB12D | GQM1885C2A2R2BB01D |
|                   | ±0.25pF(C) | GQM1875C2E2R2CB12D | GQM1885C2A2R2CB01D |
| 2.4pF(2R4)        | ±0.1pF(B)  | GQM1875C2E2R4BB12D | GQM1885C2A2R4BB01D |
|                   | ±0.25pF(C) | GQM1875C2E2R4CB12D | GQM1885C2A2R4CB01D |
| 2.7pF(2R7)        | ±0.1pF(B)  | GQM1875C2E2R7BB12D | GQM1885C2A2R7BB01D |
|                   | ±0.25pF(C) | GQM1875C2E2R7CB12D | GQM1885C2A2R7CB01D |
| 3.0pF(3R0)        | ±0.1pF(B)  | GQM1875C2E3R0BB12D | GQM1885C2A3R0BB01D |
|                   | ±0.25pF(C) | GQM1875C2E3R0CB12D | GQM1885C2A3R0CB01D |
| 3.3pF(3R3)        | ±0.1pF(B)  | GQM1875C2E3R3BB12D | GQM1885C2A3R3BB01D |
|                   | ±0.25pF(C) | GQM1875C2E3R3CB12D | GQM1885C2A3R3CB01D |
| 3.6pF(3R6)        | ±0.1pF(B)  | GQM1875C2E3R6BB12D | GQM1885C2A3R6BB01D |
|                   | ±0.25pF(C) | GQM1875C2E3R6CB12D | GQM1885C2A3R6CB01D |
| 3.9pF(3R9)        | ±0.1pF(B)  | GQM1875C2E3R9BB12D | GQM1885C2A3R9BB01D |
|                   | ±0.25pF(C) | GQM1875C2E3R9CB12D | GQM1885C2A3R9CB01D |
| 4.0pF(4R0)        | ±0.1pF(B)  | GQM1875C2E4R0BB12D | GQM1885C2A4R0BB01D |
|                   | ±0.25pF(C) | GQM1875C2E4R0CB12D | GQM1885C2A4R0CB01D |
| 4.3pF(4R3)        | ±0.1pF(B)  | GQM1875C2E4R3BB12D | GQM1885C2A4R3BB01D |
|                   | ±0.25pF(C) | GQM1875C2E4R3CB12D | GQM1885C2A4R3CB01D |
| 4.7pF(4R7)        | ±0.1pF(B)  | GQM1875C2E4R7BB12D | GQM1885C2A4R7BB01D |
|                   | ±0.25pF(C) | GQM1875C2E4R7CB12D | GQM1885C2A4R7CB01D |
| 5.0pF(5R0)        | ±0.1pF(B)  | GQM1875C2E5R0BB12D | GQM1885C2A5R0BB01D |
|                   | ±0.25pF(C) | GQM1875C2E5R0CB12D | GQM1885C2A5R0CB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code



## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 1.6x0.8(18)<0603>  |                    |                    |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 250(2E)            | 100(2A)            | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 5.1pF(5R1)        | ±0.25pF(C) | GQM1875C2E5R1CB12D | GQM1885C2A5R1CB01D |                    |
|                   | ±0.5pF(D)  | GQM1875C2E5R1DB12D | GQM1885C2A5R1DB01D |                    |
| 5.6pF(5R6)        | ±0.25pF(C) | GQM1875C2E5R6CB12D | GQM1885C2A5R6CB01D |                    |
|                   | ±0.5pF(D)  | GQM1875C2E5R6DB12D | GQM1885C2A5R6DB01D |                    |
| 6.0pF(6R0)        | ±0.25pF(C) | GQM1875C2E6R0CB12D | GQM1885C2A6R0CB01D |                    |
|                   | ±0.5pF(D)  | GQM1875C2E6R0DB12D | GQM1885C2A6R0DB01D |                    |
| 6.2pF(6R2)        | ±0.25pF(C) | GQM1875C2E6R2CB12D | GQM1885C2A6R2CB01D |                    |
|                   | ±0.5pF(D)  | GQM1875C2E6R2DB12D | GQM1885C2A6R2DB01D |                    |
| 6.8pF(6R8)        | ±0.25pF(C) | GQM1875C2E6R8CB12D | GQM1885C2A6R8CB01D |                    |
|                   | ±0.5pF(D)  | GQM1875C2E6R8DB12D | GQM1885C2A6R8DB01D |                    |
| 7.0pF(7R0)        | ±0.25pF(C) | GQM1875C2E7R0CB12D |                    | GQM1885C1H7R0CB01D |
|                   | ±0.5pF(D)  | GQM1875C2E7R0DB12D |                    | GQM1885C1H7R0DB01D |
| 7.5pF(7R5)        | ±0.25pF(C) | GQM1875C2E7R5CB12D |                    | GQM1885C1H7R5CB01D |
|                   | ±0.5pF(D)  | GQM1875C2E7R5DB12D |                    | GQM1885C1H7R5DB01D |
| 8.0pF(8R0)        | ±0.25pF(C) | GQM1875C2E8R0CB12D |                    | GQM1885C1H8R0CB01D |
|                   | ±0.5pF(D)  | GQM1875C2E8R0DB12D |                    | GQM1885C1H8R0DB01D |
| 8.2pF(8R2)        | ±0.25pF(C) | GQM1875C2E8R2CB12D |                    | GQM1885C1H8R2CB01D |
|                   | ±0.5pF(D)  | GQM1875C2E8R2DB12D |                    | GQM1885C1H8R2DB01D |
| 9.0pF(9R0)        | ±0.25pF(C) | GQM1875C2E9R0CB12D |                    | GQM1885C1H9R0CB01D |
|                   | ±0.5pF(D)  | GQM1875C2E9R0DB12D |                    | GQM1885C1H9R0DB01D |
| 9.1pF(9R1)        | ±0.25pF(C) | GQM1875C2E9R1CB12D |                    | GQM1885C1H9R1CB01D |
|                   | ±0.5pF(D)  | GQM1875C2E9R1DB12D |                    | GQM1885C1H9R1DB01D |
| 10pF(100)         | ±2%(G)     | GQM1875C2E100GB12D |                    | GQM1885C1H100GB01D |
|                   | ±5%(J)     | GQM1875C2E100JB12D |                    | GQM1885C1H100JB01D |
| 11pF(110)         | ±2%(G)     | GQM1875C2E110GB12D |                    | GQM1885C1H110GB01D |
|                   | ±5%(J)     | GQM1875C2E110JB12D |                    | GQM1885C1H110JB01D |
| 12pF(120)         | ±2%(G)     | GQM1875C2E120GB12D |                    | GQM1885C1H120GB01D |
|                   | ±5%(J)     | GQM1875C2E120JB12D |                    | GQM1885C1H120JB01D |
| 13pF(130)         | ±2%(G)     | GQM1875C2E130GB12D |                    | GQM1885C1H130GB01D |
|                   | ±5%(J)     | GQM1875C2E130JB12D |                    | GQM1885C1H130JB01D |
| 15pF(150)         | ±2%(G)     | GQM1875C2E150GB12D |                    | GQM1885C1H150GB01D |
|                   | ±5%(J)     | GQM1875C2E150JB12D |                    | GQM1885C1H150JB01D |
| 16pF(160)         | ±2%(G)     | GQM1875C2E160GB12D |                    | GQM1885C1H160GB01D |
|                   | ±5%(J)     | GQM1875C2E160JB12D |                    | GQM1885C1H160JB01D |
| 18pF(180)         | ±2%(G)     | GQM1875C2E180GB12D |                    | GQM1885C1H180GB01D |
|                   | ±5%(J)     | GQM1875C2E180JB12D |                    | GQM1885C1H180JB01D |
| 20pF(200)         | ±2%(G)     | GQM1875C2E200GB12D |                    | GQM1885C1H200GB01D |
|                   | ±5%(J)     | GQM1875C2E200JB12D |                    | GQM1885C1H200JB01D |
| 22pF(220)         | ±2%(G)     | GQM1875C2E220GB12D |                    | GQM1885C1H220GB01D |
|                   | ±5%(J)     | GQM1875C2E220JB12D |                    | GQM1885C1H220JB01D |
| 24pF(240)         | ±2%(G)     | GQM1875C2E240GB12D |                    | GQM1885C1H240GB01D |
|                   | ±5%(J)     | GQM1875C2E240JB12D |                    | GQM1885C1H240JB01D |
| 27pF(270)         | ±2%(G)     | GQM1875C2E270GB12D |                    | GQM1885C1H270GB01D |
|                   | ±5%(J)     | GQM1875C2E270JB12D |                    | GQM1885C1H270JB01D |
| 30pF(300)         | ±2%(G)     | GQM1875C2E300GB12D |                    | GQM1885C1H300GB01D |
|                   | ±5%(J)     | GQM1875C2E300JB12D |                    | GQM1885C1H300JB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 250(2E)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 33pF(330)         | ±2%(G)    | GQM1875C2E330GB12D | GQM1885C1H330GB01D |
|                   | ±5%(J)    | GQM1875C2E330JB12D | GQM1885C1H330JB01D |
| 36pF(360)         | ±2%(G)    | GQM1875C2E360GB12D | GQM1885C1H360GB01D |
|                   | ±5%(J)    | GQM1875C2E360JB12D | GQM1885C1H360JB01D |
| 39pF(390)         | ±2%(G)    | GQM1875C2E390GB12D | GQM1885C1H390GB01D |
|                   | ±5%(J)    | GQM1875C2E390JB12D | GQM1885C1H390JB01D |
| 43pF(430)         | ±2%(G)    | GQM1875C2E430GB12D | GQM1885C1H430GB01D |
|                   | ±5%(J)    | GQM1875C2E430JB12D | GQM1885C1H430JB01D |
| 47pF(470)         | ±2%(G)    | GQM1875C2E470GB12D | GQM1885C1H470GB01D |
|                   | ±5%(J)    | GQM1875C2E470JB12D | GQM1885C1H470JB01D |
| 51pF(510)         | ±2%(G)    |                    | GQM1885C1H510GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H510JB01D |
| 56pF(560)         | ±2%(G)    |                    | GQM1885C1H560GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H560JB01D |
| 62pF(620)         | ±2%(G)    |                    | GQM1885C1H620GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H620JB01D |
| 68pF(680)         | ±2%(G)    |                    | GQM1885C1H680GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H680JB01D |
| 75pF(750)         | ±2%(G)    |                    | GQM1885C1H750GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H750JB01D |
| 82pF(820)         | ±2%(G)    |                    | GQM1885C1H820GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H820JB01D |
| 91pF(910)         | ±2%(G)    |                    | GQM1885C1H910GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H910JB01D |
| 100pF(101)        | ±2%(G)    |                    | GQM1885C1H101GB01D |
|                   | ±5%(J)    |                    | GQM1885C1H101JB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 2.0x1.25(21)<0805> |                    |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 250(2E)            | 100(2A)            |
| Capacitance       | Tolerance  | Part Number        |                    |
| 0.50pF(50)        | ±0.1pF(B)  | GQM2195C2ER50BB12D | GQM2195C2AR50BB01D |
|                   | ±0.25pF(C) | GQM2195C2ER50CB12D | GQM2195C2AR50CB01D |
| 0.75pF(75)        | ±0.1pF(B)  | GQM2195C2ER75BB12D | GQM2195C2AR75BB01D |
|                   | ±0.25pF(C) | GQM2195C2ER75CB12D | GQM2195C2AR75CB01D |
| 1.0pF(10)         | ±0.1pF(B)  | GQM2195C2E1R0BB12D | GQM2195C2A1R0BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R0CB12D | GQM2195C2A1R0CB01D |
| 1.1pF(11)         | ±0.1pF(B)  | GQM2195C2E1R1BB12D | GQM2195C2A1R1BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R1CB12D | GQM2195C2A1R1CB01D |
| 1.2pF(12)         | ±0.1pF(B)  | GQM2195C2E1R2BB12D | GQM2195C2A1R2BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R2CB12D | GQM2195C2A1R2CB01D |
| 1.3pF(13)         | ±0.1pF(B)  | GQM2195C2E1R3BB12D | GQM2195C2A1R3BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R3CB12D | GQM2195C2A1R3CB01D |
| 1.5pF(15)         | ±0.1pF(B)  | GQM2195C2E1R5BB12D | GQM2195C2A1R5BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R5CB12D | GQM2195C2A1R5CB01D |
| 1.6pF(16)         | ±0.1pF(B)  | GQM2195C2E1R6BB12D | GQM2195C2A1R6BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R6CB12D | GQM2195C2A1R6CB01D |
| 1.8pF(18)         | ±0.1pF(B)  | GQM2195C2E1R8BB12D | GQM2195C2A1R8BB01D |
|                   | ±0.25pF(C) | GQM2195C2E1R8CB12D | GQM2195C2A1R8CB01D |
| 2.0pF(20)         | ±0.1pF(B)  | GQM2195C2E2R0BB12D | GQM2195C2A2R0BB01D |
|                   | ±0.25pF(C) | GQM2195C2E2R0CB12D | GQM2195C2A2R0CB01D |
| 2.2pF(22)         | ±0.1pF(B)  | GQM2195C2E2R2BB12D | GQM2195C2A2R2BB01D |
|                   | ±0.25pF(C) | GQM2195C2E2R2CB12D | GQM2195C2A2R2CB01D |
| 2.4pF(24)         | ±0.1pF(B)  | GQM2195C2E2R4BB12D | GQM2195C2A2R4BB01D |
|                   | ±0.25pF(C) | GQM2195C2E2R4CB12D | GQM2195C2A2R4CB01D |
| 2.7pF(27)         | ±0.1pF(B)  | GQM2195C2E2R7BB12D | GQM2195C2A2R7BB01D |
|                   | ±0.25pF(C) | GQM2195C2E2R7CB12D | GQM2195C2A2R7CB01D |
| 3.0pF(30)         | ±0.1pF(B)  | GQM2195C2E3R0BB12D | GQM2195C2A3R0BB01D |
|                   | ±0.25pF(C) | GQM2195C2E3R0CB12D | GQM2195C2A3R0CB01D |
| 3.3pF(33)         | ±0.1pF(B)  | GQM2195C2E3R3BB12D | GQM2195C2A3R3BB01D |
|                   | ±0.25pF(C) | GQM2195C2E3R3CB12D | GQM2195C2A3R3CB01D |
| 3.6pF(36)         | ±0.1pF(B)  | GQM2195C2E3R6BB12D | GQM2195C2A3R6BB01D |
|                   | ±0.25pF(C) | GQM2195C2E3R6CB12D | GQM2195C2A3R6CB01D |
| 3.9pF(39)         | ±0.1pF(B)  | GQM2195C2E3R9BB12D | GQM2195C2A3R9BB01D |
|                   | ±0.25pF(C) | GQM2195C2E3R9CB12D | GQM2195C2A3R9CB01D |
| 4.0pF(40)         | ±0.1pF(B)  | GQM2195C2E4R0BB12D | GQM2195C2A4R0BB01D |
|                   | ±0.25pF(C) | GQM2195C2E4R0CB12D | GQM2195C2A4R0CB01D |
| 4.3pF(43)         | ±0.1pF(B)  | GQM2195C2E4R3BB12D | GQM2195C2A4R3BB01D |
|                   | ±0.25pF(C) | GQM2195C2E4R3CB12D | GQM2195C2A4R3CB01D |
| 4.7pF(47)         | ±0.1pF(B)  | GQM2195C2E4R7BB12D | GQM2195C2A4R7BB01D |
|                   | ±0.25pF(C) | GQM2195C2E4R7CB12D | GQM2195C2A4R7CB01D |
| 5.0pF(50)         | ±0.1pF(B)  | GQM2195C2E5R0BB12D | GQM2195C2A5R0BB01D |
|                   | ±0.25pF(C) | GQM2195C2E5R0CB12D | GQM2195C2A5R0CB01D |
| 5.1pF(51)         | ±0.25pF(C) | GQM2195C2E5R1CB12D | GQM2195C2A5R1CB01D |
|                   | ±0.5pF(D)  | GQM2195C2E5R1DB12D | GQM2195C2A5R1DB01D |
| 5.6pF(56)         | ±0.25pF(C) | GQM2195C2E5R6CB12D | GQM2195C2A5R6CB01D |
|                   | ±0.5pF(D)  | GQM2195C2E5R6DB12D | GQM2195C2A5R6DB01D |
| 6.0pF(60)         | ±0.25pF(C) | GQM2195C2E6R0CB12D | GQM2195C2A6R0CB01D |
|                   | ±0.5pF(D)  | GQM2195C2E6R0DB12D | GQM2195C2A6R0DB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 2.0x1.25(21)<0805> |                    |                    |
|-------------------|------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 250(2E)            | 100(2A)            | 50(1H)             |
| Capacitance       | Tolerance  | Part Number        |                    |                    |
| 6.2pF(6R2)        | ±0.25pF(C) | GQM2195C2E6R2CB12D | GQM2195C2A6R2CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E6R2DB12D | GQM2195C2A6R2DB01D |                    |
| 6.8pF(6R8)        | ±0.25pF(C) | GQM2195C2E6R8CB12D | GQM2195C2A6R8CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E6R8DB12D | GQM2195C2A6R8DB01D |                    |
| 7.0pF(7R0)        | ±0.25pF(C) | GQM2195C2E7R0CB12D | GQM2195C2A7R0CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E7R0DB12D | GQM2195C2A7R0DB01D |                    |
| 7.5pF(7R5)        | ±0.25pF(C) | GQM2195C2E7R5CB12D | GQM2195C2A7R5CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E7R5DB12D | GQM2195C2A7R5DB01D |                    |
| 8.0pF(8R0)        | ±0.25pF(C) | GQM2195C2E8R0CB12D | GQM2195C2A8R0CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E8R0DB12D | GQM2195C2A8R0DB01D |                    |
| 8.2pF(8R2)        | ±0.25pF(C) | GQM2195C2E8R2CB12D | GQM2195C2A8R2CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E8R2DB12D | GQM2195C2A8R2DB01D |                    |
| 9.0pF(9R0)        | ±0.25pF(C) | GQM2195C2E9R0CB12D | GQM2195C2A9R0CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E9R0DB12D | GQM2195C2A9R0DB01D |                    |
| 9.1pF(9R1)        | ±0.25pF(C) | GQM2195C2E9R1CB12D | GQM2195C2A9R1CB01D |                    |
|                   | ±0.5pF(D)  | GQM2195C2E9R1DB12D | GQM2195C2A9R1DB01D |                    |
| 10pF(100)         | ±2%(G)     | GQM2195C2E100GB12D | GQM2195C2A100GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E100JB12D | GQM2195C2A100JB01D |                    |
| 11pF(110)         | ±2%(G)     | GQM2195C2E110GB12D | GQM2195C2A110GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E110JB12D | GQM2195C2A110JB01D |                    |
| 12pF(120)         | ±2%(G)     | GQM2195C2E120GB12D | GQM2195C2A120GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E120JB12D | GQM2195C2A120JB01D |                    |
| 13pF(130)         | ±2%(G)     | GQM2195C2E130GB12D | GQM2195C2A130GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E130JB12D | GQM2195C2A130JB01D |                    |
| 15pF(150)         | ±2%(G)     | GQM2195C2E150GB12D | GQM2195C2A150GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E150JB12D | GQM2195C2A150JB01D |                    |
| 16pF(160)         | ±2%(G)     | GQM2195C2E160GB12D | GQM2195C2A160GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E160JB12D | GQM2195C2A160JB01D |                    |
| 18pF(180)         | ±2%(G)     | GQM2195C2E180GB12D | GQM2195C2A180GB01D |                    |
|                   | ±5%(J)     | GQM2195C2E180JB12D | GQM2195C2A180JB01D |                    |
| 20pF(200)         | ±2%(G)     | GQM2195C2E200GB12D |                    | GQM2195C1H200GB01D |
|                   | ±5%(J)     | GQM2195C2E200JB12D |                    | GQM2195C1H200JB01D |
| 22pF(220)         | ±2%(G)     | GQM2195C2E220GB12D |                    | GQM2195C1H220GB01D |
|                   | ±5%(J)     | GQM2195C2E220JB12D |                    | GQM2195C1H220JB01D |
| 24pF(240)         | ±2%(G)     | GQM2195C2E240GB12D |                    | GQM2195C1H240GB01D |
|                   | ±5%(J)     | GQM2195C2E240JB12D |                    | GQM2195C1H240JB01D |
| 27pF(270)         | ±2%(G)     | GQM2195C2E270GB12D |                    | GQM2195C1H270GB01D |
|                   | ±5%(J)     | GQM2195C2E270JB12D |                    | GQM2195C1H270JB01D |
| 30pF(300)         | ±2%(G)     | GQM2195C2E300GB12D |                    | GQM2195C1H300GB01D |
|                   | ±5%(J)     | GQM2195C2E300JB12D |                    | GQM2195C1H300JB01D |
| 33pF(330)         | ±2%(G)     | GQM2195C2E330GB12D |                    | GQM2195C1H330GB01D |
|                   | ±5%(J)     | GQM2195C2E330JB12D |                    | GQM2195C1H330JB01D |
| 36pF(360)         | ±2%(G)     | GQM2195C2E360GB12D |                    | GQM2195C1H360GB01D |
|                   | ±5%(J)     | GQM2195C2E360JB12D |                    | GQM2195C1H360JB01D |
| 39pF(390)         | ±2%(G)     | GQM2195C2E390GB12D |                    | GQM2195C1H390GB01D |
|                   | ±5%(J)     | GQM2195C2E390JB12D |                    | GQM2195C1H390JB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

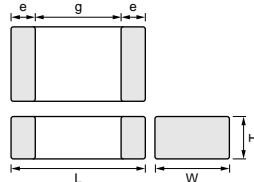
● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 2.0x1.25(21)<0805> |                    |
|-------------------|-----------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 250(2E)            | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |                    |
| 43pF(430)         | ±2%(G)    | GQM2195C2E430GB12D | GQM2195C1H430GB01D |
|                   | ±5%(J)    | GQM2195C2E430JB12D | GQM2195C1H430JB01D |
| 47pF(470)         | ±2%(G)    | GQM2195C2E470GB12D | GQM2195C1H470GB01D |
|                   | ±5%(J)    | GQM2195C2E470JB12D | GQM2195C1H470JB01D |
| 51pF(510)         | ±2%(G)    | GQM2195C2E510GB12D | GQM2195C1H510GB01D |
|                   | ±5%(J)    | GQM2195C2E510JB12D | GQM2195C1H510JB01D |
| 56pF(560)         | ±2%(G)    | GQM2195C2E560GB12D | GQM2195C1H560GB01D |
|                   | ±5%(J)    | GQM2195C2E560JB12D | GQM2195C1H560JB01D |
| 62pF(620)         | ±2%(G)    | GQM2195C2E620GB12D | GQM2195C1H620GB01D |
|                   | ±5%(J)    | GQM2195C2E620JB12D | GQM2195C1H620JB01D |
| 68pF(680)         | ±2%(G)    | GQM2195C2E680GB12D | GQM2195C1H680GB01D |
|                   | ±5%(J)    | GQM2195C2E680JB12D | GQM2195C1H680JB01D |
| 75pF(750)         | ±2%(G)    | GQM2195C2E750GB12D | GQM2195C1H750GB01D |
|                   | ±5%(J)    | GQM2195C2E750JB12D | GQM2195C1H750JB01D |
| 82pF(820)         | ±2%(G)    | GQM2195C2E820GB12D | GQM2195C1H820GB01D |
|                   | ±5%(J)    | GQM2195C2E820JB12D | GQM2195C1H820JB01D |
| 91pF(910)         | ±2%(G)    | GQM2195C2E910GB12D | GQM2195C1H910GB01D |
|                   | ±5%(J)    | GQM2195C2E910JB12D | GQM2195C1H910JB01D |
| 100pF(101)        | ±2%(G)    | GQM2195C2E101GB12D | GQM2195C1H101GB01D |
|                   | ±5%(J)    | GQM2195C2E101JB12D | GQM2195C1H101JB01D |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

## High Frequency Monolithic Ceramic Capacitors

### High Frequency Type ERB Series



| Part Number | Dimensions (mm) |          |        |        |        |
|-------------|-----------------|----------|--------|--------|--------|
|             | L               | W        | T max. | e min. | g min. |
| ERB188      | 1.6±0.1         | 0.8±0.1  | 0.9    | 0.2    | 0.5    |
| ERB21B      | 2.0±0.3         | 1.25±0.3 | 1.35   | 0.25   | 0.7    |
| ERB32Q      | 3.2±0.3         | 2.5±0.3  | 1.7    | 0.3    | 1.0    |

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 1.6x0.8(18)<0603>  | 2.0x1.25(21)<0805> |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 250(2E)            | 250(2E)            |
| Capacitance       | Tolerance  | Part Number        |                    |
| 0.50pF(1R50)      | ±0.1pF(B)  | ERB1885C2ER50BDX1D | ERB21B5C2ER50BDX1L |
|                   | ±0.25pF(C) | ERB1885C2ER50CDX1D | ERB21B5C2ER50CDX1L |
| 0.75pF(1R75)      | ±0.1pF(B)  | ERB1885C2ER75BDX1D | ERB21B5C2ER75BDX1L |
|                   | ±0.25pF(C) | ERB1885C2ER75CDX1D | ERB21B5C2ER75CDX1L |
| 1.0pF(1R0)        | ±0.1pF(B)  | ERB1885C2E1R0BDX1D | ERB21B5C2E1R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R0CDX1D | ERB21B5C2E1R0CDX1L |
| 1.1pF(1R1)        | ±0.1pF(B)  | ERB1885C2E1R1BDX1D | ERB21B5C2E1R1BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R1CDX1D | ERB21B5C2E1R1CDX1L |
| 1.2pF(1R2)        | ±0.1pF(B)  | ERB1885C2E1R2BDX1D | ERB21B5C2E1R2BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R2CDX1D | ERB21B5C2E1R2CDX1L |
| 1.3pF(1R3)        | ±0.1pF(B)  | ERB1885C2E1R3BDX1D | ERB21B5C2E1R3BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R3CDX1D | ERB21B5C2E1R3CDX1L |
| 1.5pF(1R5)        | ±0.1pF(B)  | ERB1885C2E1R5BDX1D | ERB21B5C2E1R5BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R5CDX1D | ERB21B5C2E1R5CDX1L |
| 1.6pF(1R6)        | ±0.1pF(B)  | ERB1885C2E1R6BDX1D | ERB21B5C2E1R6BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R6CDX1D | ERB21B5C2E1R6CDX1L |
| 1.8pF(1R8)        | ±0.1pF(B)  | ERB1885C2E1R8BDX1D | ERB21B5C2E1R8BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E1R8CDX1D | ERB21B5C2E1R8CDX1L |
| 2.0pF(2R0)        | ±0.1pF(B)  | ERB1885C2E2R0BDX1D | ERB21B5C2E2R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E2R0CDX1D | ERB21B5C2E2R0CDX1L |
| 2.2pF(2R2)        | ±0.1pF(B)  | ERB1885C2E2R2BDX1D | ERB21B5C2E2R2BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E2R2CDX1D | ERB21B5C2E2R2CDX1L |
| 2.4pF(2R4)        | ±0.1pF(B)  | ERB1885C2E2R4BDX1D | ERB21B5C2E2R4BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E2R4CDX1D | ERB21B5C2E2R4CDX1L |
| 2.7pF(2R7)        | ±0.1pF(B)  | ERB1885C2E2R7BDX1D | ERB21B5C2E2R7BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E2R7CDX1D | ERB21B5C2E2R7CDX1L |
| 3.0pF(3R0)        | ±0.1pF(B)  | ERB1885C2E3R0BDX1D | ERB21B5C2E3R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E3R0CDX1D | ERB21B5C2E3R0CDX1L |
| 3.3pF(3R3)        | ±0.1pF(B)  | ERB1885C2E3R3BDX1D | ERB21B5C2E3R3BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E3R3CDX1D | ERB21B5C2E3R3CDX1L |
| 3.6pF(3R6)        | ±0.1pF(B)  | ERB1885C2E3R6BDX1D | ERB21B5C2E3R6BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E3R6CDX1D | ERB21B5C2E3R6CDX1L |
| 3.9pF(3R9)        | ±0.1pF(B)  | ERB1885C2E3R9BDX1D | ERB21B5C2E3R9BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E3R9CDX1D | ERB21B5C2E3R9CDX1L |
| 4.0pF(4R0)        | ±0.1pF(B)  | ERB1885C2E4R0BDX1D | ERB21B5C2E4R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E4R0CDX1D | ERB21B5C2E4R0CDX1L |
| 4.3pF(4R3)        | ±0.1pF(B)  | ERB1885C2E4R3BDX1D | ERB21B5C2E4R3BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E4R3CDX1D | ERB21B5C2E4R3CDX1L |
| 4.7pF(4R7)        | ±0.1pF(B)  | ERB1885C2E4R7BDX1D | ERB21B5C2E4R7BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E4R7CDX1D | ERB21B5C2E4R7CDX1L |
| 5.0pF(5R0)        | ±0.1pF(B)  | ERB1885C2E5R0BDX1D | ERB21B5C2E5R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E5R0CDX1D | ERB21B5C2E5R0CDX1L |
| 5.1pF(5R1)        | ±0.1pF(B)  | ERB1885C2E5R1BDX1D | ERB21B5C2E5R1BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E5R1CDX1D | ERB21B5C2E5R1CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E5R1DDX1D | ERB21B5C2E5R1DDX1L |
| 5.6pF(5R6)        | ±0.1pF(B)  | ERB1885C2E5R6BDX1D | ERB21B5C2E5R6BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E5R6CDX1D | ERB21B5C2E5R6CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E5R6DDX1D | ERB21B5C2E5R6DDX1L |
| 6.0pF(6R0)        | ±0.1pF(B)  | ERB1885C2E6R0BDX1D | ERB21B5C2E6R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E6R0CDX1D | ERB21B5C2E6R0CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E6R0DDX1D | ERB21B5C2E6R0DDX1L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

## ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 1.6x0.8(18)<0603>  | 2.0x1.25(21)<0805> |
|-------------------|------------|--------------------|--------------------|
| Rated Volt. [Vdc] |            | 250(2E)            | 250(2E)            |
| Capacitance       | Tolerance  | Part Number        |                    |
| 6.2pF(6R2)        | ±0.1pF(B)  | ERB1885C2E6R2BDX1D | ERB21B5C2E6R2BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E6R2CDX1D | ERB21B5C2E6R2CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E6R2DDX1D | ERB21B5C2E6R2DDX1L |
| 6.8pF(6R8)        | ±0.1pF(B)  | ERB1885C2E6R8BDX1D | ERB21B5C2E6R8BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E6R8CDX1D | ERB21B5C2E6R8CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E6R8DDX1D | ERB21B5C2E6R8DDX1L |
| 7.0pF(7R0)        | ±0.1pF(B)  | ERB1885C2E7R0BDX5D | ERB21B5C2E7R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E7R0CDX5D | ERB21B5C2E7R0CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E7R0DDX5D | ERB21B5C2E7R0DDX1L |
| 7.5pF(7R5)        | ±0.1pF(B)  | ERB1885C2E7R5BDX5D | ERB21B5C2E7R5BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E7R5CDX5D | ERB21B5C2E7R5CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E7R5DDX5D | ERB21B5C2E7R5DDX1L |
| 8.0pF(8R0)        | ±0.1pF(B)  | ERB1885C2E8R0BDX5D | ERB21B5C2E8R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E8R0CDX5D | ERB21B5C2E8R0CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E8R0DDX5D | ERB21B5C2E8R0DDX1L |
| 8.2pF(8R2)        | ±0.1pF(B)  | ERB1885C2E8R2BDX5D | ERB21B5C2E8R2BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E8R2CDX5D | ERB21B5C2E8R2CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E8R2DDX5D | ERB21B5C2E8R2DDX1L |
| 9.0pF(9R0)        | ±0.1pF(B)  | ERB1885C2E9R0BDX5D | ERB21B5C2E9R0BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E9R0CDX5D | ERB21B5C2E9R0CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E9R0DDX5D | ERB21B5C2E9R0DDX1L |
| 9.1pF(9R1)        | ±0.1pF(B)  | ERB1885C2E9R1BDX5D | ERB21B5C2E9R1BDX1L |
|                   | ±0.25pF(C) | ERB1885C2E9R1CDX5D | ERB21B5C2E9R1CDX1L |
|                   | ±0.5pF(D)  | ERB1885C2E9R1DDX5D | ERB21B5C2E9R1DDX1L |
| 10pF(100)         | ±2%(G)     | ERB1885C2E100GDX5D | ERB21B5C2E100GDX1L |
|                   | ±5%(J)     | ERB1885C2E100JDX5D | ERB21B5C2E100JDX1L |
| 11pF(110)         | ±2%(G)     | ERB1885C2E110GDX5D | ERB21B5C2E110GDX1L |
|                   | ±5%(J)     | ERB1885C2E110JDX5D | ERB21B5C2E110JDX1L |
| 12pF(120)         | ±2%(G)     | ERB1885C2E120GDX5D | ERB21B5C2E120GDX1L |
|                   | ±5%(J)     | ERB1885C2E120JDX5D | ERB21B5C2E120JDX1L |
| 13pF(130)         | ±2%(G)     | ERB1885C2E130GDX5D | ERB21B5C2E130GDX1L |
|                   | ±5%(J)     | ERB1885C2E130JDX5D | ERB21B5C2E130JDX1L |
| 15pF(150)         | ±2%(G)     | ERB1885C2E150GDX5D | ERB21B5C2E150GDX1L |
|                   | ±5%(J)     | ERB1885C2E150JDX5D | ERB21B5C2E150JDX1L |
| 16pF(160)         | ±2%(G)     | ERB1885C2E160GDX5D | ERB21B5C2E160GDX1L |
|                   | ±5%(J)     | ERB1885C2E160JDX5D | ERB21B5C2E160JDX1L |
| 18pF(180)         | ±2%(G)     | ERB1885C2E180GDX5D | ERB21B5C2E180GDX1L |
|                   | ±5%(J)     | ERB1885C2E180JDX5D | ERB21B5C2E180JDX1L |
| 20pF(200)         | ±2%(G)     | ERB1885C2E200GDX5D | ERB21B5C2E200GDX1L |
|                   | ±5%(J)     | ERB1885C2E200JDX5D | ERB21B5C2E200JDX1L |
| 22pF(220)         | ±2%(G)     | ERB1885C2E220GDX5D | ERB21B5C2E220GDX1L |
|                   | ±5%(J)     | ERB1885C2E220JDX5D | ERB21B5C2E220JDX1L |
| 24pF(240)         | ±2%(G)     | ERB1885C2E240GDX5D | ERB21B5C2E240GDX1L |
|                   | ±5%(J)     | ERB1885C2E240JDX5D | ERB21B5C2E240JDX1L |
| 27pF(270)         | ±2%(G)     | ERB1885C2E270GDX5D | ERB21B5C2E270GDX1L |
|                   | ±5%(J)     | ERB1885C2E270JDX5D | ERB21B5C2E270JDX1L |
| 30pF(300)         | ±2%(G)     | ERB1885C2E300GDX5D | ERB21B5C2E300GDX1L |
|                   | ±5%(J)     | ERB1885C2E300JDX5D | ERB21B5C2E300JDX1L |
| 33pF(330)         | ±2%(G)     | ERB1885C2E330GDX5D | ERB21B5C2E330GDX1L |
|                   | ±5%(J)     | ERB1885C2E330JDX5D | ERB21B5C2E330JDX1L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 1.6x0.8(18)<0603>  |                    | 2.0x1.25(21)<0805> |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 250(2E)            |                    | 250(2E)            | 100(2A)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 36pF(360)         | ±2%(G)    | ERB1885C2E360GDX5D | ERB21B5C2E360GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E360JDX5D | ERB21B5C2E360JDX1L |                    |                    |
| 39pF(390)         | ±2%(G)    | ERB1885C2E390GDX5D | ERB21B5C2E390GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E390JDX5D | ERB21B5C2E390JDX1L |                    |                    |
| 43pF(430)         | ±2%(G)    | ERB1885C2E430GDX5D | ERB21B5C2E430GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E430JDX5D | ERB21B5C2E430JDX1L |                    |                    |
| 47pF(470)         | ±2%(G)    | ERB1885C2E470GDX5D | ERB21B5C2E470GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E470JDX5D | ERB21B5C2E470JDX1L |                    |                    |
| 51pF(510)         | ±2%(G)    | ERB1885C2E510GDX5D | ERB21B5C2E510GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E510JDX5D | ERB21B5C2E510JDX1L |                    |                    |
| 56pF(560)         | ±2%(G)    | ERB1885C2E560GDX5D | ERB21B5C2E560GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E560JDX5D | ERB21B5C2E560JDX1L |                    |                    |
| 62pF(620)         | ±2%(G)    | ERB1885C2E620GDX5D | ERB21B5C2E620GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E620JDX5D | ERB21B5C2E620JDX1L |                    |                    |
| 68pF(680)         | ±2%(G)    | ERB1885C2E680GDX5D | ERB21B5C2E680GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E680JDX5D | ERB21B5C2E680JDX1L |                    |                    |
| 75pF(750)         | ±2%(G)    | ERB1885C2E750GDX5D | ERB21B5C2E750GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E750JDX5D | ERB21B5C2E750JDX1L |                    |                    |
| 82pF(820)         | ±2%(G)    | ERB1885C2E820GDX5D | ERB21B5C2E820GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E820JDX5D | ERB21B5C2E820JDX1L |                    |                    |
| 91pF(910)         | ±2%(G)    | ERB1885C2E910GDX5D | ERB21B5C2E910GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E910JDX5D | ERB21B5C2E910JDX1L |                    |                    |
| 100pF(101)        | ±2%(G)    | ERB1885C2E101GDX5D | ERB21B5C2E101GDX1L |                    |                    |
|                   | ±5%(J)    | ERB1885C2E101JDX5D | ERB21B5C2E101JDX1L |                    |                    |
| 110pF(111)        | ±2%(G)    |                    |                    | ERB21B5C2A111GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB21B5C2A111JDX1L |                    |
| 120pF(121)        | ±2%(G)    |                    |                    | ERB21B5C2A121GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB21B5C2A121JDX1L |                    |
| 130pF(131)        | ±2%(G)    |                    |                    | ERB21B5C2A131GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB21B5C2A131JDX1L |                    |
| 150pF(151)        | ±2%(G)    |                    |                    |                    | ERB21B5C1H151GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB21B5C1H151JDX1L |
| 160pF(161)        | ±2%(G)    |                    |                    |                    | ERB21B5C1H161GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB21B5C1H161JDX1L |

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### ● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |            | 3.2x2.5(32)<1210>  |  |
|-------------------|------------|--------------------|--|
| Rated Volt. [Vdc] |            | 500(2H)            |  |
| Capacitance       | Tolerance  | Part Number        |  |
| 3.3pF(3R3)        | ±0.1pF(B)  | ERB32Q5C2H3R3BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H3R3CDX1L |  |
| 3.6pF(3R6)        | ±0.1pF(B)  | ERB32Q5C2H3R6BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H3R6CDX1L |  |
| 3.9pF(3R9)        | ±0.1pF(B)  | ERB32Q5C2H3R9BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H3R9CDX1L |  |
| 4.0pF(4R0)        | ±0.1pF(B)  | ERB32Q5C2H4R0BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H4R0CDX1L |  |
| 4.3pF(4R3)        | ±0.1pF(B)  | ERB32Q5C2H4R3BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H4R3CDX1L |  |
| 4.7pF(4R7)        | ±0.1pF(B)  | ERB32Q5C2H4R7BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H4R7CDX1L |  |
| 5.0pF(5R0)        | ±0.1pF(B)  | ERB32Q5C2H5R0BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H5R0CDX1L |  |
| 5.1pF(5R1)        | ±0.1pF(B)  | ERB32Q5C2H5R1BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H5R1CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H5R1DDX1L |  |
| 5.6pF(5R6)        | ±0.1pF(B)  | ERB32Q5C2H5R6BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H5R6CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H5R6DDX1L |  |
| 6.0pF(6R0)        | ±0.1pF(B)  | ERB32Q5C2H6R0BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H6R0CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H6R0DDX1L |  |
| 6.2pF(6R2)        | ±0.1pF(B)  | ERB32Q5C2H6R2BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H6R2CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H6R2DDX1L |  |
| 6.8pF(6R8)        | ±0.1pF(B)  | ERB32Q5C2H6R8BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H6R8CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H6R8DDX1L |  |
| 7.0pF(7R0)        | ±0.1pF(B)  | ERB32Q5C2H7R0BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H7R0CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H7R0DDX1L |  |
| 7.5pF(7R5)        | ±0.1pF(B)  | ERB32Q5C2H7R5BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H7R5CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H7R5DDX1L |  |
| 8.0pF(8R0)        | ±0.1pF(B)  | ERB32Q5C2H8R0BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H8R0CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H8R0DDX1L |  |
| 8.2pF(8R2)        | ±0.1pF(B)  | ERB32Q5C2H8R2BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H8R2CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H8R2DDX1L |  |
| 9.0pF(9R0)        | ±0.1pF(B)  | ERB32Q5C2H9R0BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H9R0CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H9R0DDX1L |  |
| 9.1pF(9R1)        | ±0.1pF(B)  | ERB32Q5C2H9R1BDX1L |  |
|                   | ±0.25pF(C) | ERB32Q5C2H9R1CDX1L |  |
|                   | ±0.5pF(D)  | ERB32Q5C2H9R1DDX1L |  |
| 10pF(100)         | ±2%(G)     | ERB32Q5C2H100GDX1L |  |
|                   | ±5%(J)     | ERB32Q5C2H100JDX1L |  |

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |  |
|-------------------|-----------|--------------------|--|
| Rated Volt. [Vdc] |           | 500(2H)            |  |
| Capacitance       | Tolerance | Part Number        |  |
| 11pF(110)         | ±2%(G)    | ERB32Q5C2H110GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H110JDX1L |  |
| 12pF(120)         | ±2%(G)    | ERB32Q5C2H120GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H120JDX1L |  |
| 13pF(130)         | ±2%(G)    | ERB32Q5C2H130GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H130JDX1L |  |
| 15pF(150)         | ±2%(G)    | ERB32Q5C2H150GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H150JDX1L |  |
| 16pF(160)         | ±2%(G)    | ERB32Q5C2H160GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H160JDX1L |  |
| 18pF(180)         | ±2%(G)    | ERB32Q5C2H180GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H180JDX1L |  |
| 20pF(200)         | ±2%(G)    | ERB32Q5C2H200GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H200JDX1L |  |
| 22pF(220)         | ±2%(G)    | ERB32Q5C2H220GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H220JDX1L |  |
| 24pF(240)         | ±2%(G)    | ERB32Q5C2H240GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H240JDX1L |  |
| 27pF(270)         | ±2%(G)    | ERB32Q5C2H270GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H270JDX1L |  |
| 30pF(300)         | ±2%(G)    | ERB32Q5C2H300GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H300JDX1L |  |
| 33pF(330)         | ±2%(G)    | ERB32Q5C2H330GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H330JDX1L |  |
| 36pF(360)         | ±2%(G)    | ERB32Q5C2H360GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H360JDX1L |  |
| 39pF(390)         | ±2%(G)    | ERB32Q5C2H390GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H390JDX1L |  |
| 43pF(430)         | ±2%(G)    | ERB32Q5C2H430GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H430JDX1L |  |
| 47pF(470)         | ±2%(G)    | ERB32Q5C2H470GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H470JDX1L |  |
| 51pF(510)         | ±2%(G)    | ERB32Q5C2H510GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H510JDX1L |  |
| 56pF(560)         | ±2%(G)    | ERB32Q5C2H560GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H560JDX1L |  |
| 62pF(620)         | ±2%(G)    | ERB32Q5C2H620GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H620JDX1L |  |
| 68pF(680)         | ±2%(G)    | ERB32Q5C2H680GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H680JDX1L |  |
| 75pF(750)         | ±2%(G)    | ERB32Q5C2H750GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H750JDX1L |  |
| 82pF(820)         | ±2%(G)    | ERB32Q5C2H820GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H820JDX1L |  |
| 91pF(910)         | ±2%(G)    | ERB32Q5C2H910GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H910JDX1L |  |
| 100pF(101)        | ±2%(G)    | ERB32Q5C2H101GDX1L |  |
|                   | ±5%(J)    | ERB32Q5C2H101JDX1L |  |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

● Temperature Compensating Type C0G(5C) Characteristics

| LxW [mm]          |           | 3.2x2.5(32)<1210>  |                    |                    |                    |
|-------------------|-----------|--------------------|--------------------|--------------------|--------------------|
| Rated Volt. [Vdc] |           | 500(2H)            | 300(YD)            | 250(2E)            | 100(2A)            |
| Capacitance       | Tolerance | Part Number        |                    |                    |                    |
| 110pF(111)        | ±2%(G)    | ERB32Q5C2H111GDX1L |                    |                    |                    |
|                   | ±5%(J)    | ERB32Q5C2H111JDX1L |                    |                    |                    |
| 120pF(121)        | ±2%(G)    | ERB32Q5C2H121GDX1L |                    |                    |                    |
|                   | ±5%(J)    | ERB32Q5C2H121JDX1L |                    |                    |                    |
| 130pF(131)        | ±2%(G)    |                    | ERB32Q5CYD131GDX1L |                    |                    |
|                   | ±5%(J)    |                    | ERB32Q5CYD131JDX1L |                    |                    |
| 150pF(151)        | ±2%(G)    |                    | ERB32Q5CYD151GDX1L |                    |                    |
|                   | ±5%(J)    |                    | ERB32Q5CYD151JDX1L |                    |                    |
| 160pF(161)        | ±2%(G)    |                    |                    | ERB32Q5C2E161GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB32Q5C2E161JDX1L |                    |
| 180pF(181)        | ±2%(G)    |                    |                    | ERB32Q5C2E181GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB32Q5C2E181JDX1L |                    |
| 200pF(201)        | ±2%(G)    |                    |                    | ERB32Q5C2E201GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB32Q5C2E201JDX1L |                    |
| 220pF(221)        | ±2%(G)    |                    |                    | ERB32Q5C2E221GDX1L |                    |
|                   | ±5%(J)    |                    |                    | ERB32Q5C2E221JDX1L |                    |
| 240pF(241)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A241GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A241JDX1L |
| 270pF(271)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A271GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A271JDX1L |
| 300pF(301)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A301GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A301JDX1L |
| 330pF(331)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A331GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A331JDX1L |
| 360pF(361)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A361GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A361JDX1L |
| 390pF(391)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A391GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A391JDX1L |
| 430pF(431)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A431GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A431JDX1L |
| 470pF(471)        | ±2%(G)    |                    |                    |                    | ERB32Q5C2A471GDX1L |
|                   | ±5%(J)    |                    |                    |                    | ERB32Q5C2A471JDX1L |

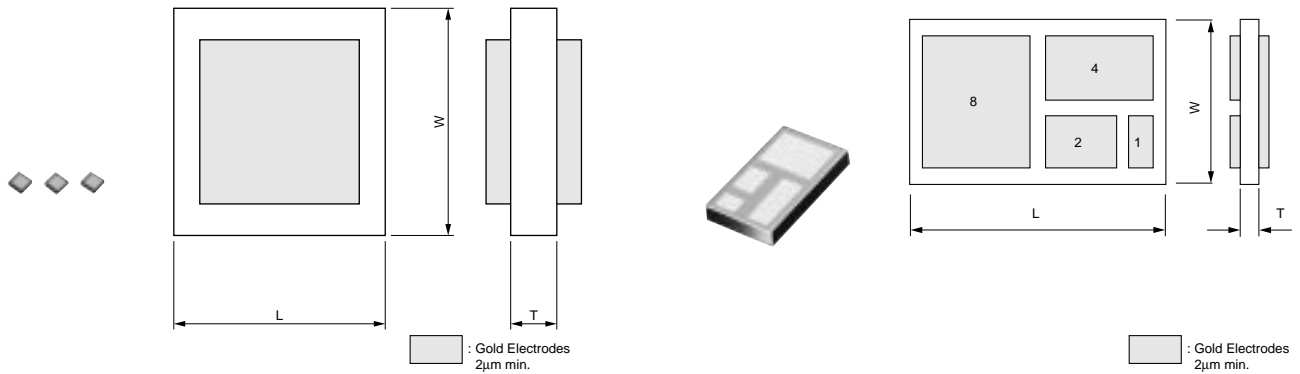
| LxW [mm]          |           | 3.2x2.5(32)<1210>  |
|-------------------|-----------|--------------------|
| Rated Volt. [Vdc] |           | 50(1H)             |
| Capacitance       | Tolerance | Part Number        |
| 510pF(511)        | ±2%(G)    | ERB32Q5C1H511GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H511JDX1L |
| 560pF(561)        | ±2%(G)    | ERB32Q5C1H561GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H561JDX1L |
| 620pF(621)        | ±2%(G)    | ERB32Q5C1H621GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H621JDX1L |
| 680pF(681)        | ±2%(G)    | ERB32Q5C1H681GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H681JDX1L |
| 750pF(751)        | ±2%(G)    | ERB32Q5C1H751GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H751JDX1L |
| 820pF(821)        | ±2%(G)    | ERB32Q5C1H821GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H821JDX1L |
| 910pF(911)        | ±2%(G)    | ERB32Q5C1H911GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H911JDX1L |
| 1000pF(102)       | ±2%(G)    | ERB32Q5C1H102GDX1L |
|                   | ±5%(J)    | ERB32Q5C1H102JDX1L |

The part number code is shown in ( ) and Unit is shown in [ ]. < >: EIA [inch] Code

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# High Frequency Single Layer Microchip Capacitors

● Temperature Compensating Type



| Part Number | Capacitance at 25°C (pF) | Temperature Coefficient | Rated Voltage (Vdc) |
|-------------|--------------------------|-------------------------|---------------------|
| CLB0A       | 0.1                      | 0±30ppm/°C              | 100                 |
| CLB0C       | 0.2                      | 0±30ppm/°C              | 100                 |
| CLB0D       | 0.2 to 0.4               | 0±30ppm/°C              | 100                 |
| CLB05       | 0.3 to 0.6               | 0±30ppm/°C              | 100                 |
| CLB0E       | 0.5 to 0.6               | 0±30ppm/°C              | 100                 |
| CLB0F       | 0.3 to 1.0               | 0±30ppm/°C              | 100                 |
| CLB0G       | 0.7 to 1.0               | 0±30ppm/°C              | 100                 |
| CLB0H       | 0.7 to 0.8               | 0±30ppm/°C              | 100                 |
| CLB0J       | 0.4 to 1.3               | 0±30ppm/°C              | 100                 |
| CLB09       | 0.5 to 1.8               | 0±30ppm/°C              | 100                 |
| CLB1A       | 1.1 to 1.6               | 0±30ppm/°C              | 100                 |
| CLB1B       | 1.5 to 2.0               | 0±30ppm/°C              | 100                 |
| CLB1C       | 1.0 to 3.6               | 0±30ppm/°C              | 100                 |
| CLB1E       | 2.0 to 2.7               | 0±30ppm/°C              | 100                 |
| CLB1G       | 3.9 to 4.7               | 0±30ppm/°C              | 100                 |
| CLB1H       | 1.8 to 6.8               | 0±30ppm/°C              | 100                 |
| CLB2C       | 5.1                      | 0±30ppm/°C              | 100                 |
| CLB2E       | 3.0 to 10                | 0±30ppm/°C              | 100                 |
| CLB2L       | 7.5 to 10                | 0±30ppm/°C              | 100                 |
| CLB3G       | 11 to 16                 | 0±30ppm/°C              | 100                 |
| CLB0A       | 0.3 to 0.7               | -750±60ppm/°C           | 100                 |
| CLB0B       | 0.8                      | -750±60ppm/°C           | 100                 |
| CLB0C       | 0.9                      | -750±60ppm/°C           | 100                 |
| CLB0D       | 0.9 to 1.6               | -750±60ppm/°C           | 100                 |
| CLB05       | 0.7                      | -750±60ppm/°C           | 100                 |
| CLB05       | 1.0 to 2.4               | -750±60ppm/°C           | 100                 |
| CLB0E       | 1.8 to 2.4               | -750±60ppm/°C           | 100                 |
| CLB0F       | 2.0 to 4.3               | -750±60ppm/°C           | 100                 |
| CLB0G       | 2.7 to 3.0               | -750±60ppm/°C           | 100                 |
| CLB0H       | 2.7                      | -750±60ppm/°C           | 100                 |
| CLB0J       | 3.0 to 6.2               | -750±60ppm/°C           | 100                 |
| CLB0K       | 1.5                      | -750±60ppm/°C           | 100                 |
| CLB09       | 3.3 to 6.8               | -750±60ppm/°C           | 100                 |
| CLB1A       | 4.7 to 6.2               | -750±60ppm/°C           | 100                 |
| CLB1B       | 6.8 to 7.5               | -750±60ppm/°C           | 100                 |
| CLB1C       | 7.5 to 15                | -750±60ppm/°C           | 100                 |
| CLB1E       | 7.5 to 9.1               | -750±60ppm/°C           | 100                 |
| CLB1H       | 13 to 15                 | -750±60ppm/°C           | 100                 |
| CLB2E       | 20                       | -750±60ppm/°C           | 100                 |

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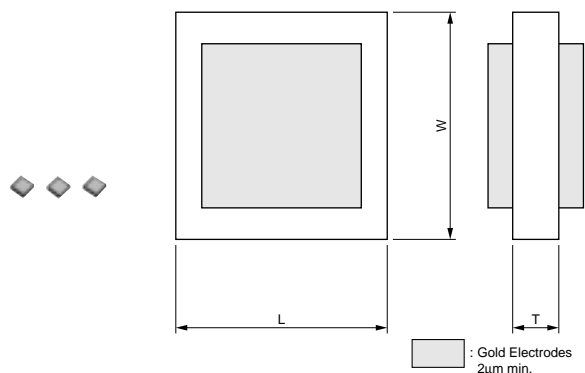
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| Part Number | Capacitance at 25°C (pF) | Temperature Coefficient | Rated Voltage (Vdc) |
|-------------|--------------------------|-------------------------|---------------------|
| CLB0A       | 0.8 to 1.3               | -2200±500ppm/°C         | 100                 |
| CLB0B       | 1.5 to 1.6               | -2200±500ppm/°C         | 100                 |
| CLB0C       | 1.8                      | -2200±500ppm/°C         | 100                 |
| CLB0D       | 1.8 to 3.0               | -2200±500ppm/°C         | 100                 |
| CLB05       | 1.5                      | -2200±500ppm/°C         | 100                 |
| CLB05       | 2.2 to 4.7               | -2200±500ppm/°C         | 100                 |
| CLB0E       | 3.3 to 4.3               | -2200±500ppm/°C         | 100                 |
| CLB0F       | 3.6 to 7.5               | -2200±500ppm/°C         | 100                 |
| CLB0G       | 5.1 to 5.6               | -2200±500ppm/°C         | 100                 |
| CLB0H       | 4.7 to 5.1               | -2200±500ppm/°C         | 100                 |
| CLB0J       | 5.6 to 11                | -2200±500ppm/°C         | 100                 |
| CLB0K       | 3.0                      | -2200±500ppm/°C         | 100                 |
| CLB09       | 6.2 to 13                | -2200±500ppm/°C         | 100                 |
| CLB1A       | 8.2 to 11                | -2200±500ppm/°C         | 100                 |
| CLB1B       | 12                       | -2200±500ppm/°C         | 100                 |
| CLB1C       | 15 to 22                 | -2200±500ppm/°C         | 100                 |
| CLB1E       | 15 to 16                 | -2200±500ppm/°C         | 100                 |
| CLB1G       | 33                       | -2200±500ppm/°C         | 100                 |
| CLB1H       | 27                       | -2200±500ppm/°C         | 100                 |
| CLB2E       | 39 to 47                 | -2200±500ppm/°C         | 100                 |

Capacitance value steps are in accordance with EIA E24 steps. However, capacitance values below 1pF are treated as belonging to 0.1pF step. Please refer to LxW size in "Global Part Numbering" guidance page.

### ● High Dielectric Constant Type



| Part Number | Capacitance at 25°C (pF) | Temperature Coefficient | Rated Voltage (Vdc) |
|-------------|--------------------------|-------------------------|---------------------|
| CLB0A       | 2.0 to 3.0               | ±10%                    | 100                 |
| CLB0A       | 4.7 to 12                | ±10%                    | 100                 |
| CLB0B       | 3.3 to 3.6               | ±10%                    | 100                 |
| CLB0B       | 13 to 15                 | ±10%                    | 100                 |
| CLB0C       | 3.9 to 4.3               | ±10%                    | 100                 |
| CLB0C       | 16 to 18                 | ±10%                    | 100                 |
| CLB0D       | 5.1 to 7.5               | ±10%                    | 100                 |
| CLB0D       | 11 to 30                 | ±10%                    | 100                 |
| CLB05       | 5.6 to 43                | ±10%                    | 100                 |
| CLB0E       | 8.2 to 10                | ±10%                    | 100                 |
| CLB0E       | 33 to 43                 | ±10%                    | 100                 |
| CLB0F       | 10 to 75                 | ±10%                    | 100                 |
| CLB0G       | 47 to 68                 | ±10%                    | 100                 |
| CLB0H       | 47 to 56                 | ±10%                    | 100                 |
| CLB0J       | 15 to 110                | ±10%                    | 100                 |

Continued on the following page.

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| Part Number | Capacitance at 25°C (pF) | Temperature Coefficient | Rated Voltage (Vdc) |
|-------------|--------------------------|-------------------------|---------------------|
| CLB09       | 16 to 130                | ±10%                    | 100                 |
| CLB1A       | 82 to 120                | ±10%                    | 100                 |
| CLB1C       | 33 to 62                 | ±10%                    | 100                 |
| CLB1C       | 75 to 200                | ±10%                    | 100                 |
| CLB1E       | 150 to 160               | ±10%                    | 100                 |
| CLB1G       | 300                      | ±10%                    | 100                 |
| CLB1H       | 130 to 430               | ±10%                    | 100                 |
| CLB2E       | 200 to 620               | ±10%                    | 100                 |
| CLB0A       | 27 to 33                 | +30/-80%                | 100                 |
| CLB0B       | 36 to 39                 | +30/-80%                | 100                 |
| CLB0C       | 43 to 51                 | +30/-80%                | 100                 |
| CLB0D       | 62 to 82                 | +30/-80%                | 100                 |
| CLB05       | 75 to 130                | +30/-80%                | 100                 |
| CLB0E       | 91 to 120                | +30/-80%                | 100                 |
| CLB0F       | 130 to 220               | +30/-80%                | 100                 |
| CLB0G       | 150 to 200               | +30/-80%                | 100                 |
| CLB0H       | 130 to 150               | +30/-80%                | 100                 |
| CLB0J       | 200 to 300               | +30/-80%                | 100                 |
| CLB09       | 200 to 390               | +30/-80%                | 100                 |
| CLB1A       | 240 to 360               | +30/-80%                | 100                 |
| CLB0A       | 36 to 56                 | +30/-90%                | 100                 |
| CLB0D       | 91 to 150                | +30/-90%                | 100                 |
| CLB05       | 130 to 220               | +30/-90%                | 100                 |
| CLB0F       | 220 to 390               | +30/-90%                | 100                 |
| CLB0J       | 330 to 560               | +30/-90%                | 100                 |
| CLB09       | 390 to 680               | +30/-90%                | 100                 |

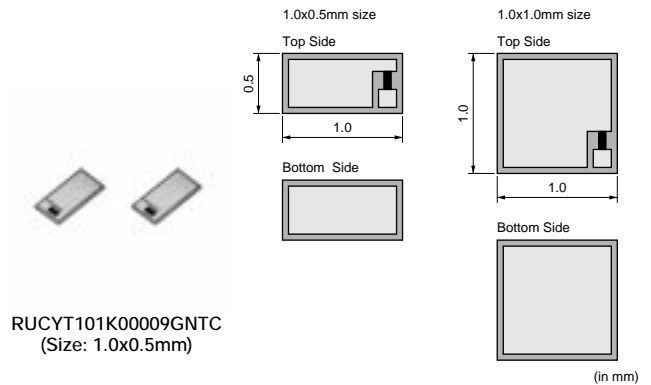
Capacitance value steps are in accordance with EIA E24 steps.  
 Some of capacitances are not available in the range of CLB0A/B/C/D/E series.  
 Please refer to LxW size in "Global Part Numbering" guidance page.

# Thin Film Circuit Substrate (RUSUB®)

for Photo Diode Module

## ● Features

- RUSUB® technology provides single-layer capacitor and thin film resistor formed in one chip. It reduces not only numbers of parts to build a device, but also the assembly costs. It will also contribute to make a device smaller.
- The single-layer structure makes its self-resonant frequency higher. It allows the devices to operate stable even at a high frequency range.
- Short distance between the capacitor and thin film resistor makes the residue inductance smaller and it contributes to attenuate unnecessary noise. So the device can work at its best characteristics.
- Since it has gold electrode, it is feasible to be installed inside a module, and it allows wire-bonding with gold wire.
- AuSn pre-coating finish is also available.
- It is very suitable for APD (Avalanche Photo Diode), because the capacitor has withstanding voltage of 100V.



## ● Main Application

- Low pass filter for power supply of PD (Photo Diode).
- Low pass filter for power supply of TIA (Transimpedance Amp. = Pre Amp.).

## ● Specification

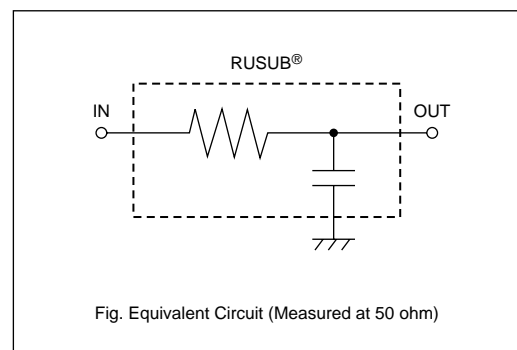
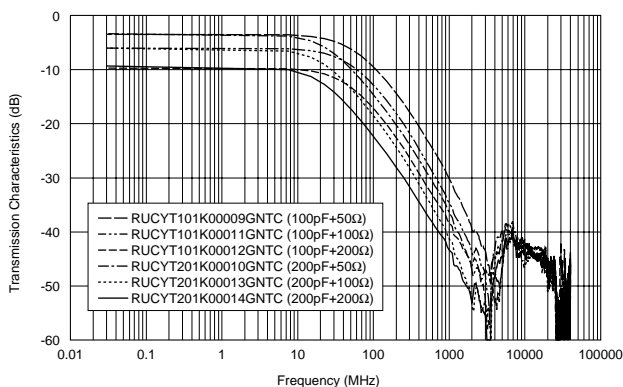
| Parameter   | Value   |
|---|---|
| Temperature Characteristics of Capacitance (TC) @-25°C to +85°C | ±10%  |
| Capacitor Rated Voltage   | 100V  |
| Temperature Coefficient of Resistance (TCR)                     | -70 ±50ppm/°C   |
| Resistor Rated Power  | 100mW/mm <sup>2</sup>   |
| Dielectric Constant (εr)  | 3000 (typ.)   |
| Structure of Metalized Film                                     | Top Side: TaN/Ti/Pd/Au (Min 4μm)<br>Bottom Side: Ti/Pd/Au (Min 4μm) |

## ● Product Example

- Six types of standard samples of RUSUB® C+R (Capacitor + Resistor) for evaluation are available.
- The individual substrate size, capacity, resistance value, and electrode pattern shape is available upon request.

| Part Number        | Size          | Thickness     | Capacitance | Resistance |
|--------------------|---------------|---------------|-------------|------------|
| RUCYT101K0009GNTC  | 1.0mm x 0.5mm | 0.11 ±0.025mm | 100pF ±10%  | 50Ω ±20%   |
| RUCYT101K00011GNTC | 1.0mm x 0.5mm | 0.11 ±0.025mm | 100pF ±10%  | 100Ω ±20%  |
| RUCYT101K00012GNTC | 1.0mm x 0.5mm | 0.11 ±0.025mm | 100pF ±10%  | 200Ω ±20%  |
| RUCYT201K00010GNTC | 1.0mm x 1.0mm | 0.12 ±0.025mm | 200pF ±10%  | 50Ω ±20%   |
| RUCYT201K00013GNTC | 1.0mm x 1.0mm | 0.12 ±0.025mm | 200pF ±10%  | 100Ω ±20%  |
| RUCYT201K00014GNTC | 1.0mm x 1.0mm | 0.12 ±0.025mm | 200pF ±10%  | 200Ω ±20%  |

## ● Frequency Characteristics

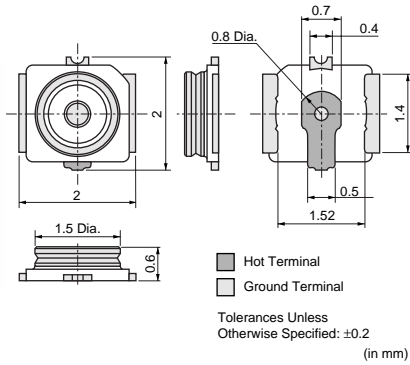


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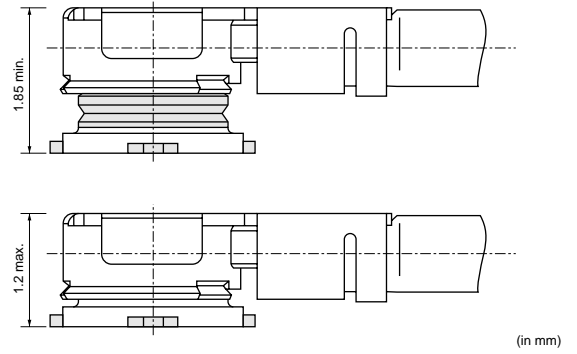
# Coaxial Connectors



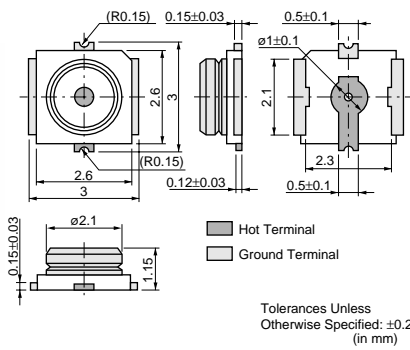
MM4829-2702



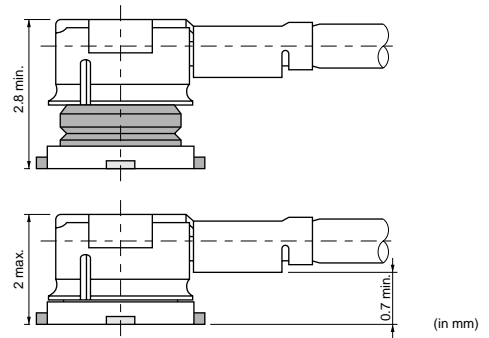
Dimensions



MM9329-2700



Dimensions



| Part Number        | Rated Voltage (V) | Frequency Rating (GHz) | Temperature Range  | VSWR                  |
|--------------------|-------------------|------------------------|--------------------|-----------------------|
| <b>MM4829-2702</b> | 250               | to 6.0                 | -40 to +85degree C | 1.3 max. (DC to 3GHz) |
| <b>MM9329-2700</b> | 250               | to 6.0                 | -40 to +90degree C | 1.2 max. (DC to 3GHz) |
| <b>MXHP32_TYPE</b> | 250               | to 6.0                 | -40 to +85degree C | 1.3 max.(DC to 3GHz)  |
| <b>MXTK92_TYPE</b> | 250               | to 6.0                 | -40 to +90degree C | 1.2 max.(DC to 3GHz)  |

Impedance: 50ohm

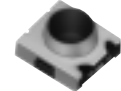
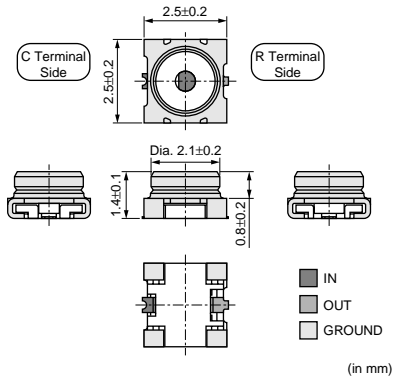
Microwave Components

8

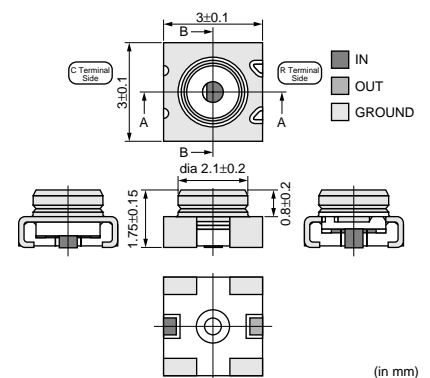
# Coaxial Connectors with Switches



MM8130-2600



MM8430-2610

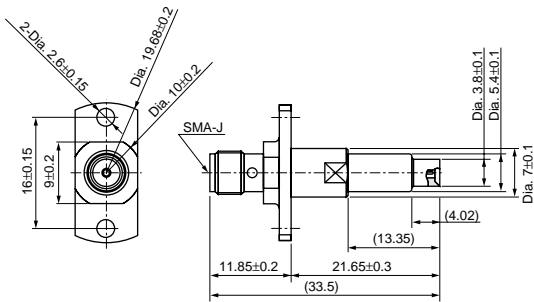


Continued on the following page.

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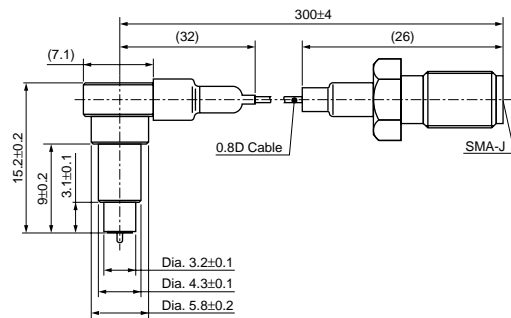
Continued from the preceding page.

Measurement Probe (P/N:MM126036)



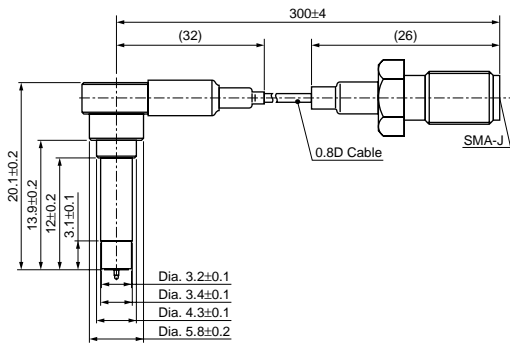
(in mm)

Measurement Probe (P/N:MXHS83QE3000)



(in mm)

Measurement Probe (P/N:MXHS83QH3000)



(in mm)

| Part Number        | Rated Voltage (Vrms) | Frequency Rating (GHz) | Temperature Range  | VSWR                  |
|--------------------|----------------------|------------------------|--------------------|-----------------------|
| <b>MM8130-2600</b> | 250                  | to 6                   | -40 to +85degree C | 1.2 max. (DC to 3GHz) |
| <b>MM8430-2610</b> | 250                  | to 6                   | -40 to +85degree C | 1.2 max.(DC to 3GHz)  |

Impedance: 50ohm

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# 9

## Sensors

**PTC Thermistors (for Overheat Sensing)**

**Pyroelectric Infrared Sensors**

**Fresnel Lens**

**Ultrasonic Sensors**

**Shock Sensors**

**Gyro Sensors**

**Rotary Position Sensors**

**Rotary Sensors**

**Magnetic Pattern Recognition Sensors**

**Magnetic Switch**

● **Part Numbering**

**PTC Thermistors (POSISTOR®) for Overheat Sensing Chip Type**

(Part Number) **PR** **F** **18** **BB** **471** **Q** **B5** **RB**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Series
- ③ Dimensions (L×W)
- ④ Temperature Characteristics

| Code      | Temperature Characteristics |
|-----------|-----------------------------|
| <b>AR</b> | Curie Point 120°C           |
| <b>AS</b> | Curie Point 130°C           |
| <b>BA</b> | Curie Point 110°C           |
| <b>BB</b> | Curie Point 100°C           |
| <b>BC</b> | Curie Point 90°C            |
| <b>BD</b> | Curie Point 80°C            |
| <b>BE</b> | Curie Point 70°C            |
| <b>BF</b> | Curie Point 60°C            |
| <b>BG</b> | Curie Point 50°C            |

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Resistance |
|------------|------------|
| <b>471</b> | 470Ω       |

- ⑥ Resistance Tolerance
- ⑦ Individual Specifications
- ⑧ Packaging

| Code      | Packaging                             |
|-----------|---------------------------------------|
| <b>RA</b> | Embossed Taping 4mm Pitch (4000 pcs.) |
| <b>RB</b> | Paper Taping 4mm Pitch (4000 pcs.)    |
| <b>RC</b> | Paper Taping 2mm Pitch (10000 pcs.)   |

**PTC Thermistors (POSISTOR®) for Overheat Sensing Lead Type**

(Part Number) **PT** **FL** **04** **BB** **222** **Q** **2N34** **B0**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Series
- ③ Dimensions
- ④ Temperature Characteristics

| Code      | Temperature Characteristics |
|-----------|-----------------------------|
| <b>BB</b> | Curie Point 100°C           |
| <b>BC</b> | Curie Point 90°C            |
| <b>BD</b> | Curie Point 80°C            |
| <b>BE</b> | Curie Point 70°C            |
| <b>BF</b> | Curie Point 60°C            |
| <b>BG</b> | Curie Point 50°C            |
| <b>BH</b> | Curie Point 40°C            |

⑤ Resistance

Expressed by three-digit alphanumerics. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Resistance |
|------------|------------|
| <b>222</b> | 2.2kΩ      |
| <b>471</b> | 470Ω       |

- ⑥ Resistance Tolerance
- ⑦ Individual Specifications
- ⑧ Packaging

| Code      | Packaging |
|-----------|-----------|
| <b>B0</b> | Bulk      |

**Pyroelectric Infrared Sensors**

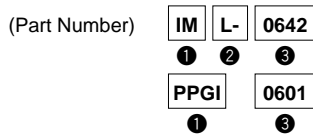
(Part Number) **IR** **S-** **A200ST** **01** **-R1**  
 ① ② ③ ④ ⑤

- ① Product ID
- ② Type
- ③ Characteristics
- ④ Individual Specification Code
- ⑤ Packaging

\* "(Part Number)" shows only an example which might be different from actual part number.

\* "③ Characteristics" and "④ Individual Specification Code" might have different digit number from actual part number.

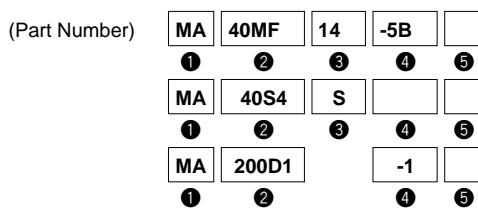
## Fresnel Lens



- ① Product ID
- ② Type
- ③ Characteristics

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* "③ Characteristics" might have a different digit number from actual part number.

## Ultrasonic Sensors



- ① Product ID
- ② Series
- ③ Characteristics
- ④ Individual Specification Code
- ⑤ Packaging

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* Any other definitions than "① Product ID" might have different digit numbers from actual part number.

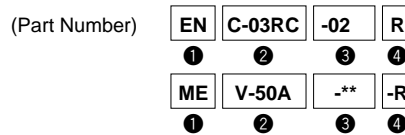
## Shock Sensors (SMD Type)



- ① Product ID
- ② Series
- ③ Characteristics
- ④ Individual Specification Code
- ⑤ Packaging

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* "③ Characteristics", "④ Individual Specification Code" and "⑤ Packaging" might have different digit number from actual part number.

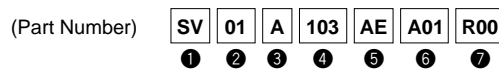
## Gyro Sensors



- ① Product ID
- ② Type
- ③ Individual Specification Code
- ④ Packaging

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* Any other definitions than "① Product ID" might have a different digit number from actual part number.

## Rotary Position Sensor



- ① Product ID
- ② Series
- ③ Terminal Shape

| Code | Terminal Shape |
|------|----------------|
| A    | SMD Type       |
| L    | Lead Type      |

- ④ Total Resistance

Expressed by three figures. The unit is ohm. The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code | Total Resistance |
|------|------------------|
| 103  | 10000Ω (=10kΩ)   |

- ⑤ Rotor Hole Shape/Rotor Hole Size

| Code | Rotor Hole Shape/Rotor Hole Size |
|------|----------------------------------|
| AD   | D Hole/3.5mm Dia.                |
| AE   | D Hole/4.0mm Dia.                |
| CE   | T Hole/4.0mm Dia.                |

- ⑥ Individual Specification Code
- ⑦ Packaging

## Rotary Sensors



- ① Product ID
- ② Type
- ③ Characteristics
- ④ Individual Specification Code

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* Any other definitions than "① Product ID" might have different digit number from actual part number.

**Magnetic Pattern Recognition Sensors**

(Part Number) **BS** **05W** **1KFAA**

①      ②      ③      ④

- ① Product ID
- ② Type
- ③ Characteristics
- ④ Individual Specification Code

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* Any other definitions than "① Product ID" might have different digit number from actual part number.

**Magnetic Switch**

(Part Number) **AS-** **M** **15** **T** **A**  **-R**

①   ②   ③   ④   ⑤   ⑥   ⑦

- ① Product ID
- ② Type

| Code     | Type              |
|----------|-------------------|
| <b>M</b> | Magnetic Switch   |
| <b>R</b> | Rotational Sensor |

- ③ Sensitivity

| Code      | Sensitivity |
|-----------|-------------|
| <b>15</b> | 1.5mT       |
| <b>30</b> | 3.0mT       |

- ④ Package

| Code     | Package |
|----------|---------|
| <b>T</b> | SOT23   |
| <b>N</b> | SON4    |

- ⑤ Supply Voltage

| Code     | Supply Voltage |
|----------|----------------|
| <b>A</b> | 1.6 to 3.5V    |
| <b>B</b> | 3.6 to 6.0V    |

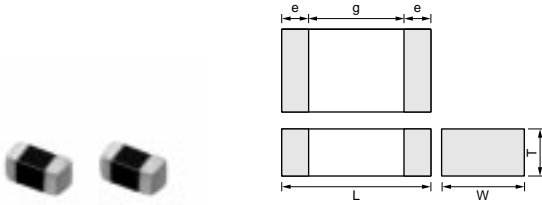
- ⑥ Individual Specification Code
- ⑦ Packaging

\* "(Part Number)" shows only an example which might be different from actual part number.  
 \* Any other definitions than "① Product ID" might have a different digit number from actual part number.

|                              | Detection                        | Temp-erature                | Infra-red                     | Ultra-sonic        | Magnetic       |                                      | Mechanical    |                |                         |
|------------------------------|----------------------------------|-----------------------------|-------------------------------|--------------------|----------------|--------------------------------------|---------------|----------------|-------------------------|
|                              |                                  |                             |                               |                    |                |                                      | Accele-ration | Angle Velocity | Angle                   |
|                              | Murata's Sensors                 | PTC Thermistors (POSISTOR®) | Pyroelectric Infrared Sensors | Ultrasonic Sensors | Rotary Sensors | Magnetic Pattern Recognition Sensors | Shock Sensors | Gyro Sensors   | Rotary Position Sensors |
| Audio Visual Equipment       | TV                               | ○                           | ○                             | ○                  |                |                                      |               |                |                         |
|                              | Audio Equipment                  | ○                           | ○                             |                    |                |                                      |               |                |                         |
|                              | DVD, MD, CD                      | ○                           |                               |                    |                |                                      | ○             |                | ○                       |
|                              | VCR                              | ○                           |                               |                    |                |                                      |               |                |                         |
|                              | Video Cameras                    | ○                           |                               |                    |                |                                      | ○             | ○              | ○                       |
|                              | Cameras, Digital Cameras         | ○                           |                               |                    |                |                                      | ○             | ○              | ○                       |
| Home Appliances              | Refrigerators                    |                             |                               |                    |                |                                      |               |                | ○                       |
|                              | Air Conditioners                 | ○                           | ○                             |                    |                |                                      |               |                | ○                       |
|                              | Vacuum Cleaners                  | ○                           |                               |                    |                |                                      |               |                |                         |
|                              | Kitchen Fans                     |                             | ○                             |                    |                |                                      |               |                |                         |
|                              | Water Suppliers                  |                             |                               |                    |                |                                      |               |                | ○                       |
| Security                     | Gas Detection Sensors            | ○                           | ○                             |                    |                |                                      |               |                |                         |
|                              | Flame Detection (heat) Sensors   |                             | ○                             |                    |                |                                      |               |                |                         |
|                              | Flammable Sensors                |                             | ○                             |                    |                |                                      |               |                |                         |
|                              | Burglar Alarm Systems            | ○                           | ○                             | ○                  |                |                                      |               |                |                         |
|                              | Intruders Detection Sensors      |                             | ○                             | ○                  |                |                                      |               |                |                         |
|                              | Glass Cracking Detection Sensors |                             |                               | ○                  |                |                                      |               |                |                         |
| Factory Automation Equipment | Automatic Transportation Systems |                             |                               | ○                  |                |                                      |               | ○              | ○                       |
|                              | Multi-Joints Robots              |                             |                               |                    | ○              |                                      |               | ○              | ○                       |
|                              | Processing Machines              |                             |                               |                    | ○              |                                      |               |                |                         |
|                              | Shape Inspection Systems         |                             |                               | ○                  |                |                                      |               |                |                         |
|                              | Molding Machines                 |                             |                               |                    | ○              |                                      |               |                |                         |
| Automotive                   | Navigation                       | ○                           |                               |                    |                |                                      |               | ○              | ○                       |
|                              | Air Conditioners                 | ○                           |                               |                    |                |                                      |               |                | ○                       |
|                              | Back Sonars                      |                             |                               | ○                  |                |                                      |               |                |                         |
| Office Automation Equipment  | Personal Computers               | ○                           | ○                             |                    |                |                                      | ○             | ○              |                         |
|                              | Copying Machines                 | ○                           | ○                             | ○                  |                |                                      |               |                | ○                       |
|                              | Printers                         | ○                           | ○                             | ○                  |                |                                      |               |                |                         |
|                              | Facsimiles                       | ○                           | ○                             | ○                  |                |                                      |               |                |                         |
|                              | Electric Boards                  |                             |                               | ○                  |                |                                      |               |                |                         |
| Financial Systems            | Automatic Teller Machines        |                             |                               | ○                  |                | ○                                    |               |                |                         |

## PTC (POSISTOR®) for Overheat Sensing

Chip Type 0402 (1005) Size



| Part Number     | Dimensions (mm) |          |          |             |          |
|-----------------|-----------------|----------|----------|-------------|----------|
|                 | L               | W        | T        | e           | g        |
| <b>PRF15_RC</b> | 1.0±0.05        | 0.5±0.05 | 0.5±0.05 | 0.15 to 0.4 | 0.3 min. |
| <b>PRF18_RB</b> | 1.6±0.15        | 0.8±0.15 | 0.8±0.15 | 0.1 to 0.6  | -        |
| <b>PRF21_RA</b> | 2.0±0.2         | 1.25±0.2 | 0.9±0.2  | 0.2 min.    | 0.5 min. |

| Part Number            | Sensing Temperature (at 4.7k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|------------------------|--|---------------------|-------------------------|----------------------------------|
| <b>PRF15BC471QB1RC</b> | 105 ±5°C                               | 32                  | 470 ±50%                | -20 to 120                       |
| <b>PRF15BB471QB1RC</b> | 115 ±5°C                               | 32                  | 470 ±50%                | -20 to 130                       |
| <b>PRF15BA471QB1RC</b> | 125 ±5°C                               | 32                  | 470 ±50%                | -20 to 140                       |

This product is applied to reflow soldering.  
This product is recognized by UL.

## PTC (POSISTOR®) for Overheat Sensing

Chip Type 0603 (1608) Size

| Part Number            | Sensing Temperature (at 4.7k ohm) (°C) | Sensing Temperature (at 47k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|------------------------|--|---------------------------------------|---------------------|-------------------------|----------------------------------|
| <b>PRF18BG471QB5RB</b> | 65 ±5°C                                | 80 ±7°C                               | 32                  | 470 ±50%                | -20 to 90                        |
| <b>PRF18BF471QB5RB</b> | 75 ±5°C                                | 90 ±7°C                               | 32                  | 470 ±50%                | -20 to 100                       |
| <b>PRF18BE471QB5RB</b> | 85 ±5°C                                | 100 ±7°C                              | 32                  | 470 ±50%                | -20 to 110                       |
| <b>PRF18BD471QB5RB</b> | 95 ±5°C                                | 110 ±7°C                              | 32                  | 470 ±50%                | -20 to 120                       |
| <b>PRF18BC471QB5RB</b> | 105 ±5°C                               | 120 ±7°C                              | 32                  | 470 ±50%                | -20 to 130                       |
| <b>PRF18BB471QB5RB</b> | 115 ±5°C                               | 130 ±7°C                              | 32                  | 470 ±50%                | -20 to 140                       |
| <b>PRF18BA471QB5RB</b> | 125 ±5°C                               | 140 ±7°C                              | 32                  | 470 ±50%                | -20 to 150                       |
| <b>PRF18AR471QB5RB</b> | 135 ±5°C                               | 150 ±7°C                              | 32                  | 470 ±50%                | -20 to 160                       |
| <b>PRF18AS471QB5RB</b> | 145 ±5°C                               | -                                     | 32                  | 470 ±50%                | -20 to 160                       |

This product is applied to flow/reflow soldering.  
This product is recognized by UL.

## PTC (POSISTOR®) for Overheat Sensing

Chip Type 0805 (2012) Size

| Part Number            | Sensing Temperature (at 4.7k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|------------------------|--|---------------------|-------------------------|----------------------------------|
| <b>PRF21BE471QB5RA</b> | 85 ±5°C                                | 32                  | 470 ±50%                | -20 to 100                       |
| <b>PRF21BD471QB5RA</b> | 95 ±5°C                                | 32                  | 470 ±50%                | -20 to 110                       |
| <b>PRF21BC471QB5RA</b> | 105 ±5°C                               | 32                  | 470 ±50%                | -20 to 120                       |
| <b>PRF21BB471QB5RA</b> | 115 ±5°C                               | 32                  | 470 ±50%                | -20 to 130                       |
| <b>PRF21BA471QB5RA</b> | 125 ±5°C                               | 32                  | 470 ±50%                | -20 to 140                       |
| <b>PRF21AR471QB5RA</b> | 135 ±5°C                               | 32                  | 470 ±50%                | -20 to 150                       |
| <b>PRF21AS471QB5RA</b> | 145 ±5°C                               | 32                  | 470 ±50%                | -20 to 160                       |

This product is applied to flow/reflow soldering.  
This product is recognized by UL.

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## PTC (POSISTOR<sup>®</sup>) for Overheat Sensing

Chip Tight Tolerance Type 0402(1005) Size

| Part Number     | Sensing Temperature<br>(at 4.7M ohm)<br>(°C) | Maximum<br>Voltage<br>(V) | Resistance<br>(25°C)<br>(k ohm) | Operating<br>Temperature Range<br>(°C) |
|-----------------|--|---------------------------|---------------------------------|--|
| PRF15BE103RB6RC | 100 ±3°C                                     | 32                        | 10 ±50%                         | -20 to 110                             |
| PRF15BG103RB6RC | 80 ±3°C                                      | 32                        | 10 ±50%                         | -20 to 90                              |

This product is applied to reflow soldering.

## PTC (POSISTOR<sup>®</sup>) for Overheat Sensing

Chip Tight Tolerance Type 0603 (1608) Size

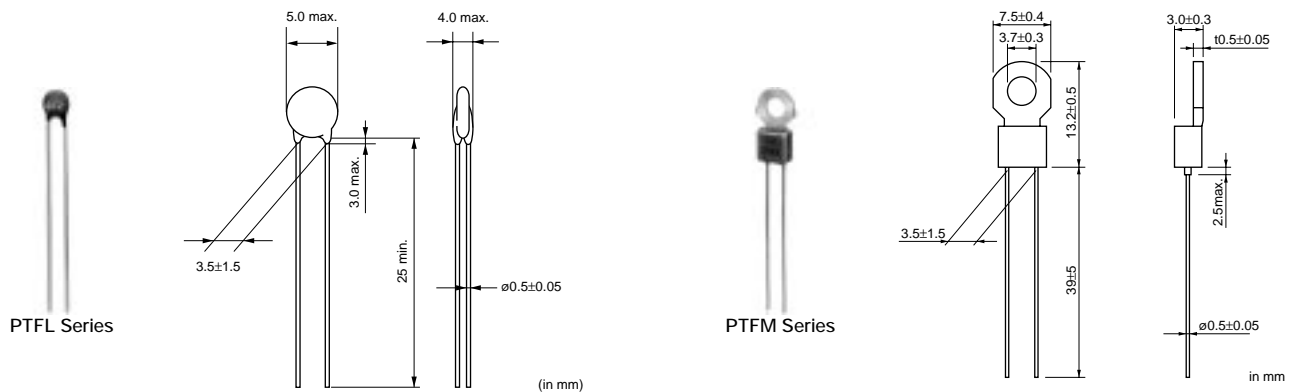
| Part Number     | Sensing Temperature<br>(at 4.7k ohm)<br>(°C) | Maximum<br>Voltage<br>(V) | Resistance<br>(25°C)<br>(ohm) | Operating<br>Temperature Range<br>(°C) |
|-----------------|--|---------------------------|-------------------------------|--|
| PRF18BG471RB5RB | 65 ±3°C                                      | 32                        | 470 ±50%                      | -20 to 80                              |
| PRF18BF471RB5RB | 75 ±3°C                                      | 32                        | 470 ±50%                      | -20 to 90                              |
| PRF18BE471RB5RB | 85 ±3°C                                      | 32                        | 470 ±50%                      | -20 to 100                             |
| PRF18BD471RB5RB | 95 ±3°C                                      | 32                        | 470 ±50%                      | -20 to 110                             |
| PRF18BC471RB5RB | 105 ±3°C                                     | 32                        | 470 ±50%                      | -20 to 120                             |
| PRF18BB471RB5RB | 115 ±3°C                                     | 32                        | 470 ±50%                      | -20 to 130                             |

This product is applied to flow/reflow soldering.

This product is recognized by UL.

## PTC (POSISTOR<sup>®</sup>) for Overheat Sensing

Lead Type



| Part Number        | Max. Voltage<br>(V) | Sensing Temp. (TS)<br>(°C) | Resistance Value<br>at 25°C (max.)<br>(ohm) | Resistance Value<br>(TS -10°C)<br>(max.) (ohm) | Resistance Value<br>(TS°C)<br>(min.) (ohm) |
|--------------------|---------------------|----------------------------|---|--|--|
| PTF□04BH471Q2N34B0 | 16                  | 60                         | 100   | 330  | 470  |
| PTF□04BG471Q2N34B0 | 16                  | 70                         | 100   | 330  | 470  |
| PTF□04BF471Q2N34B0 | 16                  | 80                         | 100   | 330  | 470  |
| PTF□04BE471Q2N34B0 | 16                  | 90                         | 100   | 330  | 470  |
| PTF□04BD471Q2N34B0 | 16                  | 100                        | 100   | 330  | 470  |
| PTF□04BC471Q2N34B0 | 16                  | 110                        | 100   | 330  | 470  |
| PTF□04BB471Q2N34B0 | 16                  | 120                        | 100   | 330  | 470  |
| PTF□04BH222Q2N34B0 | 16                  | 60                         | 330   | 1.5k   | 2.2k                                       |
| PTF□04BG222Q2N34B0 | 16                  | 70                         | 330   | 1.5k   | 2.2k                                       |
| PTF□04BF222Q2N34B0 | 16                  | 80                         | 330   | 1.5k   | 2.2k                                       |
| PTF□04BE222Q2N34B0 | 16                  | 90                         | 330   | 1.5k   | 2.2k                                       |
| PTF□04BD222Q2N34B0 | 16                  | 100                        | 330   | 1.5k   | 2.2k                                       |
| PTF□04BC222Q2N34B0 | 16                  | 110                        | 330   | 1.5k   | 2.2k                                       |

Continued on the following page.

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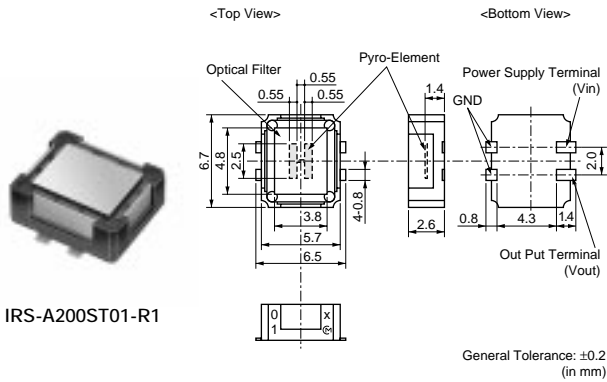
Continued from the preceding page.

| Part Number               | Max. Voltage (V) | Sensing Temp. (TS) (°C) | Resistance Value at 25°C (max.) (ohm) | Resistance Value (TS -10°C) (max.) (ohm) | Resistance Value (TS°C) (min.) (ohm) |
|---------------------------|------------------|-------------------------|---------------------------------------|--|--------------------------------------|
| <b>PTF□04BB222Q2N34B0</b> | 16               | 120                     | 330                                   | 1.5k                                     | 2.2k                                 |

A blank is filled with type codes. (L: Lead type, M: with Lug-terminal)  
Operating temperature range is -10 to TS+10°C.  
Please contact us for UL recognized products.

## Pyroelectric Infrared Sensors

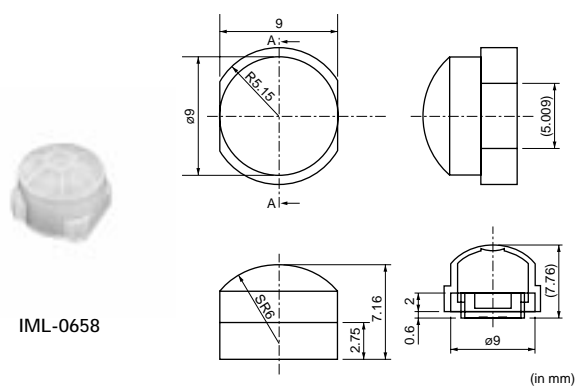
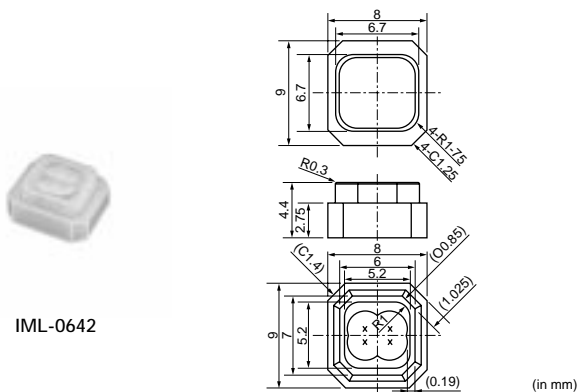
### Pyroelectric Infrared Sensors



| Part Number            | Field of View        | Optical Filter      | Electrode      | Operating Temperature Range (°C) |
|------------------------|----------------------|---------------------|----------------|----------------------------------|
| <b>IRS-A330ST02-R1</b> | theta1=theta2=50deg. | 5X10**-6m Long Pass | (1x0.55mm)x4   | -40 to 70                        |
| <b>IRS-A200ST01-R1</b> | theta1=theta2=50deg. | 5X10**-6m Long Pass | (2.5x0.55mm)x2 | -40 to 70                        |

## Pyroelectric Infrared Sensors

### Fresnel Lens



Continued on the following page.

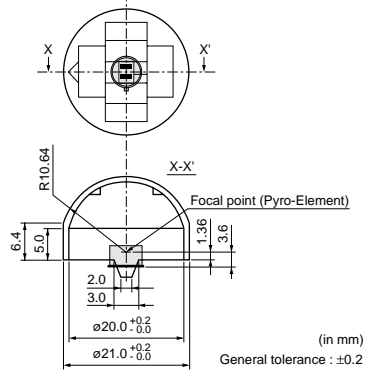
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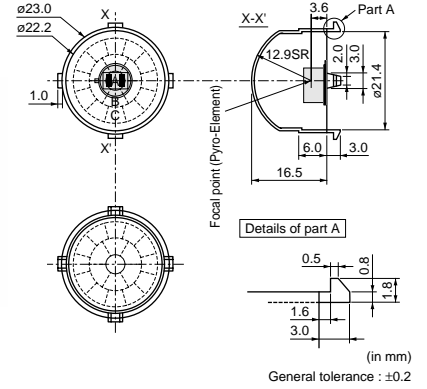
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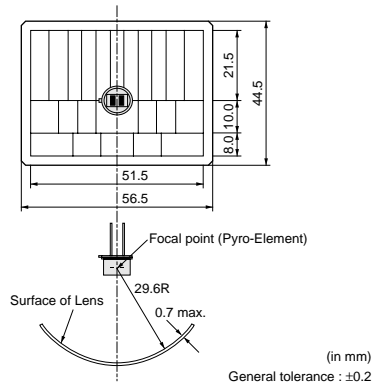
PPGI0601



PPGI0626



PPGI0902



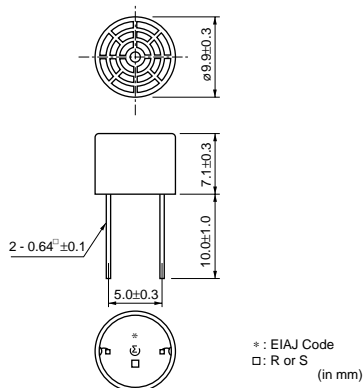
| Part Number | Material                  | Color          | Operating Temperature Range (°C) |
|-------------|---------------------------|----------------|----------------------------------|
| IMD-FL01G   | High density polyethylene | Dark Gray      | -20 to 60                        |
| IMD-FL01W   | High density polyethylene | Natural(White) | -20 to 60                        |
| IML-0642    | High density polyethylene | Natural(White) | -25 to 60                        |
| IML-0658    | High density polyethylene | Natural(White) | -25 to 60                        |
| IML-0669    | High density polyethylene | Natural(White) | -25 to 60                        |
| PPGI0601    | High density polyethylene | Natural(White) | -25 to 55                        |
| PPGI0626    | High density polyethylene | Natural(White) | -25 to 55                        |
| PPGI0902    | High density polyethylene | Natural(White) | -20 to 60                        |

## Ultrasonic Sensors

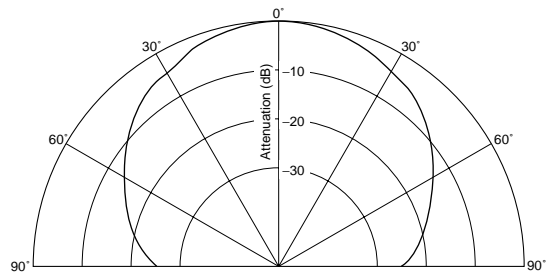
### ● Open Structure Type



MA40S4R



### Directivity in Sensitivity



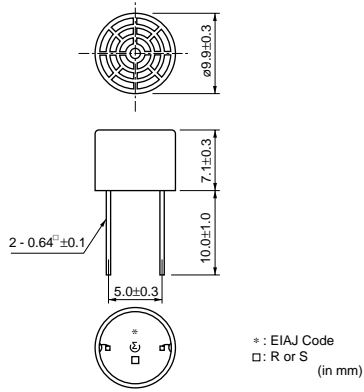
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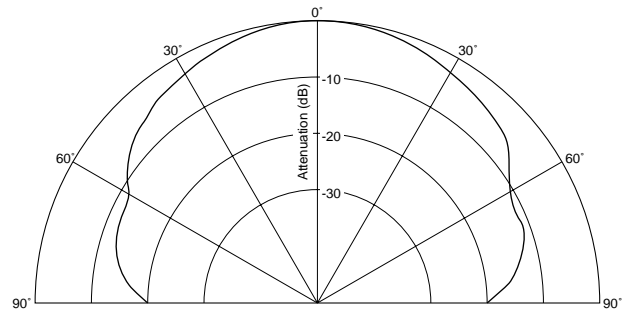
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MA40S4S



Directivity in S.P.L.

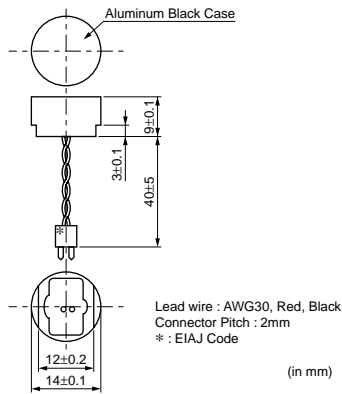


| Part Number | Construction | Using Method | Nominal Freq. (kHz) | Overall Sensitivity | Sensitivity (dB)         | S.P.L. (dB)               | Directivity (°) | Cap. (pF) |
|-------------|--------------|--------------|---------------------|---------------------|--------------------------|---------------------------|-----------------|-----------|
| MA40S4R     | Open struct. | Receiver     | 40                  | -                   | -63 typ.<br>(0dB=10V/Pa) | -                         | 80 (typ.)       | 2550      |
| MA40S4S     | Open struct. | Transmitter  | 40                  | -                   | -                        | 120 typ.<br>(0dB=0.02mPa) | 80 (typ.)       | 2550      |

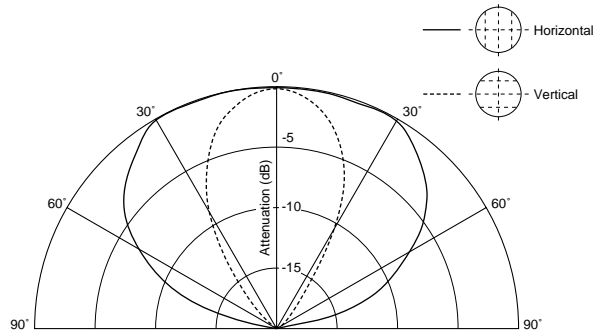
● Water Proof Type



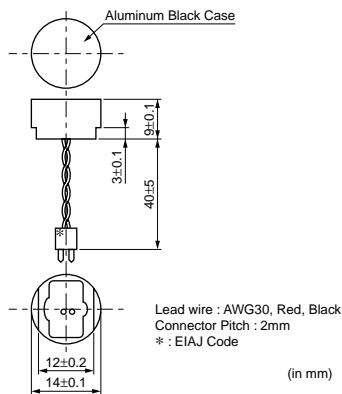
MA40MF14-5B



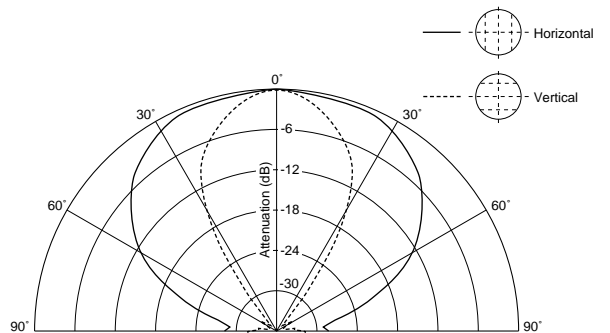
Directivity in Overall Sensitivity



MA48MF14-5B



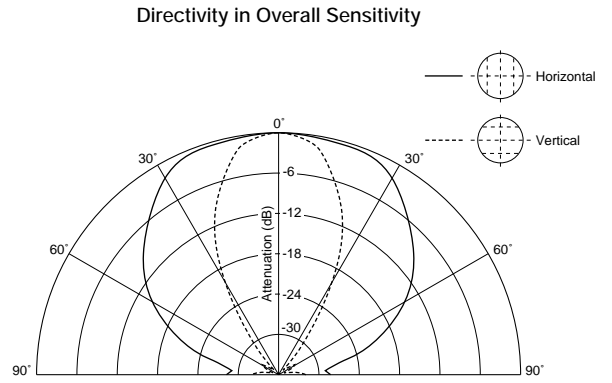
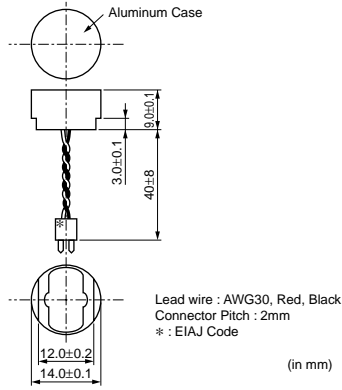
Directivity in Overall Sensitivity



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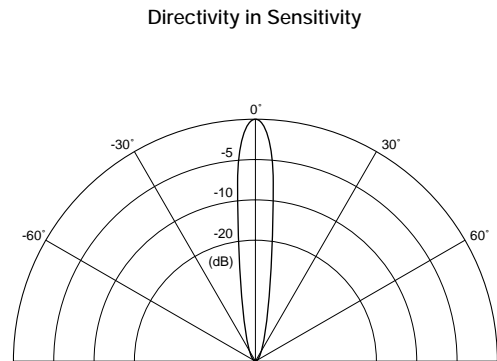
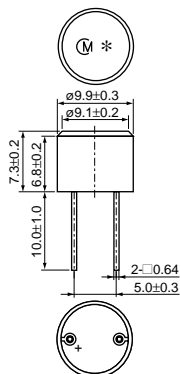
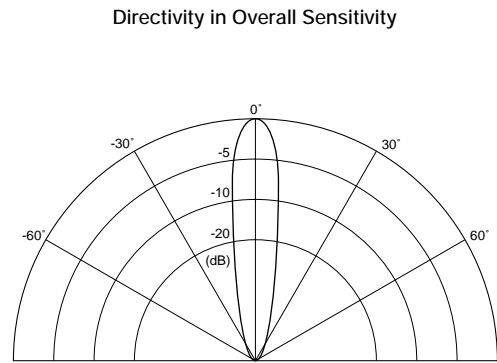
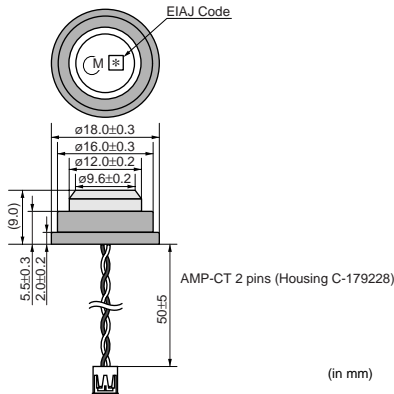
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| Part Number        | Construction | Using Method | Nominal Freq. (kHz) | Overall Sensitivity | Sensitivity (dB)         | S.P.L. (dB)               | Directivity (°) | Cap. (pF) |
|--------------------|--------------|--------------|---------------------|---------------------|--------------------------|---------------------------|-----------------|-----------|
| <b>MA40MF14-5B</b> | Water proof  | Dual Use     | 40                  | -                   | -87 min.<br>(0dB=10V/Pa) | 103 min.<br>(0dB=0.02mPa) | 110 x50°(typ.)  | 4400      |
| <b>MA48MF14-5B</b> | Water proof  | Dual Use     | 48                  | -                   | -90 min.<br>(0dB=10V/Pa) | 101 min.<br>(0dB=0.02mPa) | 100 x40°(typ.)  | 4200      |
| <b>MA58MF14-0N</b> | Water proof  | Dual Use     | 58                  | 0.3 to 1.2 vop      | -                        | -                         | 80 x35°(typ.)   | 2000      |

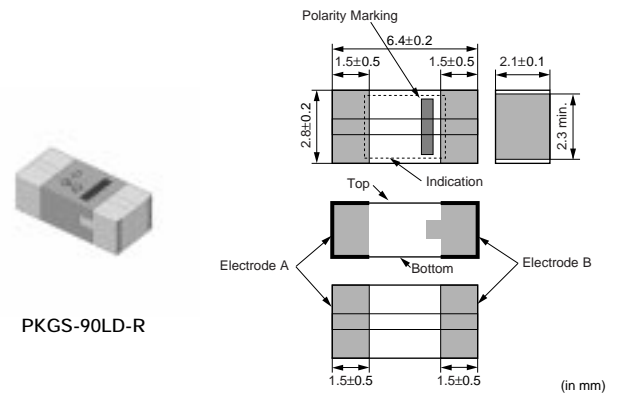
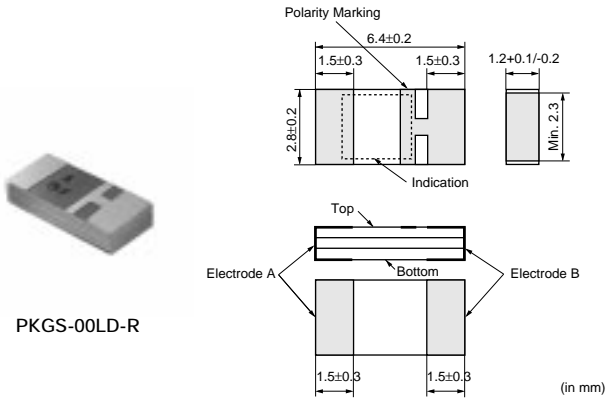
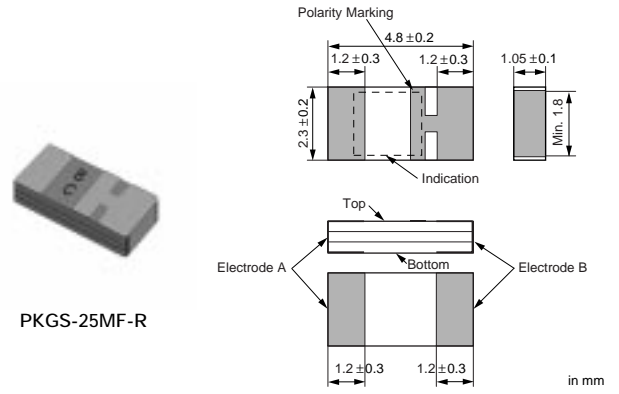
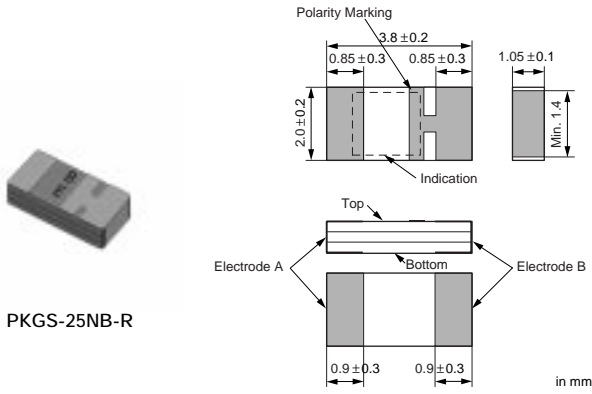
● High Frequency Type



| Part Number      | Construction        | Using Method | Nominal Freq. (kHz) | Overall Sensitivity | Sensitivity | S.P.L. | Directivity (°) | Cap. (pF) |
|------------------|---------------------|--------------|---------------------|---------------------|-------------|--------|-----------------|-----------|
| <b>MA200D1-1</b> | High frequency type | Dual Use     | 220                 | from 1.0V to 2.5V   | -           | -      | 20 (max.)       | 2300      |
| <b>MA300D1-1</b> | High frequency type | Dual Use     | 300                 | Min.1.5V            | -           | -      | 11 (max.)       | 1300      |

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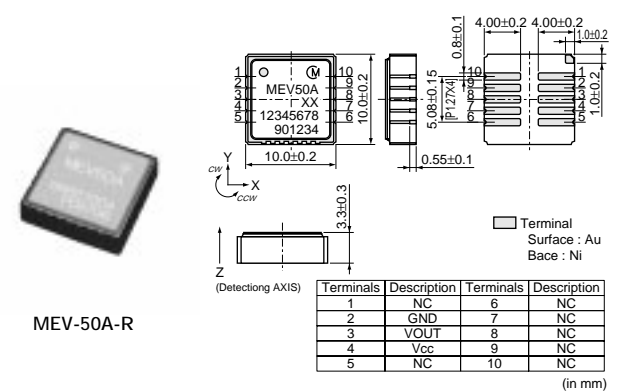
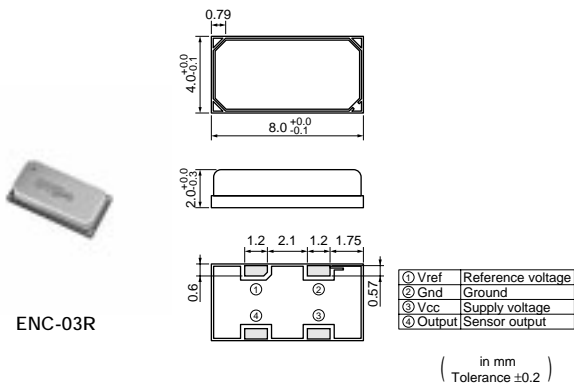
# Shock Sensors



| Part Number | Type of Sensitivity              | Primary Axis Inclined Angle (°) | Sensitivity* (Typ.) (pC/G) | Capacitance (Typ.) (pF) | Resonant Frequency (Typ.) (kHz) |
|-------------|----------------------------------|---------------------------------|----------------------------|-------------------------|---------------------------------|
| PKGS-25NB-R | Electric charge sensitivity type | 25                              | 0.168                      | 520                     | 44                              |
| PKGS-00MF-R | Electric charge sensitivity type | 0                               | 0.325                      | 570                     | 27                              |
| PKGS-25MF-R | Electric charge sensitivity type | 25                              | 0.350                      | 610                     | 27                              |
| PKGS-00LD-R | Electric charge sensitivity type | 0                               | 0.840                      | 770                     | 20                              |
| PKGS-90LD-R | Electric charge sensitivity type | 90                              | 0.840                      | 770                     | 20                              |

\*1G=9.80665m/s<sup>2</sup>

# Gyro Sensors



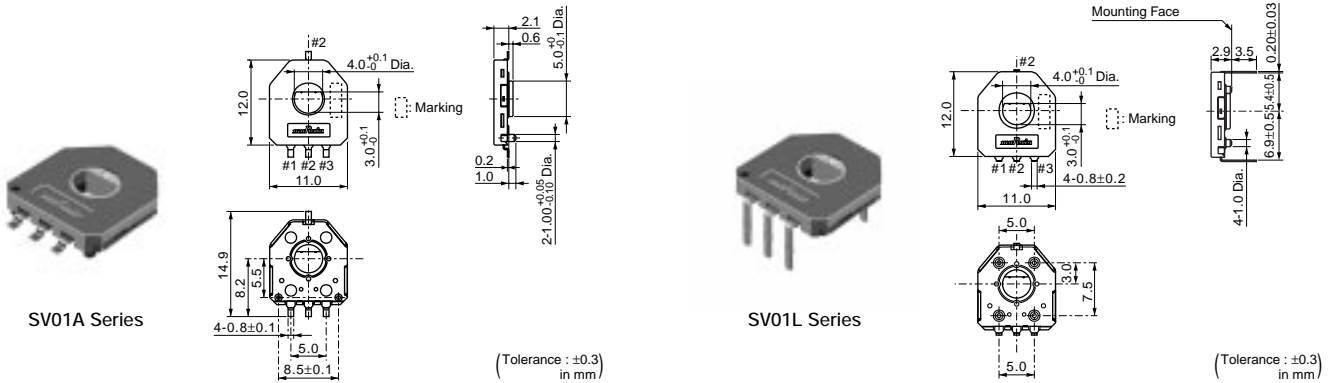
- ① Vref Reference voltage
- ② Gnd Ground
- ③ Vcc Supply voltage
- ④ Output Sensor output

| Terminals | Description | Terminals | Description |
|-----------|-------------|-----------|-------------|
| 1         | NC          | 6         | NC          |
| 2         | GND         | 7         | NC          |
| 3         | VOUT        | 8         | NC          |
| 4         | Vcc         | 9         | NC          |
| 5         | NC          | 10        | NC          |

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| Part Number      | Supply Voltage (Vdc) | Maximum Angular Velocity (deg./sec.) | Output (at Angular Velocity=0) (Vdc) | Scale Factor (mV/deg./sec.) | Linearity (%FS) | Response (Hz) | Operating Temperature Range (°C) | Mass (max.) (g) |
|------------------|----------------------|--------------------------------------|--------------------------------------|-----------------------------|-----------------|---------------|----------------------------------|-----------------|
| <b>ENC-03R</b>   | 2.7 to 5.25          | +/-300                               | 1.35                                 | 0.67                        | +/-5            | 50            | -5 to 75                         | 0.2             |
| <b>MEV-50A-R</b> | 5 +/-0.25            | +/- 70                               | 2.5 +/-0.3                           | 25.0                        | 0.5             | -             | -40 to 85                        | 1.5             |

## Rotary Position Sensors

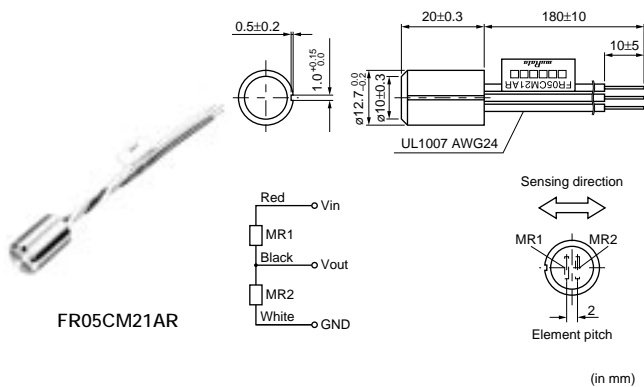


| Part Number          | Total Resistance Value (k ohm) | Linearity (%) | Effective Rotational Angle | Rotational Life |
|----------------------|--------------------------------|---------------|----------------------------|-----------------|
| <b>SV01A103AEA01</b> | 10 ±30%                        | ±2            | 333.3° (Ref.)              | 1M cycles       |
| <b>SV01L103AEA11</b> | 10 ±30%                        | ±2            | 333.3° (Ref.)              | 1M cycles       |

Operating Temperature Range: -40°C to 85°C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

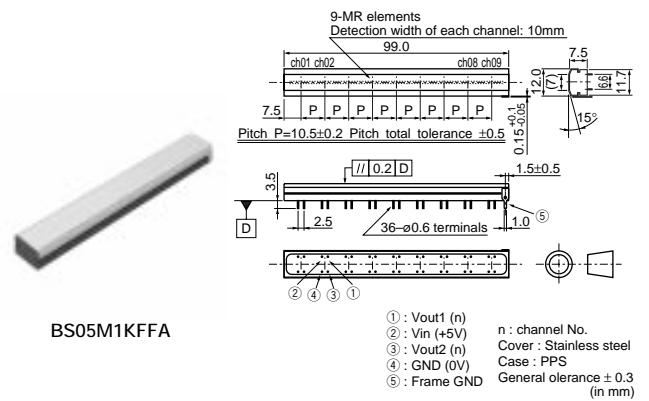
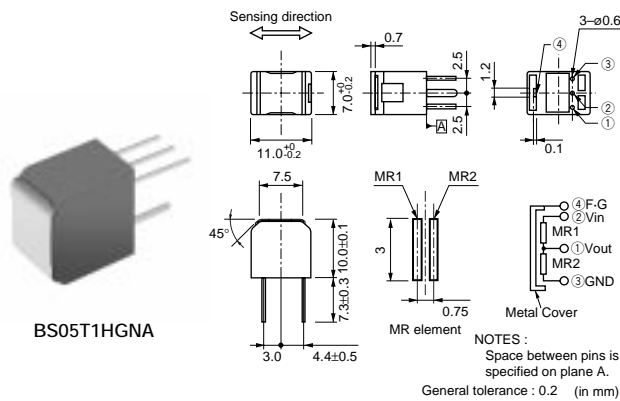
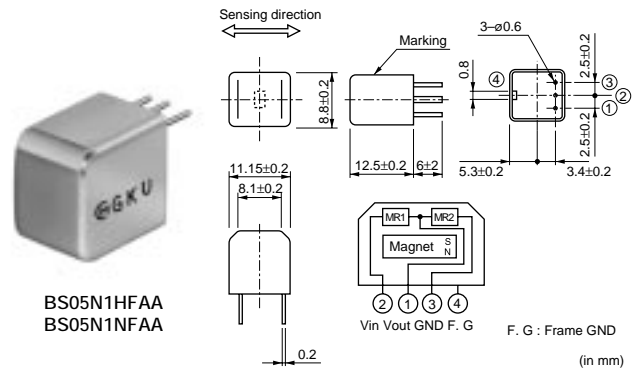
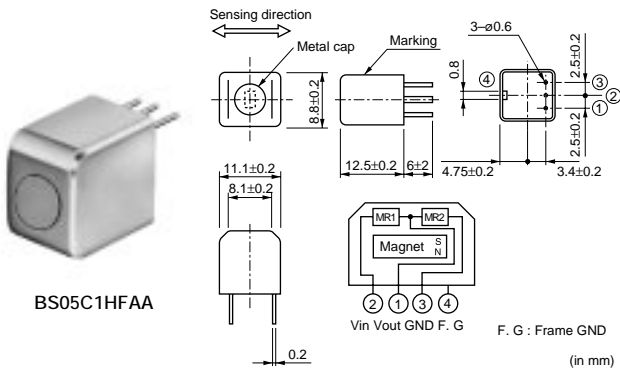
## Rotary Sensors



| Part Number       | Output Type | Target Gear Module |
|-------------------|-------------|--------------------|
| <b>FR05CM21AR</b> | Single      | 0.3-1.0            |

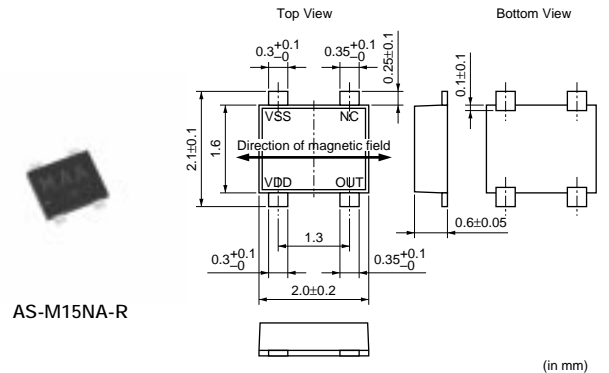
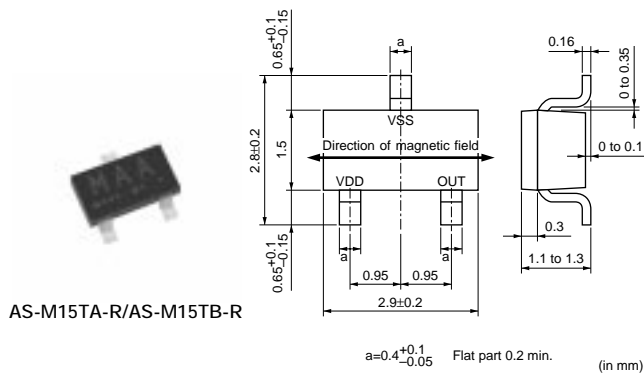
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# Magnetic Pattern Recognition Sensors



| Part Number       | Supply Voltage (V) | Min. Output Voltage | Max. Output Voltage | Detection Width (mm) | Operating Temperature Range (°C) |
|-------------------|--------------------|---------------------|---------------------|----------------------|----------------------------------|
| <b>BS05C1HFAA</b> | 5                  | 400mV rms           | -                   | 3                    | -20 to 60                        |
| <b>BS05N1HFAA</b> | 5                  | 400mV rms           | -                   | 3                    | -20 to 60                        |
| <b>BS05T1HGNA</b> | 5                  | 200mV rms           | 400mV rms           | 3                    | -20 to 60                        |
| <b>BS05N1NFAA</b> | 5                  | 330mV rms           | -                   | 6                    | -20 to 60                        |
| <b>BS05M1KFFA</b> | 5                  | 100mV p-p           | -                   | 10                   | 0 to 50                          |

# Magnetic Switch



| Part Number       | Supply Voltage | Current Consumption | Operating Magnetic Field (H->L) | Operating Magnetic Field (L->H) |
|-------------------|----------------|---------------------|---------------------------------|---------------------------------|
| <b>AS-M15TA-R</b> | 1.6 to 3.5V    | 1.6 to 3.0 $\mu$ A  | 1.5 to 2.2mT                    | 0.8 to 1.2mT                    |
| <b>AS-M15TB-R</b> | 1.6 to 3.5V    | 1.6 to 3.0 $\mu$ A  | 1.5 to 2.2mT                    | 0.8 to 1.2mT                    |
| <b>AS-M15NA-R</b> | 1.6 to 3.5V    | 1.6 to 3.0 $\mu$ A  | 1.5 to 2.2mT                    | 0.8 to 1.2mT                    |

# 10

## Thermistors

**PTC Thermistors (POSISTOR<sup>®</sup>) for Heater**

**PTC Thermistors (POSISTOR<sup>®</sup>) for Circuit Protection**

**PTC Thermistors (POSISTOR<sup>®</sup>) for Overheat Sensing**

**PTC Thermistors (POSISTOR<sup>®</sup>) for Motor Starters**

**NTC Thermistors for Temp. Sensor and Compensation**

**NTC Thermistors for Inrush Current Suppression**



● **Part Numbering**

**PTC Thermistors (POSISTOR®) for Heater**

(Part Number) **PT** **WSB1** **AS** **201** **T** **260** **A00**  
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Product ID
- ② Series
- ③ Temperature Characteristics

| Code      | Temperature Characteristics |
|-----------|-----------------------------|
| <b>AD</b> | Curie Point 280°C           |
| <b>AG</b> | Curie Point 220°C           |
| <b>AH</b> | Curie Point 200°C           |
| <b>AS</b> | Curie Point 130°C           |
| <b>BC</b> | Curie Point 90°C            |

- ④ Resistance
- Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Resistance   |
|------------|--------------|
| <b>201</b> | 200 $\Omega$ |

- ⑤ Resistance Tolerance
- ⑥ Maximum Voltage
- ⑦ Individual Specifications

**PTC Thermistors (POSISTOR®) for Circuit Protection**

(Part Number) **PR** **G** **18** **BB** **470** **M** **B1** **RB**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Series
- ③ Dimensions (L×W)
- ④ Temperature Characteristics
- ⑤ Resistance

Expressed by three-digit alphanumerics. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

| Code       | Resistance   |
|------------|--------------|
| <b>470</b> | 47 $\Omega$  |
| <b>471</b> | 470 $\Omega$ |

- ⑥ Resistance Tolerance
- ⑦ Individual Specifications
- ⑧ Packaging

| Code      | Packaging                             |
|-----------|---------------------------------------|
| <b>RA</b> | Embossed Taping 4mm Pitch (4000 pcs.) |
| <b>RB</b> | Paper Taping 4mm Pitch (4000 pcs.)    |
| <b>RK</b> | Embossed Taping 4mm Pitch (3000 pcs.) |

**PTC Thermistors (POSISTOR®) for Circuit Protection / for Overheat Sensing Lead Type**

(Part Number) **PT** **GL** **07** **AR** **220** **M** **3P51** **A0**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Series
- ③ Dimensions
- ④ Temperature Characteristics
- ⑤ Resistance

Expressed by three-digit alphanumerics. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

| Code       | Resistance    |
|------------|---------------|
| <b>R22</b> | 0.22 $\Omega$ |
| <b>2R2</b> | 2.2 $\Omega$  |
| <b>220</b> | 22 $\Omega$   |

- ⑥ Resistance Tolerance
- ⑦ Individual Specifications
- ⑧ Packaging

| Code      | Packaging |
|-----------|-----------|
| <b>A0</b> | Ammo Pack |
| <b>B0</b> | Bulk      |

**PTC Thermistors (POSISTOR®) for Overheat Sensing Chip Type**

(Part Number) **PR** **F** **18** **BB** **471** **Q** **B5** **RB**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Product ID
- ② Series
- ③ Dimensions (L×W)
- ④ Temperature Characteristics

| Code      | Temperature Characteristics |
|-----------|-----------------------------|
| <b>AR</b> | Curie Point 120°C           |
| <b>AS</b> | Curie Point 130°C           |
| <b>BA</b> | Curie Point 110°C           |
| <b>BB</b> | Curie Point 100°C           |
| <b>BC</b> | Curie Point 90°C            |
| <b>BD</b> | Curie Point 80°C            |
| <b>BE</b> | Curie Point 70°C            |
| <b>BF</b> | Curie Point 60°C            |
| <b>BG</b> | Curie Point 50°C            |

- ⑤ Resistance
- Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Resistance   |
|------------|--------------|
| <b>471</b> | 470 $\Omega$ |

- ⑥ Resistance Tolerance



⑦ Individual Specifications

⑧ Packaging

| Code      | Packaging                             |
|-----------|---------------------------------------|
| <b>RA</b> | Embossed Taping 4mm Pitch (4000 pcs.) |
| <b>RB</b> | Paper Taping 4mm Pitch (4000 pcs.)    |
| <b>RC</b> | Paper Taping 2mm Pitch (10000 pcs.)   |

PTC Thermistors (POSISTOR®) for Motor Starter Plug-in Type

(Part Number) **PT** **H7M** **4R7** **M** **C1** **-00**  
 ① ② ③ ④ ⑤ ⑥

① Product ID

② Series

③ Resistance

Expressed by three-digit alphanumerics. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

| Code       | Resistance   |
|------------|--------------|
| <b>4R7</b> | 4.7 $\Omega$ |
| <b>470</b> | 47 $\Omega$  |

④ Resistance Tolerance

⑤ Starting Circuit

| Code      | Starting Circuit |
|-----------|------------------|
| <b>B3</b> | CSR 3Pin         |
| <b>C1</b> | RSIR 1Pin        |
| <b>C2</b> | RSIR 2Pin        |
| <b>D2</b> | RSCR 2Pin        |
| <b>D3</b> | RSCR 3Pin        |

Please contact us for details.

⑥ Individual Specifications

NTC Thermistors for Temp. Sensor and Compensation Chip Type

(Part Number) **NC** **P** **18** **XH** **103** **J** **03** **RB**  
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

② Series

③ Dimensions (L×W)

④ Temperature Characteristics

⑤ Resistance

Expressed by three figures. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

| Code       | Resistance    |
|------------|---------------|
| <b>102</b> | 1k $\Omega$   |
| <b>103</b> | 10k $\Omega$  |
| <b>104</b> | 100k $\Omega$ |



⑥ Resistance Tolerance

⑦ Individual Specifications

⑧ Packaging

| Code      | Packaging                             |
|-----------|---------------------------------------|
| <b>RA</b> | Embossed Taping 4mm Pitch (4000 pcs.) |
| <b>RB</b> | Paper Taping 4mm Pitch (4000 pcs.)    |
| <b>RC</b> | Paper Taping 2mm Pitch (10000 pcs.)   |
| <b>RL</b> | Paper Taping 2mm Pitch (15000 pcs.)   |

NTC Thermistors for Inrush Current Suppression

(Part Number) **NT** **PAN** **3R0** **L** **DK** **B0**  
 ① ② ③ ④ ⑤ ⑥

① Product ID

② Series

③ Resistance

Expressed by three-digit alphanumerics. The unit is ohm ( $\Omega$ ). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

| Code       | Resistance  |
|------------|-------------|
| <b>3R0</b> | 3 $\Omega$  |
| <b>100</b> | 10 $\Omega$ |

④ Resistance Tolerance

⑤ Individual Specifications

A lead structure and other specifications are expressed by two capital letters.

| Code      | Individual Specifications | Body Diameter            |
|-----------|---------------------------|--------------------------|
| <b>B1</b> | Standard Type (Ammo Pack) | $\phi$ 7mm, $\phi$ 9mm   |
| <b>BM</b> | Standard Type (Bulk)      | $\phi$ 7mm, $\phi$ 9mm   |
| <b>D6</b> | Standard Type (Ammo Pack) | $\phi$ 10mm, $\phi$ 13mm |
| <b>DK</b> | Standard (Bulk)           | $\phi$ 18mm, $\phi$ 22mm |
| <b>DN</b> | Standard (Bulk)           | $\phi$ 10mm, $\phi$ 13mm |

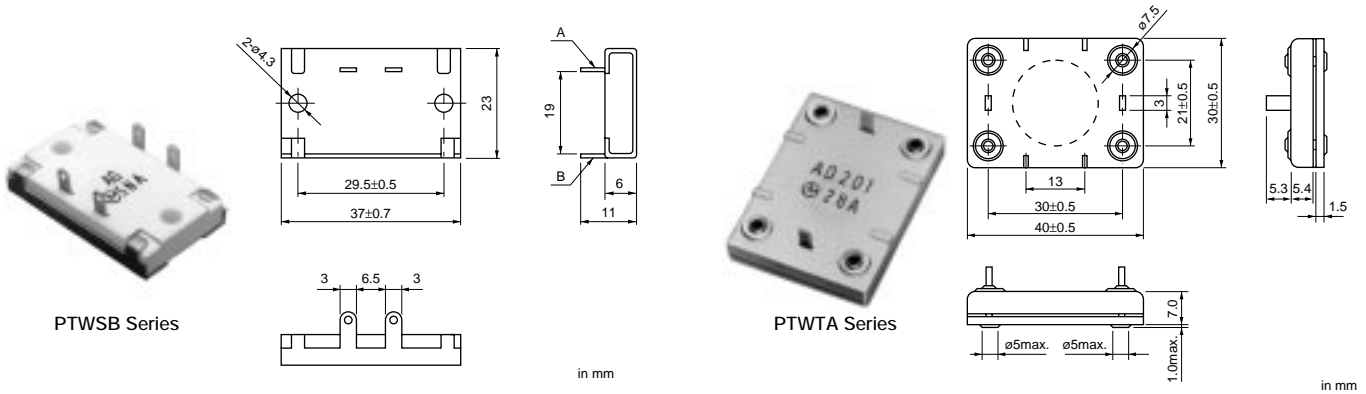
⑥ Packaging

| Code      | Packaging        |
|-----------|------------------|
| <b>A0</b> | Ammo Pack Taping |
| <b>B0</b> | Bulk             |

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# PTC (POSISTOR®) for Heater

Standard Type



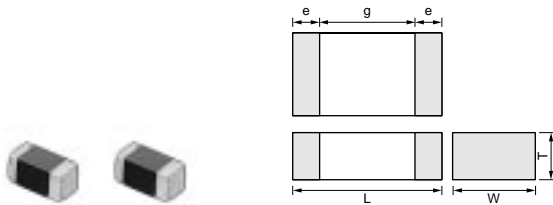
| Part Number        | Curie Point (°C) | Rated Volt. (Vrms) | Max. Volt. (Vrms) | Inrush Current (max.) (A) | Steady State Current (at 120Vrms) (mA) | Steady State Current (at 220Vrms) (mA) | Surface Temp. (Nominal Value) (°C) |
|--------------------|------------------|--------------------|-------------------|---------------------------|--|--|------------------------------------|
| PTWSB1BC201T260A00 | 92 ±7            | 120/220.           | 260               | 5.0                       | 28 ±20%                                | 17 ±20%                                | 105                                |
| PTWSB1AS201T260A00 | 135 ±7           | 120/220.           | 260               | 5.0                       | 33 ±20%                                | 21 ±20%                                | 130                                |
| PTWSB2AH201T260A00 | 207 ±7           | 120/220.           | 260               | 5.0                       | 58 ±20%                                | 35 ±20%                                | 185                                |
| PTWSB2AG201T260A00 | 225 ±7           | 120/220.           | 260               | 5.0                       | 65 ±20%                                | 39 ±20%                                | 200                                |
| PTWTA1AD201T260A00 | 280 ±7           | 120/220.           | 260               | 10.0                      | -                                      | 75 ±30%                                | 285                                |

Inrush current based on 220Vrms.

Operating temperature range PTWSB1: -20°C to +60°C, PTWSB2: -20°C to +85°C, PTWTA: 0°C to +60°C

# PTC (POSISTOR®) for Circuit Protection

Chip Type 0603 (1608) Size



| Part Number | Dimensions (mm) |          |          |            |          |
|-------------|-----------------|----------|----------|------------|----------|
|             | L               | W        | T        | e          | g        |
| PRG18_RB    | 1.6±0.15        | 0.8±0.15 | 0.8±0.15 | 0.1 to 0.6 | -        |
| PRG21_RA    | 2.0±0.2         | 1.25±0.2 | 0.9±0.2  | 0.2 min.   | 0.5 min. |
| PRG21_RK    | 2.0±0.2         | 1.25±0.2 | 1.25±0.2 | 0.2 min.   | 0.5 min. |

| Part Number     | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (mA) | Resistance (at +25°C) (ohm) |
|-----------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------|-----------------------------|
| PRG18BB471MB1RB | 24               | 7                            | 10                           | 21                           | 25                           | 60                | 470 ±20%                    |
| PRG18BB221MB1RB | 24               | 10                           | 14                           | 29                           | 35                           | 130               | 220 ±20%                    |
| PRG18BB101MB1RB | 24               | 15                           | 21                           | 45                           | 55                           | 300               | 100 ±20%                    |
| PRG18BB470MB1RB | 24               | 20                           | 29                           | 61                           | 75                           | 630               | 47 ±20%                     |
| PRG18BB330MB1RB | 24               | 25                           | 36                           | 71                           | 85                           | 900               | 33 ±20%                     |
| PRG18BC6R8MM1RB | 20               | 80                           | 120                          | 260                          | 320                          | 3500              | 6.8 ±20%                    |
| PRG18BC4R7MM1RB | 20               | 100                          | 155                          | 330                          | 400                          | 5000              | 4.7 ±20%                    |
| PRG18BC3R3MM1RB | 16               | 120                          | 180                          | 400                          | 480                          | 4500              | 3.3 ±20%                    |
| PRG18BC2R2MM1RB | 12               | 150                          | 220                          | 500                          | 600                          | 5000              | 2.2 ±20%                    |
| PRG18BC1R0MM1RB | 6                | 220                          | 330                          | 740                          | 850                          | 7500              | 1.0 ±20%                    |

Maximum Current shows typical capacities of the transformer which can be used.

This product is recognized by UL.

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## PTC (POSISTOR®) for Circuit Protection

Chip Type 0805 (2012) Size

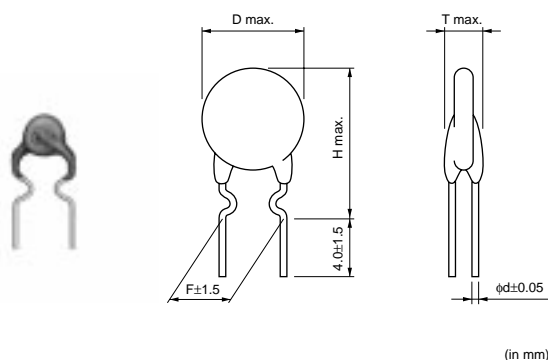
| Part Number     | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (mA) | Resistance (at +25°C) (ohm) |
|-----------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------|-----------------------------|
| PRG21BB220MB1RK | 20               | 30                           | 44                           | 91                           | 110                          | 1100              | 22 ±20%                     |
| PRG21BB150MB1RK | 20               | 40                           | 59                           | 116                          | 140                          | 1600              | 15 ±20%                     |
| PRG21BC6R8MM1RA | 24               | 80                           | 120                          | 260                          | 320                          | 3500              | 6.8 ±20%                    |
| PRG21BC4R7MM1RA | 24               | 100                          | 155                          | 330                          | 400                          | 5000              | 4.7 ±20%                    |
| PRG21BC3R3MM1RA | 20               | 120                          | 180                          | 400                          | 480                          | 6000              | 3.3 ±20%                    |
| PRG21BC2R2MM1RA | 16               | 150                          | 220                          | 500                          | 600                          | 6500              | 2.2 ±20%                    |
| PRG21BC1R0MM1RA | 12               | 220                          | 330                          | 740                          | 850                          | 10000             | 1.0 ±20%                    |
| PRG21BC0R6MM1RA | 6                | 285                          | 420                          | 920                          | 1100                         | 10000             | 0.6 ±20%                    |
| PRG21BC0R2MM1RA | 6                | 500                          | 750                          | 1620                         | 2000                         | 10000             | 0.2 ±20%                    |

Maximum Current shows typical capacities of the transformer which can be used.

This product is recognized by UL.

## PTC (POSISTOR®) for Circuit Protection

Narrow Current Band 30V Series



| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Height (H) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|-----------------|--------------------|---------------------------|
| PTGL04AS100K2N51B0 | 30               | 122                          | 154                          | 205                          | 240                          | 1.5              | 10 ±10%                     | 4.5                   | 3.5                | 9.5             | 5.0                | 0.5                       |
| PTGL04AS100K2B51B0 | 30               | 167                          | 212                          | 282                          | 330                          | 2.0              | 10 ±10%                     | 4.5                   | 3.5                | 9.5             | 5.0                | 0.6                       |
| PTGL05AS3R9K2B51B0 | 30               | 269                          | 340                          | 452                          | 530                          | 3.5              | 3.9 ±10%                    | 5.5                   | 3.5                | 10.5            | 5.0                | 0.6                       |
| PTGL07AS2R7K2B51B0 | 30               | 336                          | 425                          | 565                          | 663                          | 4.5              | 2.7 ±10%                    | 7.3                   | 3.5                | 12.3            | 5.0                | 0.6                       |
| PTGL07AS1R8K2B51B0 | 30               | 420                          | 532                          | 708                          | 829                          | 5.0              | 1.8 ±10%                    | 7.3                   | 3.5                | 12.3            | 5.0                | 0.6                       |
| PTGL09AS1R2K2B51B0 | 30               | 556                          | 704                          | 936                          | 1097                         | 6.0              | 1.2 ±10%                    | 9.3                   | 3.5                | 14.3            | 5.0                | 0.6                       |
| PTGL12AS0R8K2B51B0 | 30               | 685                          | 867                          | 1153                         | 1352                         | 7.0              | 0.8 ±10%                    | 11.5                  | 3.5                | 16.5            | 5.0                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used.

30V Series is recognized by UL.

Taping type of part numbers with "A0" is available.

# PTC (POSISTOR®) for Circuit Protection

## Narrow Current Band 51/60V Series

| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Height (H) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|-----------------|--------------------|---------------------------|
| PTGL04AS100K3B51B0 | 51               | 168                          | 213                          | 283                          | 332                          | 1.0              | 10 ±10%                     | 4.5                   | 3.5                | 9.5             | 5.0                | 0.6                       |
| PTGL05AS6R8K3B51B0 | 51               | 197                          | 249                          | 331                          | 388                          | 1.5              | 6.8 ±10%                    | 5.5                   | 3.5                | 10.5            | 5.0                | 0.6                       |
| PTGL07AS3R3K3B51B0 | 51               | 307                          | 389                          | 517                          | 606                          | 3.0              | 3.3 ±10%                    | 7.3                   | 3.5                | 12.3            | 5.0                | 0.6                       |
| PTGL09AS2R2K3B51B0 | 51               | 412                          | 522                          | 694                          | 814                          | 4.0              | 2.2 ±10%                    | 9.3                   | 3.5                | 14.3            | 5.0                | 0.6                       |
| PTGL12AS1R2K3B51B0 | 51               | 592                          | 749                          | 996                          | 1168                         | 5.0              | 1.2 ±10%                    | 11.5                  | 3.5                | 16.5            | 5.0                | 0.6                       |
| PTGL04AS220K4N51B0 | 60               | 88                           | 112                          | 149                          | 175                          | 1.0              | 22 ±10%                     | 4.5                   | 3.5                | 9.5             | 5.0                | 0.5                       |
| PTGL04AS220K4B51B0 | 60               | 115                          | 145                          | 193                          | 226                          | 1.0              | 22 ±10%                     | 4.5                   | 3.5                | 9.5             | 5.0                | 0.6                       |
| PTGL05AS100K4B51B0 | 60               | 170                          | 215                          | 286                          | 335                          | 1.5              | 10 ±10%                     | 5.5                   | 3.5                | 10.5            | 5.0                | 0.6                       |
| PTGL07AS5R6K4N51B0 | 60               | 186                          | 236                          | 314                          | 368                          | 2.2              | 5.6 ±10%                    | 7.3                   | 3.5                | 12.3            | 5.0                | 0.5                       |
| PTGL07AS5R6K4B51B0 | 60               | 229                          | 290                          | 386                          | 452                          | 3.0              | 5.6 ±10%                    | 7.3                   | 3.5                | 12.3            | 5.0                | 0.6                       |
| PTGL09AS3R3K4B51B0 | 60               | 333                          | 421                          | 560                          | 656                          | 4.0              | 3.3 ±10%                    | 9.3                   | 3.5                | 14.3            | 5.0                | 0.6                       |
| PTGL12AS2R2K4B51B0 | 60               | 439                          | 556                          | 739                          | 867                          | 5.0              | 2.2 ±10%                    | 11.5                  | 3.5                | 16.5            | 5.0                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used.  
51/60V Series are recognized by UL.  
Taping type of part numbers with "A0" is available.

# PTC (POSISTOR®) for Circuit Protection

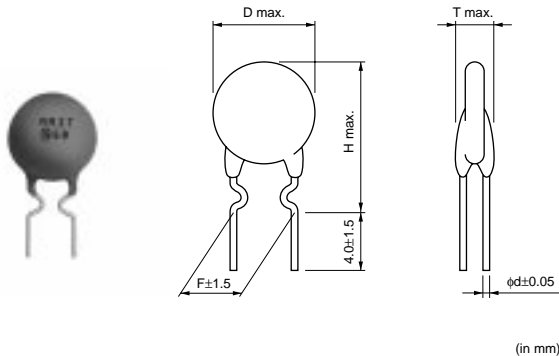
## Narrow Current Band 140V Series

| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Height (H) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|-----------------|--------------------|---------------------------|
| PTGL04AS560K6B51B0 | 140              | 74                           | 94                           | 125                          | 147                          | 0.5              | 56 ±10%                     | 4.5                   | 4.5                | 9.5             | 5.0                | 0.6                       |
| PTGL05AS270K6B51B0 | 140              | 106                          | 134                          | 178                          | 209                          | 1.0              | 27 ±10%                     | 5.5                   | 4.5                | 10.5            | 5.0                | 0.6                       |
| PTGL07AS150K6B51B0 | 140              | 148                          | 187                          | 249                          | 292                          | 1.5              | 15 ±10%                     | 7.3                   | 4.5                | 12.3            | 5.0                | 0.6                       |
| PTGL09AS120K6B51B0 | 140              | 192                          | 244                          | 324                          | 380                          | 2.0              | 12 ±10%                     | 9.3                   | 4.5                | 14.3            | 5.0                | 0.6                       |
| PTGL09AS7R6K6B51B0 | 140              | 227                          | 287                          | 382                          | 447                          | 2.2              | 7.6 ±10%                    | 9.3                   | 4.5                | 14.3            | 5.0                | 0.6                       |
| PTGL12AS4R7K6B51B0 | 140              | 310                          | 393                          | 523                          | 613                          | 3.5              | 4.7 ±10%                    | 11.5                  | 4.5                | 16.5            | 5.0                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used.  
140V Series is recognized by UL.  
Taping type of part numbers with "A0" is available.

# PTC (POSISTOR®) for Circuit Protection

## 16V Series



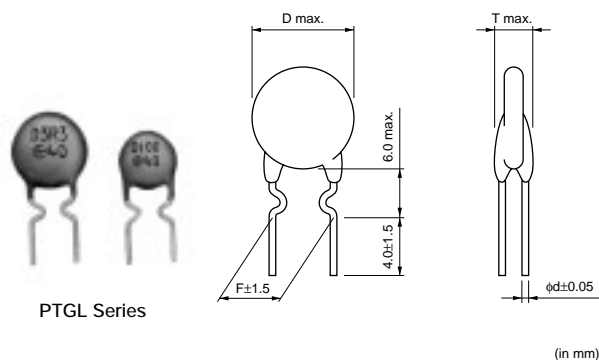
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• This PDF catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|---------------------------|
| PTGL05AR1R0M1B51B0 | 16               | 370                          | 470                          | 880                          | 1040                         | 2.0              | 1.0 ±20%                    | 6.0                   | 3.5                | 5.0                | 0.6                       |
| PTGL06AR0R8M1B51B0 | 16               | 400                          | 505                          | 955                          | 1120                         | 3.0              | 0.8 ±20%                    | 6.5                   | 3.5                | 5.0                | 0.6                       |
| PTGL07ARR47M1B51B0 | 16               | 560                          | 705                          | 1310                         | 1570                         | 5.0              | 0.47 ±20%                   | 7.5                   | 3.5                | 5.0                | 0.6                       |
| PTGL09ARR33M1B51B0 | 16               | 680                          | 875                          | 1625                         | 1900                         | 7.0              | 0.33 ±20%                   | 9.0                   | 3.5                | 5.0                | 0.6                       |
| PTGL10ARR27M1B51B0 | 16               | 800                          | 1025                         | 1900                         | 2250                         | 8.0              | 0.27 ±20%                   | 10.1                  | 3.5                | 5.0                | 0.6                       |
| PTGL12AR0R2M1B51B0 | 16               | 1000                         | 1300                         | 2410                         | 2800                         | 9.0              | 0.2 ±20%                    | 11.3                  | 3.5                | 5.0                | 0.6                       |
| PTGL14ARR15M1B51B0 | 16               | 1200                         | 1545                         | 2855                         | 3360                         | 10               | 0.15 ±20%                   | 13.5                  | 3.5                | 5.0                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used.  
Taping type of part numbers with "A0" is available (except PTGL14ARR15M1B51B0).

## PTC (POSISTOR®) for Circuit Protection

### 24/30/32V Series



(in mm)

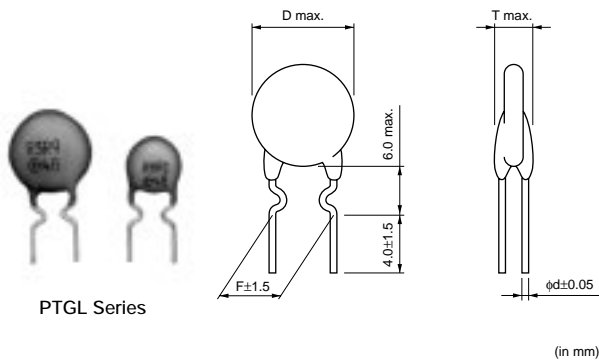
| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|---------------------------|
| PTGL07BD100N2B51B0 | 24               | 80                           | 124                          | 251                          | 320                          | 2.0              | 10 ±30%                     | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL07BD6R8N2B51B0 | 24               | 90                           | 139                          | 296                          | 370                          | 2.0              | 6.8 ±30%                    | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL09BD4R7N2B51B0 | 24               | 120                          | 216                          | 398                          | 500                          | 2.0              | 4.7 ±30%                    | 9.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL09BD3R3N2B51B0 | 24               | 140                          | 248                          | 461                          | 580                          | 2.0              | 3.3 ±30%                    | 9.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL09BD2R2N2B51B0 | 24               | 180                          | 326                          | 431                          | 710                          | 2.0              | 2.2 ±30%                    | 9.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL04AR130H2B51B0 | 30               | 145                          | 180                          | 350                          | 400                          | 0.7              | 13 ±25%                     | 5.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL07AR4R6H2B51B0 | 30               | 250                          | 340                          | 610                          | 700                          | 2.0              | 4.6 ±25%                    | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL09AR1R8H2B51B0 | 30               | 410                          | 510                          | 970                          | 1120                         | 3.0              | 1.8 ±25%                    | 9.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL12AR1R2H2B51B0 | 30               | 520                          | 645                          | 1225                         | 1420                         | 4.3              | 1.2 ±25%                    | 12.0                  | 4.0                | 5.0                | 0.6                       |
| PTGL13AR0R8H2B71B0 | 30               | 680                          | 870                          | 1600                         | 1900                         | 5.5              | 0.8 ±25%                    | 13.5                  | 4.0                | 7.5                | 0.6                       |
| PTGL07BD470N3B51B0 | 32               | 30                           | 55                           | 115                          | 140                          | 1.5              | 47 ±30%                     | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL07BD330N3B51B0 | 32               | 40                           | 60                           | 135                          | 170                          | 1.5              | 33 ±30%                     | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL07BD220N3B51B0 | 32               | 45                           | 75                           | 160                          | 200                          | 1.5              | 22 ±30%                     | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL07BD150N3B51B0 | 32               | 60                           | 100                          | 195                          | 240                          | 1.5              | 15 ±30%                     | 7.4                   | 4.0                | 5.0                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used.  
24/30/32V Series are recognized by UL. (except PTGL13AR0R8H2B71B0)  
Only PTGL\_51B0 Series is available in taping type. Taping type of part numbers with "A0" is available.

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# PTC (POSISTOR<sup>®</sup>) for Circuit Protection

56/80V Series



PTGL Series

(in mm)

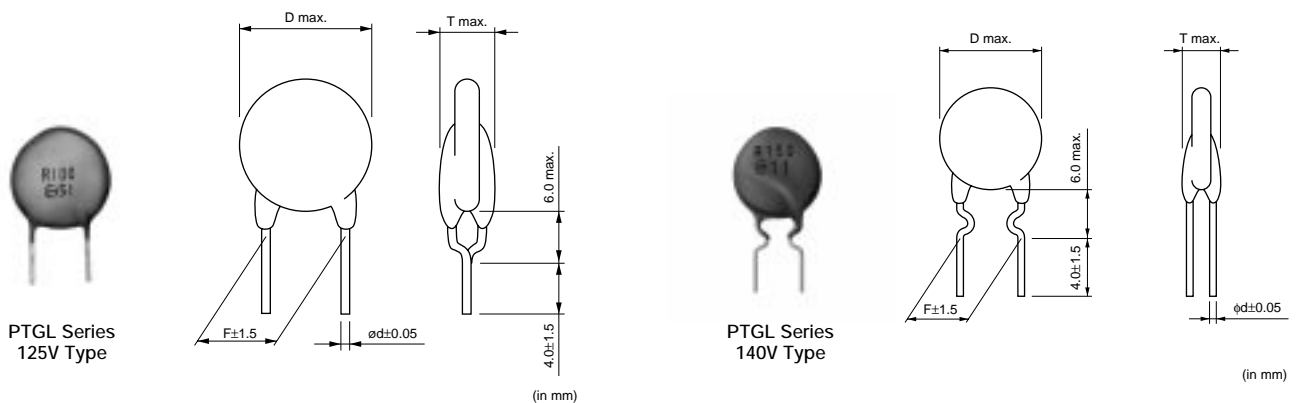
| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|---------------------------|
| PTGL07AR220M3P51B0 | 56               | 90                           | 115                          | 205                          | 240                          | 1.0              | 22 ±20%                     | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL07AR8R2M3P51B0 | 56               | 130                          | 165                          | 300                          | 350                          | 1.0              | 8.2 ±20%                    | 7.4                   | 4.0                | 5.0                | 0.6                       |
| PTGL09AR150M3B51B0 | 56               | 150                          | 190                          | 340                          | 400                          | 1.2              | 15 ±20%                     | 9.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL10AR3R9M3P51B0 | 56               | 210                          | 260                          | 470                          | 550                          | 2.0              | 3.9 ±20%                    | 10.5                  | 4.0                | 5.0                | 0.6                       |
| PTGL09AR4R7M3B51B0 | 56               | 270                          | 350                          | 600                          | 700                          | 2.0              | 4.7 ±20%                    | 9.5                   | 4.0                | 5.0                | 0.6                       |
| PTGL10AR3R9M3B51B0 | 56               | 300                          | 390                          | 680                          | 800                          | 2.0              | 3.9 ±20%                    | 10.5                  | 4.0                | 5.0                | 0.6                       |
| PTGL14AR3R3M3B71B0 | 56               | 380                          | 490                          | 830                          | 980                          | 2.5              | 3.3 ±20%                    | 14.5                  | 4.0                | 7.5                | 0.6                       |
| PTGL05AR550H4P51B0 | 80               | 50                           | 62                           | 115                          | 135                          | 0.7              | 55 ±25%                     | 5.5                   | 4.5                | 5.0                | 0.6                       |
| PTGL07AR250H4B51B0 | 80               | 110                          | 140                          | 260                          | 300                          | 1.0              | 25 ±25%                     | 7.4                   | 4.5                | 5.0                | 0.6                       |
| PTGL09AR9R4H4B51B0 | 80               | 190                          | 240                          | 450                          | 530                          | 3.0              | 9.4 ±25%                    | 9.5                   | 4.5                | 5.0                | 0.6                       |
| PTGL12AR5R6H4B71B0 | 80               | 270                          | 350                          | 650                          | 760                          | 4.3              | 5.6 ±25%                    | 12.0                  | 4.5                | 7.5                | 0.6                       |
| PTGL13AR3R7H4B71B0 | 80               | 310                          | 405                          | 750                          | 860                          | 5.5              | 3.7 ±25%                    | 13.5                  | 4.5                | 7.5                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used. Please contact us for UL recognized products.

Only PTGL\_51B0 Series is available in taping type. Taping type of part numbers with "A0" is available.

# PTC (POSISTOR<sup>®</sup>) for Circuit Protection

125/140V Series



PTGL Series  
125V Type

PTGL Series  
140V Type

(in mm)

(in mm)

| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|---------------------------|
| PTGL05AR181M7P52B0 | 125              | 30                           | 38                           | 64                           | 75                           | 0.3              | 180 ±20%                    | 6.0                   | 5.0                | 5.0                | 0.6                       |
| PTGL07AR750M7B52B0 | 125              | 65                           | 82                           | 142                          | 165                          | 0.3              | 75 ±20%                     | 8.0                   | 6.0                | 5.0                | 0.6                       |
| PTGL09AR470M6B52B0 | 125              | 90                           | 120                          | 200                          | 230                          | 0.5              | 47 ±20%                     | 10.0                  | 5.5                | 5.0                | 0.6                       |
| PTGL09AR220M6B52B0 | 125              | 135                          | 175                          | 290                          | 340                          | 0.8              | 22 ±20%                     | 10.0                  | 5.5                | 5.0                | 0.6                       |

Continued on the following page.

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Continued from the preceding page.

| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|---------------------------|
| PTGL12AR150M6B72B0 | 125              | 175                          | 220                          | 380                          | 440                          | 1.0              | 15 ±20%                     | 12.5                  | 5.5                | 7.5                | 0.6                       |
| PTGL14AR100M6B72B0 | 125              | 220                          | 280                          | 475                          | 550                          | 1.2              | 10 ±20%                     | 15.0                  | 5.5                | 7.5                | 0.6                       |
| PTGL18AR6R8M6B72B0 | 125              | 300                          | 380                          | 640                          | 750                          | 1.4              | 6.8 ±20%                    | 18.5                  | 5.5                | 7.5                | 0.6                       |
| PTGL18AR4R7M6B72B0 | 125              | 360                          | 450                          | 775                          | 900                          | 1.7              | 4.7 ±20%                    | 18.5                  | 5.5                | 7.5                | 0.6                       |
| PTGL18AR3R3M6B72B0 | 125              | 420                          | 540                          | 900                          | 1050                         | 2.0              | 3.3 ±20%                    | 18.5                  | 5.5                | 7.5                | 0.6                       |
| PTGL07AR330M6A51B0 | 140              | 100                          | 130                          | 200                          | 230                          | 0.5              | 33 ±20%                     | 7.4                   | 6.0                | 5.0                | 0.5                       |
| PTGL09AR220M6C61B0 | 140              | 140                          | 180                          | 280                          | 330                          | 1.0              | 22 ±20%                     | 9.6                   | 6.0                | 6.5                | 0.65                      |
| PTGL10AR150M6C61B0 | 140              | 170                          | 220                          | 345                          | 400                          | 1.0              | 15 ±20%                     | 11.6                  | 6.0                | 6.5                | 0.65                      |
| PTGL12AR100M6C01B0 | 140              | 220                          | 290                          | 440                          | 510                          | 1.0              | 10 ±20%                     | 13.0                  | 6.0                | 10.0               | 0.65                      |
| PTGL13AR6R8M6C01B0 | 140              | 290                          | 370                          | 575                          | 670                          | 1.0              | 6.8 ±20%                    | 14.0                  | 6.0                | 10.0               | 0.65                      |
| PTGL16AR5R6M6C01B0 | 140              | 340                          | 440                          | 670                          | 780                          | 2.0              | 5.6 ±20%                    | 17.0                  | 6.0                | 10.0               | 0.65                      |

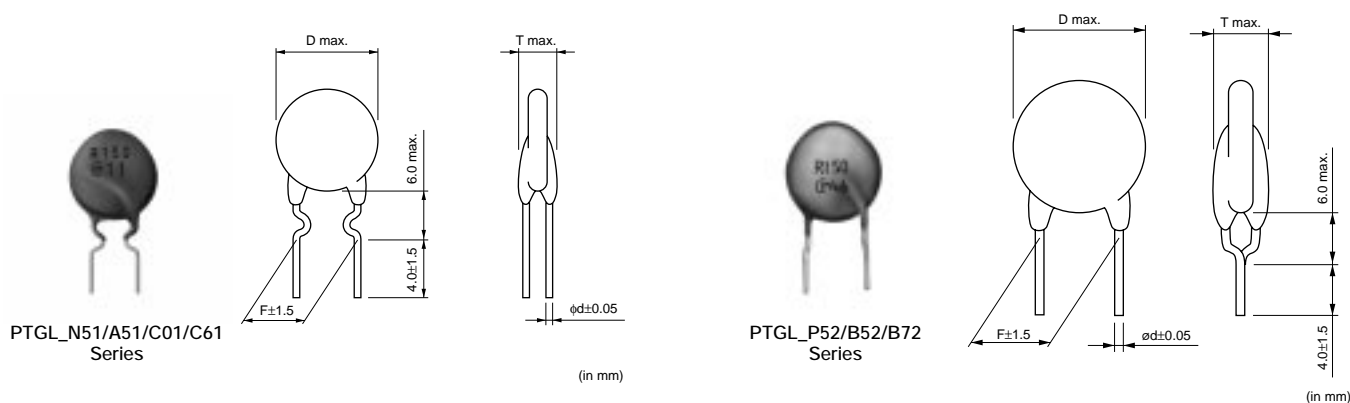
Maximum Current shows typical capacities of the transformer which can be used.

Please contact us for UL recognized products.

Only PTGL\_52B0 Series is available in taping type. Taping type of part numbers with "A0" is available.

## PTC (POSISTOR®) for Circuit Protection

### 250/265V Series



| Part Number        | Max. Voltage (V) | Hold Current (at +60°C) (mA) | Hold Current (at +25°C) (mA) | Trip Current (at +25°C) (mA) | Trip Current (at -10°C) (mA) | Max. Current (A) | Resistance (at +25°C) (ohm) | Body Diameter (D)(mm) | Thickness (T) (mm) | Lead Space (F)(mm) | Lead Diameter (phi d)(mm) |
|--------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|-----------------------------|-----------------------|--------------------|--------------------|---------------------------|
| PTGL07BB220N0B52A0 | 250              | 90                           | 130                          | 250                          | 300                          | 0.5              | 22 ±30%                     | 8.0                   | 6.0                | 5.0                | 0.6                       |
| PTGL10BB120N0P52A0 | 250              | 90                           | 130                          | 250                          | 300                          | 0.6              | 12 ±30%                     | 11.0                  | 6.0                | 5.0                | 0.6                       |
| PTGL09AR390N0B52A0 | 250              | 100                          | 115                          | 245                          | 280                          | 0.6              | 39 ±30%                     | 10.0                  | 6.0                | 5.0                | 0.6                       |
| PTGL05AR151H8P52B0 | 265              | 28                           | 35                           | 65                           | 78                           | 0.2              | 150 ±25%                    | 6.0                   | 6.0                | 5.0                | 0.6                       |
| PTGL05AR181M9N51B0 | 265              | 29                           | 37                           | 60                           | 70                           | 0.3              | 180 ±20%                    | 6.5                   | 6.5                | 5.0                | 0.5                       |
| PTGL05AR121M9N51B0 | 265              | 35                           | 47                           | 75                           | 85                           | 0.3              | 120 ±20%                    | 6.5                   | 6.5                | 5.0                | 0.5                       |
| PTGL07AR820M9A51B0 | 265              | 60                           | 75                           | 125                          | 150                          | 0.5              | 82 ±20%                     | 8.2                   | 6.5                | 5.0                | 0.5                       |
| PTGL07AR700H8B52B0 | 265              | 66                           | 85                           | 160                          | 185                          | 0.4              | 70 ±25%                     | 8.0                   | 6.0                | 5.0                | 0.6                       |
| PTGL07AR650H8B52B0 | 265              | 68                           | 84                           | 162                          | 190                          | 1.0              | 65 ±25%                     | 8.0                   | 6.0                | 5.0                | 0.6                       |
| PTGL07AR450H8B52B0 | 265              | 80                           | 105                          | 200                          | 220                          | 1.0              | 45 ±25%                     | 8.0                   | 6.0                | 5.0                | 0.6                       |
| PTGL07AR560M9A51B0 | 265              | 80                           | 95                           | 165                          | 190                          | 0.8              | 56 ±20%                     | 8.2                   | 6.5                | 5.0                | 0.5                       |
| PTGL09AR390M9C61B0 | 265              | 100                          | 130                          | 210                          | 240                          | 1.2              | 39 ±20%                     | 10.0                  | 6.5                | 6.5                | 0.65                      |
| PTGL09AR250H8B52B0 | 265              | 118                          | 150                          | 290                          | 330                          | 1.0              | 25 ±25%                     | 10.0                  | 6.0                | 5.0                | 0.6                       |
| PTGL12AR270M9C01B0 | 265              | 150                          | 200                          | 310                          | 360                          | 1.5              | 27 ±20%                     | 14.0                  | 6.5                | 10.0               | 0.65                      |
| PTGL12AR150H8B72B0 | 265              | 165                          | 210                          | 400                          | 460                          | 1.5              | 15 ±25%                     | 12.5                  | 6.0                | 7.5                | 0.6                       |
| PTGL14AR180M9C01B0 | 265              | 180                          | 230                          | 380                          | 440                          | 1.8              | 18 ±20%                     | 15.7                  | 6.5                | 10.0               | 0.65                      |
| PTGL13AR100H8B72B0 | 265              | 200                          | 260                          | 480                          | 560                          | 2.2              | 10 ±25%                     | 14.0                  | 6.0                | 7.5                | 0.6                       |
| PTGL18AR6R0H8B72B0 | 265              | 300                          | 380                          | 715                          | 830                          | 4.1              | 6.0 ±25%                    | 18.5                  | 6.0                | 7.5                | 0.6                       |

Maximum Current shows typical capacities of the transformer which can be used.

250V/265V Series are recognized by UL.

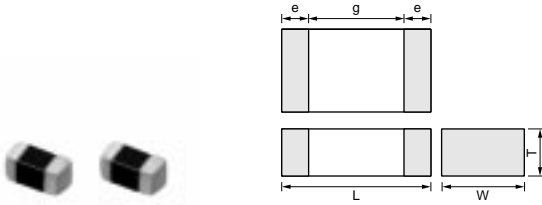
Only PTGL\_52B0 Series are available in taping type. Taping type of part numbers with "A0" is available.

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# PTC (POSISTOR<sup>®</sup>) for Overheat Sensing

Chip Type 0402 (1005) Size



| Part Number | Dimensions (mm) |          |          |             |          |
|-------------|-----------------|----------|----------|-------------|----------|
|             | L               | W        | T        | e           | g        |
| PRF15_RC    | 1.0±0.05        | 0.5±0.05 | 0.5±0.05 | 0.15 to 0.4 | 0.3 min. |
| PRF18_RB    | 1.6±0.15        | 0.8±0.15 | 0.8±0.15 | 0.1 to 0.6  | -        |
| PRF21_RA    | 2.0±0.2         | 1.25±0.2 | 0.9±0.2  | 0.2 min.    | 0.5 min. |

| Part Number     | Sensing Temperature (at 4.7k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|-----------------|--|---------------------|-------------------------|----------------------------------|
| PRF15BC471QB1RC | 105 ±5°C                               | 32                  | 470 ±50%                | -20 to 120                       |
| PRF15BB471QB1RC | 115 ±5°C                               | 32                  | 470 ±50%                | -20 to 130                       |
| PRF15BA471QB1RC | 125 ±5°C                               | 32                  | 470 ±50%                | -20 to 140                       |

This product is applied to reflow soldering.  
This product is recognized by UL.

# PTC (POSISTOR<sup>®</sup>) for Overheat Sensing

Chip Type 0603 (1608) Size

| Part Number     | Sensing Temperature (at 4.7k ohm) (°C) | Sensing Temperature (at 47k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|-----------------|--|---------------------------------------|---------------------|-------------------------|----------------------------------|
| PRF18BG471QB5RB | 65 ±5°C                                | 80 ±7°C                               | 32                  | 470 ±50%                | -20 to 90                        |
| PRF18BF471QB5RB | 75 ±5°C                                | 90 ±7°C                               | 32                  | 470 ±50%                | -20 to 100                       |
| PRF18BE471QB5RB | 85 ±5°C                                | 100 ±7°C                              | 32                  | 470 ±50%                | -20 to 110                       |
| PRF18BD471QB5RB | 95 ±5°C                                | 110 ±7°C                              | 32                  | 470 ±50%                | -20 to 120                       |
| PRF18BC471QB5RB | 105 ±5°C                               | 120 ±7°C                              | 32                  | 470 ±50%                | -20 to 130                       |
| PRF18BB471QB5RB | 115 ±5°C                               | 130 ±7°C                              | 32                  | 470 ±50%                | -20 to 140                       |
| PRF18BA471QB5RB | 125 ±5°C                               | 140 ±7°C                              | 32                  | 470 ±50%                | -20 to 150                       |
| PRF18AR471QB5RB | 135 ±5°C                               | 150 ±7°C                              | 32                  | 470 ±50%                | -20 to 160                       |
| PRF18AS471QB5RB | 145 ±5°C                               | -                                     | 32                  | 470 ±50%                | -20 to 160                       |

This product is applied to flow/reflow soldering.  
This product is recognized by UL.

# PTC (POSISTOR<sup>®</sup>) for Overheat Sensing

Chip Type 0805 (2012) Size

| Part Number     | Sensing Temperature (at 4.7k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|-----------------|--|---------------------|-------------------------|----------------------------------|
| PRF21BE471QB5RA | 85 ±5°C                                | 32                  | 470 ±50%                | -20 to 100                       |
| PRF21BD471QB5RA | 95 ±5°C                                | 32                  | 470 ±50%                | -20 to 110                       |
| PRF21BC471QB5RA | 105 ±5°C                               | 32                  | 470 ±50%                | -20 to 120                       |
| PRF21BB471QB5RA | 115 ±5°C                               | 32                  | 470 ±50%                | -20 to 130                       |
| PRF21BA471QB5RA | 125 ±5°C                               | 32                  | 470 ±50%                | -20 to 140                       |
| PRF21AR471QB5RA | 135 ±5°C                               | 32                  | 470 ±50%                | -20 to 150                       |
| PRF21AS471QB5RA | 145 ±5°C                               | 32                  | 470 ±50%                | -20 to 160                       |

This product is applied to flow/reflow soldering.  
This product is recognized by UL.

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## PTC (POSISTOR®) for Overheat Sensing

Chip Tight Tolerance Type 0402(1005) Size

| Part Number     | Sensing Temperature (at 4.7M ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (k ohm) | Operating Temperature Range (°C) |
|-----------------|--|---------------------|---------------------------|----------------------------------|
| PRF15BE103RB6RC | 100 ±3°C                               | 32                  | 10 ±50%                   | -20 to 110                       |
| PRF15BG103RB6RC | 80 ±3°C                                | 32                  | 10 ±50%                   | -20 to 90                        |

This product is applied to reflow soldering.

## PTC (POSISTOR®) for Overheat Sensing

Chip Tight Tolerance Type 0603 (1608)Size

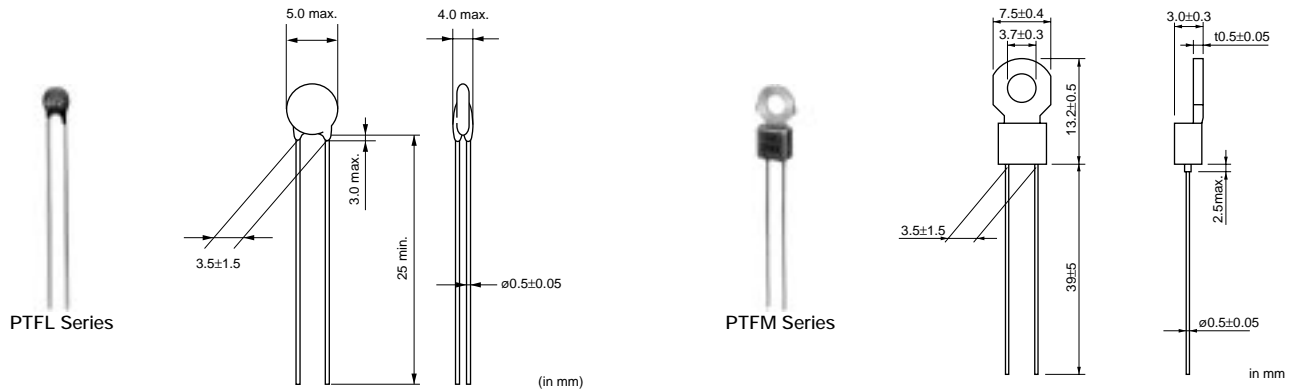
| Part Number     | Sensing Temperature (at 4.7k ohm) (°C) | Maximum Voltage (V) | Resistance (25°C) (ohm) | Operating Temperature Range (°C) |
|-----------------|--|---------------------|-------------------------|----------------------------------|
| PRF18BG471RB5RB | 65 ±3°C                                | 32                  | 470 ±50%                | -20 to 80                        |
| PRF18BF471RB5RB | 75 ±3°C                                | 32                  | 470 ±50%                | -20 to 90                        |
| PRF18BE471RB5RB | 85 ±3°C                                | 32                  | 470 ±50%                | -20 to 100                       |
| PRF18BD471RB5RB | 95 ±3°C                                | 32                  | 470 ±50%                | -20 to 110                       |
| PRF18BC471RB5RB | 105 ±3°C                               | 32                  | 470 ±50%                | -20 to 120                       |
| PRF18BB471RB5RB | 115 ±3°C                               | 32                  | 470 ±50%                | -20 to 130                       |

This product is applied to flow/reflow soldering.

This product is recognized by UL.

## PTC (POSISTOR®) for Overheat Sensing

Lead Type



| Part Number        | Max. Voltage (V) | Sensing Temp. (TS) (°C) | Resistance Value at 25°C (max.) (ohm) | Resistance Value (TS -10°C) (max.) (ohm) | Resistance Value (TS°C) (min.) (ohm) |
|--------------------|------------------|-------------------------|---------------------------------------|--|--------------------------------------|
| PTF□04BH471Q2N34B0 | 16               | 60                      | 100                                   | 330                                      | 470                                  |
| PTF□04BG471Q2N34B0 | 16               | 70                      | 100                                   | 330                                      | 470                                  |
| PTF□04BF471Q2N34B0 | 16               | 80                      | 100                                   | 330                                      | 470                                  |
| PTF□04BE471Q2N34B0 | 16               | 90                      | 100                                   | 330                                      | 470                                  |
| PTF□04BD471Q2N34B0 | 16               | 100                     | 100                                   | 330                                      | 470                                  |
| PTF□04BC471Q2N34B0 | 16               | 110                     | 100                                   | 330                                      | 470                                  |
| PTF□04BB471Q2N34B0 | 16               | 120                     | 100                                   | 330                                      | 470                                  |
| PTF□04BH222Q2N34B0 | 16               | 60                      | 330                                   | 1.5k                                     | 2.2k                                 |
| PTF□04BG222Q2N34B0 | 16               | 70                      | 330                                   | 1.5k                                     | 2.2k                                 |
| PTF□04BF222Q2N34B0 | 16               | 80                      | 330                                   | 1.5k                                     | 2.2k                                 |
| PTF□04BE222Q2N34B0 | 16               | 90                      | 330                                   | 1.5k                                     | 2.2k                                 |
| PTF□04BD222Q2N34B0 | 16               | 100                     | 330                                   | 1.5k                                     | 2.2k                                 |
| PTF□04BC222Q2N34B0 | 16               | 110                     | 330                                   | 1.5k                                     | 2.2k                                 |

Continued on the following page. ↗

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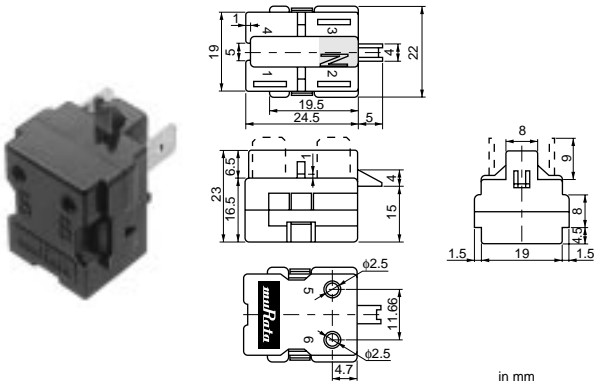
Continued from the preceding page.

| Part Number               | Max. Voltage (V) | Sensing Temp. (TS) (°C) | Resistance Value at 25°C (max.) (ohm) | Resistance Value (TS -10°C) (max.) (ohm) | Resistance Value (TS°C) (min.) (ohm) |
|---------------------------|------------------|-------------------------|---------------------------------------|--|--------------------------------------|
| <b>PTF□04BB222Q2N34B0</b> | 16               | 120                     | 330                                   | 1.5k                                     | 2.2k                                 |

A blank is filled with type codes. (L: Lead type, M: with Lug-terminal)  
Operating temperature range is -10 to TS+10°C.  
Please contact us for UL recognized products.

## PTC (POSISTOR<sup>®</sup>) for Motor Starters

### ● Plug in Type PTH7M Series



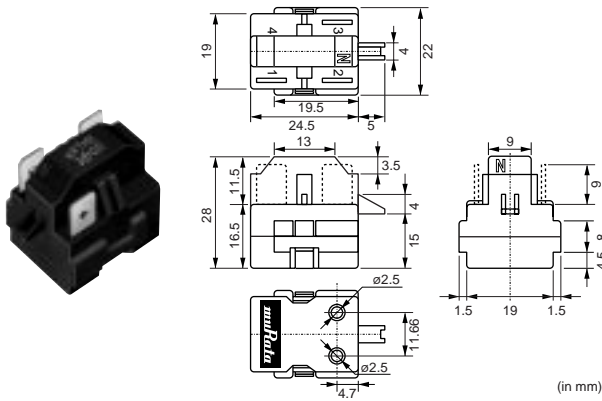
in mm

| Part Number           | Resistance Value (at 25°C) (ohm) | Max. Volt. (V) | Max. Current (A) | Operating Time Char. (25°C) (s) | Starting System |
|-----------------------|----------------------------------|----------------|------------------|---------------------------------|-----------------|
| <b>PTH7M4R7MB3-00</b> | 4.7 ±20%                         | 180            | 12               | 0.7 to 2.2(150V,25ohm)          | CSR             |
| <b>PTH7M4R7MC1-00</b> | 4.7 ±20%                         | 180            | 12               | 0.7 to 2.2(150V,25ohm)          | RSIR            |
| <b>PTH7M4R7MC2-00</b> | 4.7 ±20%                         | 180            | 12               | 0.7 to 2.2(150V,25ohm)          | RSIR            |
| <b>PTH7M4R7MD2-00</b> | 4.7 ±20%                         | 180            | 12               | 0.7 to 2.2(150V,25ohm)          | RSCR            |
| <b>PTH7M4R7MD3-00</b> | 4.7 ±20%                         | 180            | 12               | 0.7 to 2.2(150V,25ohm)          | RSCR            |
| <b>PTH7M6R8MB3-00</b> | 6.8 ±20%                         | 200            | 10               | 0.6 to 1.8(150V,25ohm)          | CSR             |
| <b>PTH7M6R8MC1-00</b> | 6.8 ±20%                         | 200            | 10               | 0.6 to 1.8(150V,25ohm)          | RSIR            |
| <b>PTH7M6R8MC2-00</b> | 6.8 ±20%                         | 200            | 10               | 0.6 to 1.8(150V,25ohm)          | RSIR            |
| <b>PTH7M6R8MD2-00</b> | 6.8 ±20%                         | 200            | 10               | 0.6 to 1.8(150V,25ohm)          | RSCR            |
| <b>PTH7M6R8MD3-00</b> | 6.8 ±20%                         | 200            | 10               | 0.6 to 1.8(150V,25ohm)          | RSCR            |
| <b>PTH7M100MB3-00</b> | 10 ±20%                          | 225            | 9                | 0.45 to 1.35(150V,25ohm)        | CSR             |
| <b>PTH7M100MC1-00</b> | 10 ±20%                          | 225            | 9                | 0.45 to 1.35(150V,25ohm)        | RSIR            |
| <b>PTH7M100MC2-00</b> | 10 ±20%                          | 225            | 9                | 0.45 to 1.35(150V,25ohm)        | RSIR            |
| <b>PTH7M100MD2-00</b> | 10 ±20%                          | 225            | 9                | 0.45 to 1.35(150V,25ohm)        | RSCR            |
| <b>PTH7M100MD3-00</b> | 10 ±20%                          | 225            | 9                | 0.45 to 1.35(150V,25ohm)        | RSCR            |
| <b>PTH7M330MB3-00</b> | 33 ±20%                          | 355            | 6                | 0.3 to 1(280V,55ohm)            | CSR             |
| <b>PTH7M330MC1-00</b> | 33 ±20%                          | 355            | 6                | 0.3 to 1(280V,55ohm)            | RSIR            |
| <b>PTH7M330MC2-00</b> | 33 ±20%                          | 355            | 6                | 0.3 to 1(280V,55ohm)            | RSIR            |
| <b>PTH7M330MD2-00</b> | 33 ±20%                          | 355            | 6                | 0.3 to 1(280V,55ohm)            | RSCR            |
| <b>PTH7M330MD3-00</b> | 33 ±20%                          | 355            | 6                | 0.3 to 1(280V,55ohm)            | RSCR            |

Please contact us when you need UL and VDE approved models other than the above mentioned types.

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● Plug in Type PTH8M Series



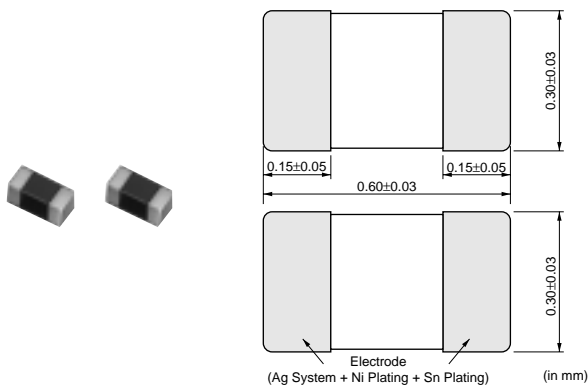
(in mm)

| Part Number    | Resistance Value (at 25°C)<br>(ohm) | Max. Volt.<br>(V) | Max. Current<br>(A) | Operating Time<br>Char. (25°C)<br>(s) | Starting System |
|----------------|-------------------------------------|-------------------|---------------------|---------------------------------------|-----------------|
| PTH8M4R7MB3-00 | 4.7 ±20%                            | 180               | 12                  | 1.5 to 3.5(150V,25ohm)                | CSR             |
| PTH8M4R7MC1-00 | 4.7 ±20%                            | 180               | 12                  | 1.5 to 3.5(150V,25ohm)                | RSIR            |
| PTH8M4R7MC2-00 | 4.7 ±20%                            | 180               | 12                  | 1.5 to 3.5(150V,25ohm)                | RSIR            |
| PTH8M4R7MD2-00 | 4.7 ±20%                            | 180               | 12                  | 1.5 to 3.5(150V,25ohm)                | RSCR            |
| PTH8M4R7MD3-00 | 4.7 ±20%                            | 180               | 12                  | 1.5 to 3.5(150V,25ohm)                | RSCR            |
| PTH8M6R8MB3-00 | 6.8 ±20%                            | 200               | 10                  | 1.1 to 2.7(150V,25ohm)                | CSR             |
| PTH8M6R8MC1-00 | 6.8 ±20%                            | 200               | 10                  | 1.1 to 2.7(150V,25ohm)                | RSIR            |
| PTH8M6R8MC2-00 | 6.8 ±20%                            | 200               | 10                  | 1.1 to 2.7(150V,25ohm)                | RSIR            |
| PTH8M6R8MD2-00 | 6.8 ±20%                            | 200               | 10                  | 1.1 to 2.7(150V,25ohm)                | RSCR            |
| PTH8M6R8MD3-00 | 6.8 ±20%                            | 200               | 10                  | 1.1 to 2.7(150V,25ohm)                | RSCR            |
| PTH8M100MB3-00 | 10 ±20%                             | 225               | 9                   | 0.6 to 2.1(150V,25ohm)                | CSR             |
| PTH8M100MC1-00 | 10 ±20%                             | 225               | 9                   | 0.6 to 2.1(150V,25ohm)                | RSIR            |
| PTH8M100MC2-00 | 10 ±20%                             | 225               | 9                   | 0.6 to 2.1(150V,25ohm)                | RSIR            |
| PTH8M100MD2-00 | 10 ±20%                             | 225               | 9                   | 0.6 to 2.1(150V,25ohm)                | RSCR            |
| PTH8M100MD3-00 | 10 ±20%                             | 225               | 9                   | 0.6 to 2.1(150V,25ohm)                | RSCR            |
| PTH8M330MB3-00 | 33 ±20%                             | 355               | 6                   | 0.45 to 1.35(280V,55ohm)              | CSR             |
| PTH8M330MC1-00 | 33 ±20%                             | 355               | 6                   | 0.45 to 1.35(280V,55ohm)              | RSIR            |
| PTH8M330MC2-00 | 33 ±20%                             | 355               | 6                   | 0.45 to 1.35(280V,55ohm)              | RSIR            |
| PTH8M330MD2-00 | 33 ±20%                             | 355               | 6                   | 0.45 to 1.35(280V,55ohm)              | RSCR            |
| PTH8M330MD3-00 | 33 ±20%                             | 355               | 6                   | 0.45 to 1.35(280V,55ohm)              | RSCR            |

Please contact us when you need UL and VDE approved models other than the above mentioned types.

## NTC for Temp. Sensor and Compensation

Chip Type 0201 (0603) Size



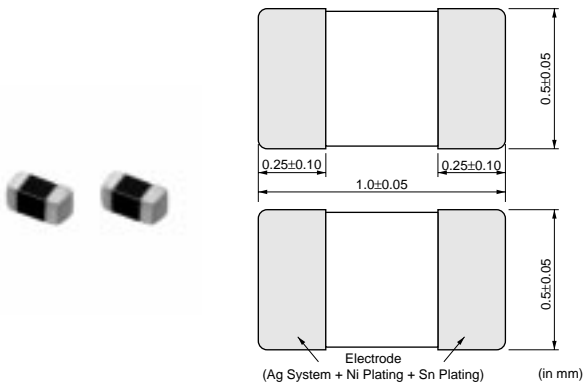
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| Part Number     | Resistance (25°C) (ohm) | B-Constant (25-50°C) (K) | B-Constant (25-80°C) (Reference Value) (K) | B-Constant (25-85°C) (Reference Value) (K) | B-Constant (25-100°C) (Reference Value) (K) | Permissible Operating Current(25°C) (mA) | Rated Electric Power (25°C) (mW) | Typical Dissipation Constant (25°C) (mW/°C) |
|-----------------|-------------------------|--------------------------|--|--|---|--|----------------------------------|---|
| NCP03YS110J05RL | 11 ±5%                  | 2750 ±3%                 | 2758                                       | 2758                                       | 2758  | 9.50                                     | 100                              | 1   |
| NCP03YS220J05RL | 22 ±5%                  | 2750 ±3%                 | 2758                                       | 2758                                       | 2758  | 6.70                                     | 100                              | 1   |
| NCP03YS330J05RL | 33 ±5%                  | 2750 ±3%                 | 2758                                       | 2758                                       | 2758  | 5.50                                     | 100                              | 1   |
| NCP03YS470J05RL | 47 ±5%                  | 2750 ±3%                 | 2758                                       | 2758                                       | 2758  | 4.60                                     | 100                              | 1   |
| NCP03YS680J05RL | 68 ±5%                  | 2750 ±3%                 | 2758                                       | 2758                                       | 2758  | 3.80                                     | 100                              | 1   |
| NCP03YS101J05RL | 100 ±5%                 | 2750 ±3%                 | 2758                                       | 2758                                       | 2758  | 3.10                                     | 100                              | 1   |
| NCP03XM102□05RL | 1.0k                    | 3500 ±1%                 | 3539                                       | 3545                                       | 3560  | 1.00                                     | 100                              | 1   |
| NCP03XM152□05RL | 1.5k                    | 3500 ±1%                 | 3539                                       | 3545                                       | 3560  | 0.81                                     | 100                              | 1   |
| NCP03XM222□05RL | 2.2k                    | 3500 ±1%                 | 3539                                       | 3545                                       | 3560  | 0.67                                     | 100                              | 1   |
| NCP03XM332□05RL | 3.3k                    | 3500 ±1%                 | 3539                                       | 3545                                       | 3560  | 0.55                                     | 100                              | 1   |
| NCP03XM472□05RL | 4.7k                    | 3500 ±1%                 | 3539                                       | 3545                                       | 3560  | 0.46                                     | 100                              | 1   |
| NCP03XH682□05RL | 6.8k                    | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.38                                     | 100                              | 1   |
| NCP03XH103F05RL | 10k ±1%                 | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.31                                     | 100                              | 1   |
| NCP03XH103□05RL | 10k                     | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.31                                     | 100                              | 1   |
| NCP03XV103□05RL | 10k                     | 3900 ±1%                 | 3930                                       | 3934                                       | 3944  | 0.31                                     | 100                              | 1   |
| NCP03XH153□05RL | 15k                     | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.25                                     | 100                              | 1   |
| NCP03XH223□05RL | 22k                     | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.21                                     | 100                              | 1   |
| NCP03WF333□05RL | 33k                     | 4250 ±1%                 | 4303                                       | 4311                                       | 4334  | 0.17                                     | 100                              | 1   |
| NCP03WB473□05RL | 47k                     | 4050 ±3%                 | 4101                                       | 4108                                       | 4131  | 0.14                                     | 100                              | 1   |
| NCP03WL473□05RL | 47k                     | 4485 ±1%                 | 4537                                       | 4543                                       | 4557  | 0.14                                     | 100                              | 1   |
| NCP03WF683□05RL | 68k                     | 4250 ±1%                 | 4303                                       | 4311                                       | 4334  | 0.12                                     | 100                              | 1   |
| NCP03WL683□05RL | 68k                     | 4485 ±1%                 | 4537                                       | 4543                                       | 4557  | 0.12                                     | 100                              | 1   |
| NCP03WF104F05RL | 100k ±1%                | 4250 ±1%                 | 4303                                       | 4311                                       | 4334  | 0.10                                     | 100                              | 1   |
| NCP03WF104□05RL | 100k                    | 4250 ±1%                 | 4303                                       | 4311                                       | 4334  | 0.10                                     | 100                              | 1   |
| NCP03WL104□05RL | 100k                    | 4485 ±1%                 | 4537                                       | 4543                                       | 4557  | 0.10                                     | 100                              | 1   |
| NCP03WL154□05RL | 150k                    | 4485 ±1%                 | 4537                                       | 4543                                       | 4557  | 0.08                                     | 100                              | 1   |
| NCP03WL224□05RL | 220k                    | 4485 ±1%                 | 4537                                       | 4543                                       | 4557  | 0.06                                     | 100                              | 1   |

Reflow soldering methods can be employed.  
 A blank column is filled with resistance tolerance codes (E: ±3%, J: ±5%).  
 Operating temperature range is -40 to +125°C.  
 Please contact us for UL/cUL recognized products.

## NTC for Temp. Sensor and Compensation


Chip Type 0402 (1005) Size



| Part Number     | Resistance (25°C) (ohm) | B-Constant (25-50°C) (K) | B-Constant (25-80°C) (Reference Value) (K) | B-Constant (25-85°C) (Reference Value) (K) | B-Constant (25-100°C) (Reference Value) (K) | Permissible Operating Current(25°C) (mA) | Rated Electric Power (25°C) (mW) | Typical Dissipation Constant (25°C) (mW/°C) |
|-----------------|-------------------------|--------------------------|--|--|---|--|----------------------------------|---|
| NCP15XC220□03RC | 22                      | 3100 ±3%                 | 3126                                       | 3128                                       | 3136  | 6.70                                     | 100                              | 1   |
| NCP15XC330□03RC | 33                      | 3100 ±3%                 | 3126                                       | 3128                                       | 3136  | 5.50                                     | 100                              | 1   |
| NCP15XC470□03RC | 47                      | 3100 ±3%                 | 3126                                       | 3128                                       | 3136  | 4.60                                     | 100                              | 1   |

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| Part Number     | Resistance<br>(25°C)<br>(ohm) | B-Constant<br>(25-50°C)<br>(K) | B-Constant<br>(25-80°C)<br>(Reference Value) (K) | B-Constant<br>(25-85°C)<br>(Reference Value) (K) | B-Constant<br>(25-100°C)<br>(Reference Value) (K) | Permissible Operating<br>Current(25°C)<br>(mA) | Rated Electric<br>Power (25°C)<br>(mW) | Typical Dissipation<br>Constant (25°C)<br>(mW/°C) |
|-----------------|-------------------------------|--------------------------------|--|--|---|--|--|---|
| NCP15XC680□03RC | 68                            | 3100 ±3%                       | 3126   | 3128   | 3136  | 3.80   | 100                                    | 1   |
| NCP15XF101□03RC | 100                           | 3250 ±3%                       | 3282   | 3284   | 3296  | 3.10   | 100                                    | 1   |
| NCP15XF151□03RC | 150                           | 3250 ±3%                       | 3282   | 3284   | 3296  | 2.50   | 100                                    | 1   |
| NCP15XM221□03RC | 220                           | 3500 ±3%                       | 3539   | 3545   | 3560  | 2.10   | 100                                    | 1   |
| NCP15XM331□03RC | 330                           | 3500 ±3%                       | 3539   | 3545   | 3560  | 1.70   | 100                                    | 1   |
| NCP15XQ471□03RC | 470                           | 3650 ±2%                       | 3688   | 3693   | 3706  | 1.40   | 100                                    | 1   |
| NCP15XQ681□03RC | 680                           | 3650 ±3%                       | 3688   | 3693   | 3706  | 1.20   | 100                                    | 1   |
| NCP15XQ102□03RC | 1.0k                          | 3650 ±2%                       | 3688   | 3693   | 3706  | 1.00   | 100                                    | 1   |
| NCP15XW152□03RC | 1.5k                          | 3950 ±3%                       | 3982   | 3987   | 3998  | 0.81   | 100                                    | 1   |
| NCP15XW222□03RC | 2.2k                          | 3950 ±3%                       | 3982   | 3987   | 3998  | 0.67   | 100                                    | 1   |
| NCP15XW332□03RC | 3.3k                          | 3950 ±3%                       | 3982   | 3987   | 3998  | 0.55   | 100                                    | 1   |
| NCP15XM472□03RC | 4.7k                          | 3500 ±2%                       | 3539   | 3545   | 3560  | 0.46   | 100                                    | 1   |
| NCP15XW682□03RC | 6.8k                          | 3950 ±3%                       | 3982   | 3987   | 3998  | 0.38   | 100                                    | 1   |
| NCP15XH103D03RC | 10k ±0.5%                     | 3380 ±0.7%                     | 3428   | 3434   | 3455  | 0.31   | 100                                    | 1   |
| NCP15XH103F03RC | 10k ±1%                       | 3380 ±1%                       | 3428   | 3434   | 3455  | 0.31   | 100                                    | 1   |
| NCP15XH103□03RC | 10k                           | 3380 ±1%                       | 3428   | 3434   | 3455  | 0.31   | 100                                    | 1   |
| NCP15XV103□03RC | 10k                           | 3900 ±3%                       | 3930   | 3934   | 3944  | 0.31   | 100                                    | 1   |
| NCP15XW153□03RC | 15k                           | 3950 ±3%                       | 3982   | 3987   | 3998  | 0.25   | 100                                    | 1   |
| NCP15XW223□03RC | 22k                           | 3950 ±3%                       | 3982   | 3987   | 3998  | 0.21   | 100                                    | 1   |
| NCP15WL223□03RC | 22k                           | 4485 ±1%                       | 4537   | 4543   | 4557  | 0.21   | 100                                    | 1   |
| NCP15WB333□03RC | 33k                           | 4050 ±3%                       | 4101   | 4108   | 4131  | 0.17   | 100                                    | 1   |
| NCP15WL333□03RC | 33k                           | 4485 ±1%                       | 4537   | 4543   | 4557  | 0.17   | 100                                    | 1   |
| NCP15WB473F03RC | 47k ±1%                       | 4050 ±1%                       | 4101   | 4108   | 4131  | 0.14   | 100                                    | 1   |
| NCP15WB473□03RC | 47k                           | 4050 ±1%                       | 4101   | 4108   | 4131  | 0.14   | 100                                    | 1   |
| NCP15WL473□03RC | 47k                           | 4485 ±1%                       | 4537   | 4543   | 4557  | 0.14   | 100                                    | 1   |
| NCP15WD683□03RC | 68k                           | 4150 ±3%                       | 4201   | 4209   | 4232  | 0.12   | 100                                    | 1   |
| NCP15WL683□03RC | 68k                           | 4485 ±1%                       | 4537   | 4543   | 4557  | 0.12   | 100                                    | 1   |
| NCP15WF104F03RC | 100k ±1%                      | 4250 ±1%                       | 4303   | 4311   | 4334  | 0.10   | 100                                    | 1   |
| NCP15WF104□03RC | 100k                          | 4250 ±1%                       | 4303   | 4311   | 4334  | 0.10   | 100                                    | 1   |
| NCP15WL104□03RC | 100k                          | 4485 ±1%                       | 4537   | 4543   | 4557  | 0.10   | 100                                    | 1   |
| NCP15WL154□03RC | 150k                          | 4485 ±1%                       | 4537   | 4543   | 4557  | 0.08   | 100                                    | 1   |
| NCP15WM154□03RC | 150k                          | 4500 ±3%                       | 4571   | 4582   | 4614  | 0.08   | 100                                    | 1   |
| NCP15WM224□03RC | 220k                          | 4500 ±3%                       | 4571   | 4582   | 4614  | 0.06   | 100                                    | 1   |
| NCP15WM474□03RC | 470k                          | 4500 ±3%                       | 4571   | 4582   | 4614  | 0.04   | 100                                    | 1   |

Reflow soldering methods can be employed.

A blank column is filled with resistance tolerance codes (E: ±3%, J: ±5%).

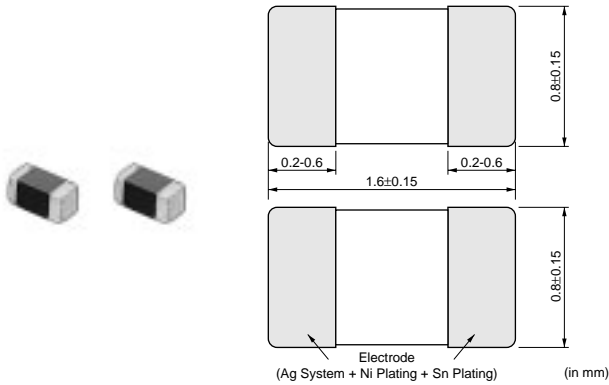
Operating temperature range is -40 to +125°C.

Please contact us for UL/cUL recognized products.

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# NTC for Temp. Sensor and Compensation

Chip Type 0603 (1608) Size



| Part Number     | Resistance (25°C) (ohm) | B-Constant (25-50°C) (K) | B-Constant (25-80°C) (Reference Value) (K) | B-Constant (25-85°C) (Reference Value) (K) | B-Constant (25-100°C) (Reference Value) (K) | Permissible Operating Current(25°C) (mA) | Rated Electric Power (25°C) (mW) | Typical Dissipation Constant (25°C) (mW/°C) |
|-----------------|-------------------------|--------------------------|--|--|---|--|----------------------------------|---|
| NCP18XF101□03RB | 100                     | 3250 ±3%                 | 3282                                       | 3284                                       | 3296  | 3.10                                     | 100                              | 1   |
| NCP18XF151□03RB | 150                     | 3250 ±3%                 | 3282                                       | 3284                                       | 3296  | 2.50                                     | 100                              | 1   |
| NCP18XM221□03RB | 220                     | 3500 ±3%                 | 3539                                       | 3545                                       | 3560  | 2.10                                     | 100                              | 1   |
| NCP18XM331□03RB | 330                     | 3500 ±3%                 | 3539                                       | 3545                                       | 3560  | 1.70                                     | 100                              | 1   |
| NCP18XQ471□03RB | 470                     | 3650 ±2%                 | 3688                                       | 3693                                       | 3706  | 1.40                                     | 100                              | 1   |
| NCP18XQ681□03RB | 680                     | 3650 ±3%                 | 3688                                       | 3693                                       | 3706  | 1.20                                     | 100                              | 1   |
| NCP18XQ102□03RB | 1.0k                    | 3650 ±2%                 | 3688                                       | 3693                                       | 3706  | 1.00                                     | 100                              | 1   |
| NCP18XW152□03RB | 1.5k                    | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.81                                     | 100                              | 1   |
| NCP18XW222□03RB | 2.2k                    | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.67                                     | 100                              | 1   |
| NCP18XW332□03RB | 3.3k                    | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.55                                     | 100                              | 1   |
| NCP18XM472□03RB | 4.7k                    | 3500 ±2%                 | 3539                                       | 3545                                       | 3560  | 0.46                                     | 100                              | 1   |
| NCP18XW682□03RB | 6.8k                    | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.38                                     | 100                              | 1   |
| NCP18XH103D03RB | 10k ±0.5%               | 3380 ±0.7%               | 3428                                       | 3434                                       | 3455  | 0.31                                     | 100                              | 1   |
| NCP18XH103F03RB | 10k ±1%                 | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.31                                     | 100                              | 1   |
| NCP18XH103□03RB | 10k                     | 3380 ±1%                 | 3428                                       | 3434                                       | 3455  | 0.31                                     | 100                              | 1   |
| NCP18XV103□03RB | 10k                     | 3900 ±3%                 | 3930                                       | 3934                                       | 3944  | 0.31                                     | 100                              | 1   |
| NCP18XW153□03RB | 15k                     | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.25                                     | 100                              | 1   |
| NCP18XW223□03RB | 22k                     | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.21                                     | 100                              | 1   |
| NCP18WB333□03RB | 33k                     | 4050 ±3%                 | 4101                                       | 4108                                       | 4131  | 0.17                                     | 100                              | 1   |
| NCP18WB473F10RB | 47k ±1%                 | 4050 ±1.5%               | 4101                                       | 4108                                       | 4131  | 0.14                                     | 100                              | 1   |
| NCP18WB473□03RB | 47k                     | 4050 ±2%                 | 4101                                       | 4108                                       | 4131  | 0.14                                     | 100                              | 1   |
| NCP18WD683□03RB | 68k                     | 4150 ±3%                 | 4201                                       | 4209                                       | 4232  | 0.12                                     | 100                              | 1   |
| NCP18WF104F12RB | 100k ±1%                | 4200 ±1%                 | 4255                                       | 4260                                       | 4282  | 0.10                                     | 100                              | 1   |
| NCP18WF104□03RB | 100k                    | 4250 ±2%                 | 4255                                       | 4260                                       | 4282  | 0.10                                     | 100                              | 1   |
| NCP18WM154□03RB | 150k                    | 4500 ±3%                 | 4571                                       | 4582                                       | 4614  | 0.08                                     | 100                              | 1   |
| NCP18WM224□03RB | 220k                    | 4500 ±3%                 | 4571                                       | 4582                                       | 4614  | 0.06                                     | 100                              | 1   |
| NCP18WM474□03RB | 470k                    | 4500 ±3%                 | 4571                                       | 4582                                       | 4614  | 0.04                                     | 100                              | 1   |

Both flow and reflow soldering methods can be employed.

A blank column is filled with resistance tolerance codes (E: ±3%, J: ±5%).

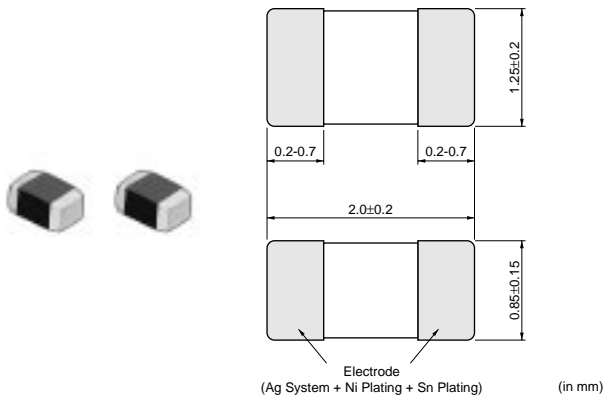
Operating temperature range is -40 to +125°C.

This series is recognized by UL/cUL.

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# NTC for Temp. Sensor and Compensation

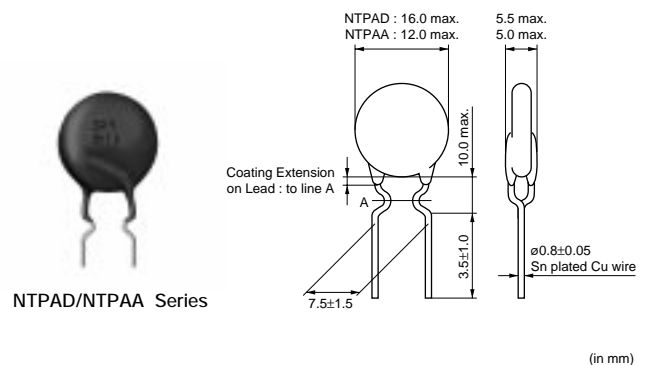
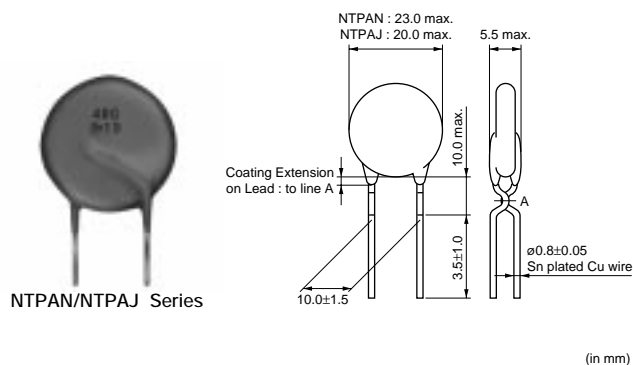
Chip Type 0805 (2012) Size



| Part Number     | Resistance (25°C) (ohm) | B-Constant (25-50°C) (K) | B-Constant (25-80°C) (Reference Value) (K) | B-Constant (25-85°C) (Reference Value) (K) | B-Constant (25-100°C) (Reference Value) (K) | Permissible Operating Current (25°C) (mA) | Rated Electric Power (25°C) (mW) | Typical Dissipation Constant (25°C) (mW/°C) |
|-----------------|-------------------------|--------------------------|--|--|---|---|----------------------------------|---|
| NCP21XM221J03RA | 220 ±5%                 | 3500 ±3%                 | 3539                                       | 3545                                       | 3560  | 3.00                                      | 200                              | 2   |
| NCP21XQ471J03RA | 470 ±5%                 | 3650 ±3%                 | 3688                                       | 3693                                       | 3706  | 2.00                                      | 200                              | 2   |
| NCP21XQ102J03RA | 1.0k ±5%                | 3650 ±3%                 | 3688                                       | 3693                                       | 3706  | 1.40                                      | 200                              | 2   |
| NCP21XW222J03RA | 2.2k ±5%                | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.90                                      | 200                              | 2   |
| NCP21XM472J03RA | 4.7k ±5%                | 3500 ±3%                 | 3539                                       | 3545                                       | 3560  | 0.65                                      | 200                              | 2   |
| NCP21XV103J03RA | 10k ±5%                 | 3900 ±3%                 | 3930                                       | 3934                                       | 3944  | 0.44                                      | 200                              | 2   |
| NCP21XW153J03RA | 15k ±5%                 | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.36                                      | 200                              | 2   |
| NCP21XW223J03RA | 22k ±5%                 | 3950 ±3%                 | 3982                                       | 3987                                       | 3998  | 0.30                                      | 200                              | 2   |
| NCP21WB333J03RA | 33k ±5%                 | 4050 ±3%                 | 4101                                       | 4108                                       | 4131  | 0.24                                      | 200                              | 2   |
| NCP21WB473J03RA | 47k ±5%                 | 4050 ±3%                 | 4101                                       | 4108                                       | 4131  | 0.20                                      | 200                              | 2   |
| NCP21WF104J03RA | 100k ±5%                | 4250 ±3%                 | 4303                                       | 4311                                       | 4334  | 0.14                                      | 200                              | 2   |

Both flow and reflow soldering methods can be employed.  
Operating temperature range is -40 to +125°C.  
This series is recognized by UL/cUL.

# NTC for Inrush Current Suppression



(in mm)

(in mm)

Continued on the following page.

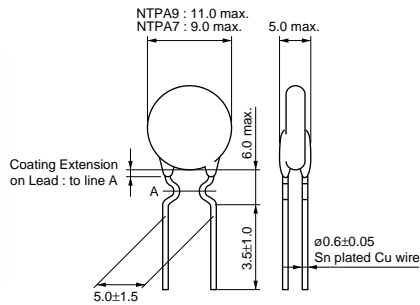
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Continued from the preceding page.



NTPA9/NTPA7 Series



(in mm)

| Part Number   | Resistance (25°C) (ohm) | Permissible Max. Current (25°C) (A) | Permissible Max. Current (55°C) (A) | Thermal Time Constant (25°C) (s) | Thermal Dissipation Constant (25°C) (mW/°C) | Permissible Electrolytic Capacitor (μF) |
|---------------|-------------------------|-------------------------------------|-------------------------------------|----------------------------------|---|---|
| NTPAN3R0LDKB0 | 3.0 ±15%                | 5.4                                 | 4.7                                 | 135                              | 26.8  | 8600 at 100V                            |
| NTPAN4R0LDKB0 | 4.0 ±15%                | 4.7                                 | 4.1                                 | 130                              | 26.8  | 8600 at 100V                            |
| NTPAN6R0LDKB0 | 6.0 ±15%                | 3.9                                 | 3.4                                 | 130                              | 26.8  | 8600 at 100V                            |
| NTPAJ4R0LDKB0 | 4.0 ±15%                | 4.0                                 | 3.5                                 | 125                              | 21.8  | 5000 at 100V                            |
| NTPAJ6R0LDKB0 | 6.0 ±15%                | 3.4                                 | 2.9                                 | 125                              | 21.8  | 5000 at 100V                            |
| NTPAJ8R0LDKB0 | 8.0 ±15%                | 3.0                                 | 2.6                                 | 130                              | 21.8  | 5000 at 100V                            |
| NTPAJ100LDKB0 | 10.0 ±15%               | 2.6                                 | 2.2                                 | 130                              | 21.8  | 5000 at 100V                            |
| NTPAD3R9LDNB0 | 3.9 ±15%                | 3.3                                 | 2.9                                 | 65                               | 18.2  | 2700 at 100V                            |
| NTPAD5R1LDNB0 | 5.1 ±15%                | 3.0                                 | 2.6                                 | 85                               | 18.8  | 2700 at 100V                            |
| NTPAD8R0LDNB0 | 8.0 ±15%                | 2.7                                 | 2.3                                 | 65                               | 18.7  | 2700 at 100V                            |
| NTPAD160LDNB0 | 16.0 ±15%               | 2.0                                 | 1.7                                 | 100                              | 19.1  | 2700 at 100V                            |
| NTPAA2R2LDNB0 | 2.2 ±15%                | 3.7                                 | 3.2                                 | 70                               | 13.5  | 1400 at 100V                            |
| NTPAA3R9LDNB0 | 3.9 ±15%                | 2.7                                 | 2.3                                 | 70                               | 13.5  | 1400 at 100V                            |
| NTPAA5R1LDNB0 | 5.1 ±15%                | 2.5                                 | 2.2                                 | 70                               | 13.5  | 1400 at 100V                            |
| NTPAA8R2LDNB0 | 8.2 ±15%                | 2.0                                 | 1.7                                 | 70                               | 13.5  | 1400 at 100V                            |
| NTPAA100LDNB0 | 10.0 ±15%               | 1.7                                 | 1.5                                 | 70                               | 13.5  | 1400 at 100V                            |
| NTPA9160LBMB0 | 16.0 ±15%               | 1.4                                 | 1.2                                 | 65                               | 11.6  | 800 at 100V                             |
| NTPA74R0LBMB0 | 4.0 ±15%                | 2.3                                 | 2.0                                 | 40                               | 9.4   | 700 at 100V                             |
| NTPA78R0LBMB0 | 8.0 ±15%                | 1.7                                 | 1.5                                 | 40                               | 9.5   | 570 at 100V                             |
| NTPA7160LBMB0 | 16.0 ±15%               | 1.2                                 | 1.0                                 | 40                               | 9.9   | 400 at 100V                             |
| NTPA7220LBMB0 | 22.0 ±15%               | 1.0                                 | 0.88                                | 40                               | 9.1   | 400 at 100V                             |

NTPAD/NTPAA/NTPA9/NTPA7 series are also available on tape. The final alphabet of the part number should be "DNB0=>D6A0", "BMB0=>B1A0".  
 Operating temperature range is -20 to +160°C.

# 11

## Power Supplies

**Switching Power Supplies**

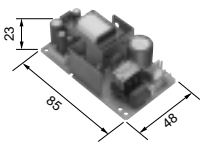
**Ultra Low Profile Switching Power Supplies**

**DC-DC Converters**

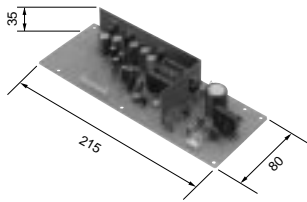
**Ionizer Modules (Ionissimo™)**

# Switching Power Supplies

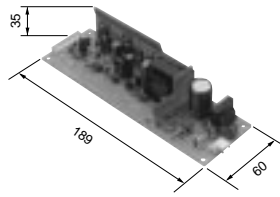
MPS Series/MPW Series



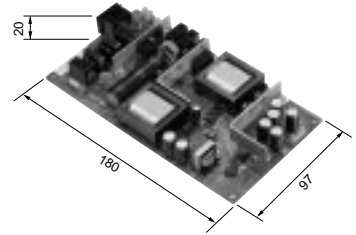
For SOHO Equipment



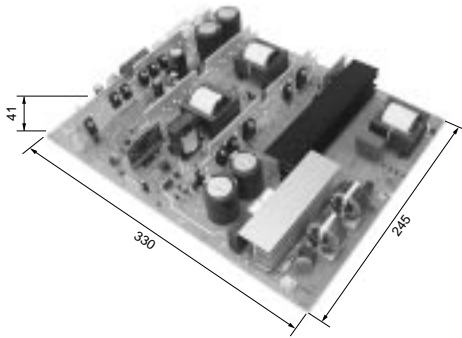
For Communication Equipment



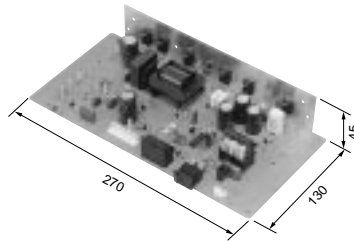
For Audio Visual Equipment



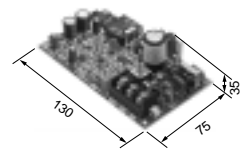
For LCD TV



For High-inch LCD Panel



For PBX



Cell Stations

(in mm)

● **Features**

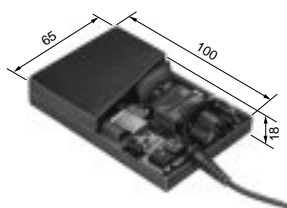
1. Small size, light weight, high reliability.
2. Low noise, overload protection up to safety standard.

| Application             | Input Voltage            | Output Voltage  | Safety Standard  | EMI Standard          | Remarks  |   |
|-------------------------|--------------------------|---|--|-----------------------|--|---|
| SOHO Equipment          | 115V AC                  | 5V 0.3A / 24V 4.5A (PEAK)<br>24V 1.0A (RATE)                            | Facsimile voluntary standard, UL, CSA<br>IEC                         | VCCI, FCC             | Models which provide a power-saving standby mode are also available. |   |
|                         | 230V AC                  |   |  | VDE, CISPR            |  |   |
| Communication Equipment | 115V AC                  | 3.3V 0.2A / 5V 0.6A /<br>9V 0.9A / 15V 0.2A /<br>25V 0.05A / -27V 0.05A | UL, CSA<br>IEC   | VCCI, FCC             |  |   |
|                         | 230V AC                  |   |  | VDE, CISPR            |  |   |
| Audio Visual Equipment  | 115V AC                  | 3.3V 1A / 5V 1.5A /<br>9V 0.6A / 15V 0.3A /<br>25V 0.05A / -30V 0.05A   | UL, CSA<br>IEC   | VCCI, FCC             |  |   |
|                         | 230V AC                  |   |  | VDE, CISPR            |  |   |
| LCD TV                  | 100V/115V/<br>230V AC    | 24V 7.5A (for 37 inch)<br>30V / 15V / 10V<br>6V / 5V (Total 70W)        | UL, CSA, IEC   | VCCI, FCC, CISPR      |  | • W/W input type is available. Models which provide a power-saving standby mode are also available. |
| For High-inch LCD Panel | 100/<br>115V AC/<br>230V | 24V 20A<br>15V 4A<br>5V 0.3A  | Electrical Appliance and Materials Safety Law of Japan, UL, CSA, IEC | VCCI, FCC, VDE, CISPR |  | • W/W input type is available. Models which provide a power-saving standby mode are also available. |
| PBX                     | 115V/230V                | 5V 5.0A<br>12V 1.0A<br>-48V 2.5A  | UL, IEC  | FCC, CISPR            |  | Provided with Pb battery charging function.   |
| Cell Stations           | 100V AC                  | 7.2V 1.3A   | Electrical Appliance and Materials Safety Law of Japan               | VCCI                  |  | Provided with Ni-Cd battery charging function.  |
| LCD Projector           | 100V/120V/<br>230V       | 17V 0.8A /<br>13V 1.6A / 5V 1.6A /<br>360V 0.47A                        | Electrical Appliance and Materials Safety Law of Japan, UL<br>IEC    | VCCI, FCC             | • Each system like LCD,DLP is available.                             |   |
|                         |                          |   |  | CISPR                 |  |   |

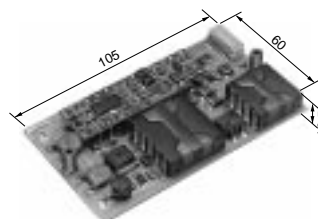
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# Ultra Low Profile Switching Power Supplies

MPA Series/MPN Series



AC Adapters



For Communication Equipment  
(board-on type)

(in mm)

● Features

1. Built-in ultra-low-profile multilayer transformer.
2. Ultra-low-profile, high reliability, light weight.
3. Low noise, overload protection up to safety standard.

| Application                                | Input Voltage | Output Voltage | Safety Standard   | EMI Standard |
|--|---------------|----------------|---|--------------|
| AC Adapters                                | 115V AC       | 15V 1.5A       | UL, CSA   | VCCI, FCC    |
|  | 230V AC       |                | IEC   | VDE, CISPR   |
| Communication Equipment<br>(board-on type) | -48V DC       | -5V 10A        | Electrical Appliance and<br>Materials Safety Law of Japan | VCCI         |
|  |               | -3.3V 15A      |   |              |

## DC-DC Converters

No Isolation Type



MYUSP3R303FMP



MPDRX312S



MPDRX301S



MPDRX002S



MPDRX103S



MPDTH11\*S

| Part Number     | Package                     | Input Voltage (V) | Nominal Output Power (W) | Output Voltage (V) | Current (A) | Efficiency    | Size (mm)<br>L x W x T |
|-----------------|-----------------------------|-------------------|--------------------------|--------------------|-------------|---------------|------------------------|
| MPDTH03050WAS/H | WAS=SMD<br>WAH=Through hole | 2.95 to 3.65      | 15                       | 0.8 to 2.5         | 6           | 94% (2.5V/4A) | 22.1x12.6x9.1 (8.5)    |
| MPDTH05050WAS/H |                             | 4.5 to 5.5        | 21.6                     | 0.8 to 3.6         |             | 95% (3.3V/4A) |                        |
| MPDTH12050WAS/H |                             | 10.8 to 13.2      | 33                       | 1.2 to 5.5         |             | 93% (5V/4A)   |                        |
| MPDTH03060WAS/H |                             | 2.95 to 3.65      | 25                       | 0.8 to 2.5         | 10          | 93% (2.5V/7A) | 25.3x15.8x9.6 (9.0)    |
| MPDTH05060WAS/H |                             | 4.5 to 5.5        | 36                       | 0.8 to 3.6         |             | 94% (3.3V/7A) |                        |
| MPDTH12060WAS/H |                             | 10.8 to 13.2      | 55                       | 1.2 to 5.5         |             | 94% (5V/8A)   |                        |

( ) in the size column shows the size of Through hole goods.

Continued on the following page.

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Continued from the preceding page.

| Part Number      | Package                     | Input Voltage (V) | Nominal Output Power (W) | Output Voltage (V) | Current (A)    | Efficiency      | Size (mm)<br>L x W x T |
|------------------|-----------------------------|-------------------|--------------------------|--------------------|----------------|-----------------|------------------------|
| MPDTH03010WAS/H  | WAS=SMD<br>WAH=Through hole | 2.95 to 3.65      | 37.5                     | 0.8 to 2.5         | 15             | 93% (2.5V/10A)  | 34.8x15.8x9.6 (9.0)    |
| MPDTH05010WAS/H  |                             | 4.5 to 5.5        | 54                       | 0.8 to 3.6         |                | 95% (3.3V/10A)  |                        |
| MPDTH12010WAS/H  |                             | 10.8 to 13.2      | 66                       | 1.2 to 5.5         | 12             | 94% (5V/10A)    |                        |
| MPDTH03020WAS/H  |                             | 2.95 to 3.65      | 55                       | 0.8 to 2.5         | 22             | 95% (2.5V/10A)  | 38.0x22.1x9.6 (9.0)    |
| MPDTH05020WAS/H  |                             | 4.5 to 5.5        | 79.2                     | 0.8 to 3.6         |                | 95% (3.3V/14A)  |                        |
| MPDTH12020WAS/H  |                             | 10.8 to 13.2      | 99                       | 1.2 to 5.5         | 18             | 95% (5V/12A)    |                        |
| MPDTH03030WAS/H  |                             | 2.95 to 3.65      | 75                       | 0.8 to 2.5         | 30             | 93% (2.5V/20A)  | 34.8x28.5x9.6 (9.0)    |
| MPDTH05030WAS/H  |                             | 4.5 to 5.5        | 108                      | 0.8 to 3.6         |                | 94% (3.3V/20A)  |                        |
| MPDTH12030WAS/H  |                             | 10.8 to 13.2      | 143                      | 1.2 to 5.5         | 26             | 94.5% (5V/18A)  |                        |
| MPDTH04040WAS/H  |                             | 2.95 to 5.5       | 216                      | 0.8 to 3.6         | 60             | 96% (3.3V/35A)  | 51.9x26.5x9.4 (9.1)    |
| MPDTH12040WAS/H  |                             | 8.0 to 14.0       | 275                      | 0.8 to 5.5         | 50             | 95% (3.3V/35A)  |                        |
| MPDTH03050YAS/H* |                             | 2.95 to 3.65      | 10.8                     | 0.55 to 1.8        | 6              | 88% (1.25V/4A)  | 22.1x12.6x9.1 (8.5)    |
| MPDTH05050YAS/H* |                             | 4.5 to 5.5        |                          |                    |                | 87% (1.25V/4A)  |                        |
| MPDTH12050YAS/H* |                             | 10.8 to 13.2      |                          |                    |                | 84% (1.25V/4A)  |                        |
| MPDTH03060YAS/H* |                             | 2.95 to 3.65      | 18                       |                    | 10             | 86% (1.25V/8A)  | 25.3x15.8x9.6 (9.0)    |
| MPDTH05060YAS/H* |                             | 4.5 to 5.5        |                          |                    |                | 83% (1.25V/8A)  |                        |
| MPDTH12060YAS/H* |                             | 10.8 to 13.2      | 27                       |                    | 15             | 88% (1.25V/10A) | 34.8x15.8x9.6 (9.0)    |
| MPDTH03010YAS/H* |                             | 2.95 to 3.65      |                          |                    |                | 85% (1.25V/10A) |                        |
| MPDTH05010YAS/H* |                             | 4.5 to 5.5        | 21.6                     |                    | 12             | 85% (1.25V/10A) |                        |
| MPDTH12010YAS/H* |                             | 10.8 to 13.2      | 52.8                     |                    | 0.75 to 3.3    | 16              | 95% (3.3V/7A)          |
| MPDTH0402S       | SMD                         | 4.5 to 5.5        | 23.1                     |                    | 0.8 to 3.3     | 7               | 94% (3.3V/7A)          |
| MPDTH0412S       |                             | 3.0 to 3.6        | 17.5                     | 0.8 to 2.5         | 93% (2.5V/7A)  |                 |                        |
| MPDTH0413S       |                             | 10.0 to 14.0      | 33                       | 0.8 to 5.5         | 6              | 94% (3.3V/6A)   |                        |
| MPDTH0402S       |                             | 3.0 to 5.5        | 28.8                     | 0.8 to 1.8         | 16             | 90% (1.8V/16A)  | 33.0x13.5x8.5          |
| MPDTH0404S       |                             | 7.0 to 14.0       | 21.6                     |                    | 12             | 88% (1.8V/12A)  |                        |
| MPDTH04103S      |                             | 10.8 to 13.2      | 28.8                     | 0.8 to 1.8         | 16             | 86% (1.8V/16A)  | 50.8x5.8x14.0          |
| MPDTH04104S      | 39.6                        |                   | 1.5 to 3.3               | 12                 | 88% (3.3V/12A) |                 |                        |
| MPDTH06S022S     | 3.0 to 5.5                  | 10.8              | 1.1 to 3.6               | 3                  | 96% (3.3V/1A)  | 20.0x9.0x21.0   |                        |
| MPDTH0111S       | SIL                         | 2.97 to 3.63      | 6                        | 1                  | 6              | 84%             | 33.0x5.8x24.0          |
| MPDTH0112S       |                             |                   | 7.2                      | 1.2                |                | 87%             |                        |
| MPDTH0113S       |                             |                   | 9                        | 1.5                |                | 89%             |                        |
| MPDTH0114S       |                             |                   | 10.8                     | 1.8                |                | 90%             |                        |
| MPDTH0115S       |                             |                   | 12                       | 2                  |                | 92%             |                        |
| MPDTH0116S       |                             |                   | 15                       | 2.5                |                | 93%             |                        |
| MPDTH021S        |                             | 4.5 to 5.5        | 6                        | 1                  |                | 82%             |                        |
| MPDTH022S        |                             |                   | 7.2                      | 1.2                |                | 84%             |                        |
| MPDTH023S        |                             |                   | 9                        | 1.5                |                | 86%             |                        |
| MPDTH024S        |                             |                   | 10.8                     | 1.8                |                | 88%             |                        |
| MPDTH025S        |                             |                   | 12                       | 2                  |                | 89%             |                        |
| MPDTH026S        |                             |                   | 15                       | 2.5                |                | 91%             |                        |
| MPDTH027S        |                             |                   | 19.8                     | 3.3                |                | 93%             |                        |
| MPDTH0111S       |                             |                   | SMD                      | 2.97 to 3.63       |                | 6               |                        |
| MPDTH0112S       | 7.2                         | 1.2               |                          |                    | 87%            |                 |                        |
| MPDTH0113S       | 9                           | 1.5               |                          |                    | 89%            |                 |                        |
| MPDTH0114S       | 10.8                        | 1.8               |                          |                    | 90%            |                 |                        |
| MPDTH0115S       | 12                          | 2                 |                          |                    | 92%            |                 |                        |
| MPDTH0116S       | 15                          | 2.5               |                          |                    | 93%            |                 |                        |
| MPDTH0121S       | 4.5 to 5.5                  | 6                 |                          | 1                  | 82%            |                 |                        |
| MPDTH0122S       |                             | 7.2               |                          | 1.2                | 84%            |                 |                        |
| MPDTH0123S       |                             | 9                 |                          | 1.5                | 86%            |                 |                        |
| MPDTH0124S       |                             | 10.8              |                          | 1.8                | 88%            |                 |                        |
| MPDTH0125S       | 12                          | 2                 | 89%                      |                    |                |                 |                        |
| MPDTH0126S       | 15                          | 2.5               | 91%                      |                    |                |                 |                        |

\* for DDR

( ) in the size column shows the size of Through hole goods.

Continued on the following page.

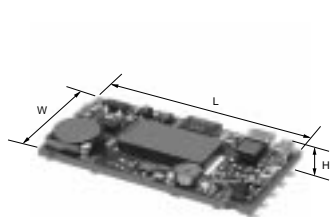
Continued from the preceding page.

| Part Number   | Package | Input Voltage (V) | Nominal Output Power (W) | Output Voltage (V) | Current (A)   | Efficiency       | Size (mm)<br>L x W x T |               |
|---------------|---------|-------------------|--------------------------|--------------------|---------------|------------------|------------------------|---------------|
| MPDTY127S     | SMD     | 4.5 to 5.5        | 19.8                     | 3.3                | 6             | 93%              | 33.8x15.4x6.0          |               |
| MPDTY102S     |         | 3.0 to 5.5        | 10                       | 0.8 to 5.0         | 2             | 93% (2.4V/1A)    | 21.3x16.4x4.2          |               |
| MYUSP3R303FMP |         |                   | 9.9                      | 0.7 to 3.3         | 3             | 94% (3.3V/1A)    | 11.0x8.5x5.6           |               |
| MYFSP3R303FMS |         |                   |                          |                    |               | 91% (3.3V/1A)    |                        |               |
| MPDTY301S     |         |                   | 4.5 to 5.5               | 23.1               | 0.8 to 3.3    | 7                | 95% (3.3V/7A)          | 27.8x15.4x4.2 |
| MPDTY302S     |         | 3.0 to 3.6        | 17.5                     | 0.8 to 2.5         | 94% (2.5V/7A) |                  |                        |               |
| MPDTY303S     |         | 6.5 to 14.0       | 44                       | 0.8 to 5.5         | 8             | 92% (3.3V/8A)    |                        |               |
| MPDTY311S     |         | 4.5 to 5.5        | 52.8                     | 0.8 to 3.3         | 16            | 94% (3.3V/16A)   |                        |               |
| MPDTY312S     |         | 3.0 to 3.6        | 40                       | 0.8 to 2.5         |               | 91.5% (2.5V/16A) |                        |               |
| MPDRX301S     |         | 5.6 to 14.0       | 47.2                     | 1.6 to 3.63        | 13            | 90% (3.3V/13A)   | 21.9x21.7x4.2          |               |
| MPDRX302S     |         |                   | 21.5                     | 0.8 to 1.65        |               | 82% (1.2V/13A)   |                        |               |
| MPDRX303S     |         |                   | 94.4                     | 1.6 to 3.63        | 26            | 90% (3.3V/26A)   | 26.8x26.8x7.0          |               |
| MPDRX304S     |         |                   |                          |                    |               | 84% (1.2V/26A)   |                        |               |
| MPDRX312S     |         | 3.0 to 5.5        | 28.8                     | 0.8 to 1.8         | 16            | 86.5% (1.8V/16A) | 27.8x15.4x4.2          |               |
| MPDRX313S     |         | 4.5 to 5.5        | 85.8                     | 0.8 to 3.3         | 26            | 85.4% (1.2V/20A) | 26.8x26.8x7.0          |               |
| MPDRX021S     |         |                   | 18                       | 0.85 to 1.8        | 10            | 87% (1.2V/10A)   | 22.1x15.8x8.4          |               |
| MPDRX307S     |         | 6.2 to 13.2       | 23.6                     | 1.6 to 3.63        | 6.5           | 91% (3.3V/5A)    | 20.2x17.6x4.2          |               |
| MPDRX308S     |         |                   | 10.7                     | 0.8 to 1.6         |               | 82% (1.2V/5A)    |                        |               |
| MPD6M031S     |         | 10.8 to 13.2      | 30                       | 1.2 to 5.0         | 6             | 92% (2.5V/6A)    | 29.6x20.9x7.2          |               |
| MPDTY321S     |         | 4.5 to 5.5        | 13.2                     | 0.8 to 3.3         | 4             | 93% (3.3V/4A)    | 15.8x15.4x2.9          |               |
| MYSSM0123ECEN |         | 17 to 40          | 42                       | 5.0 to 12.0        | 3.5           | 97% (12V/3.5A)   | 30.2x20.9x12.0         |               |
| MYSSM3R31ECEN |         | 21.6 to 26.4      | 4.95                     | 3.3                | 1.5           | 88%              |                        |               |

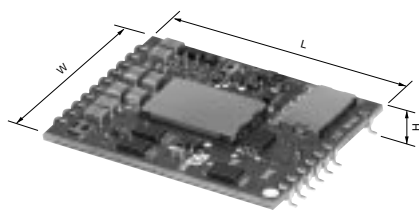
( ) in the size column shows the size of Through hole goods.

## DC-DC Converters

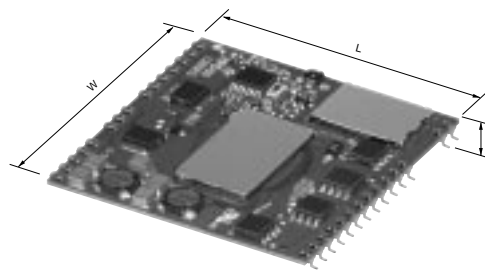
### Isolation Type



MPD5D01\*S Series



MPD6D10\*S/11\*S/20\*S Series  
MPD7D06\*S Series



MPD6D12\*S Series  
MPD7D05\*S/13\*S/12\*S Series

| Part Number | Package      | Input Voltage (V) | Nominal Output Power (W) | Output Voltage (V) | Current (A) | Efficiency | Size (mm)<br>L x W x T |
|-------------|--------------|-------------------|--------------------------|--------------------|-------------|------------|------------------------|
| MPDKN004S   | Through hole | 36.0 to 75.0      | 50                       | 1.8                | 15          | 85%        | 57.0x36.8x5.5          |
| MPDKN006S   |              |                   |                          | 2.5                |             | 87%        |                        |
| MPDKN007S   |              |                   |                          | 3.3                |             | 88%        |                        |
| MPDKN008S   |              |                   |                          | 5                  |             | 89%        |                        |
| MPD5D013S   | SMD          | 36.0 to 75.0      | 5                        | 1.5                | 0.8         | 70%        | 27.0x14.6x4.7          |
| MPD5D014S   |              |                   |                          | 1.8                | 1           | 75%        |                        |
| MPD5D016S   |              |                   |                          | 2.5                | 1.2         | 80%        |                        |
| MPD5D017S   |              |                   |                          | 3.3                | 1.5         | 84%        |                        |
| MPD5D018S   |              |                   |                          | 5                  | 1           | 85%        |                        |

Continued on the following page.

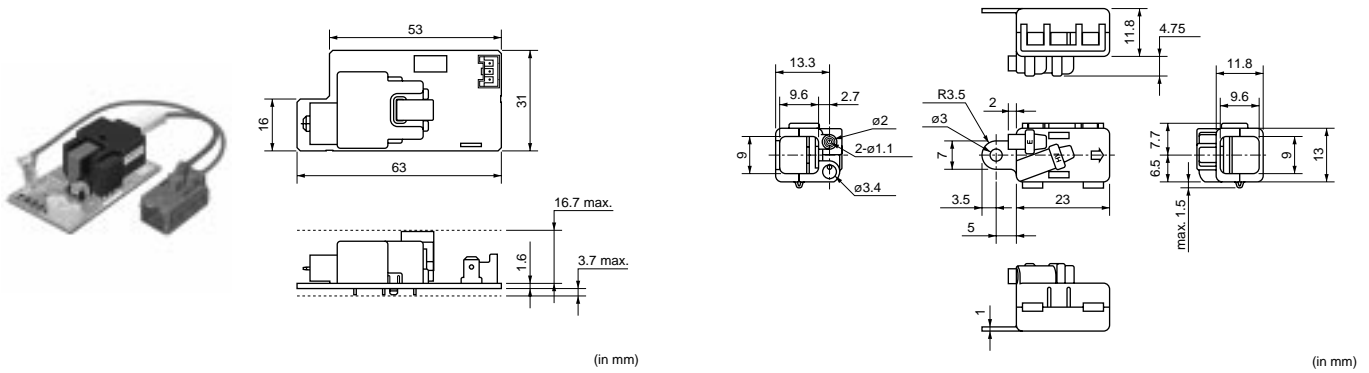
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Continued from the preceding page.

| Part Number | Package | Input Voltage (V) | Nominal Output Power (W) | Output Voltage (V) | Current (A) | Efficiency | Size (mm)<br>L x W x T |               |               |
|-------------|---------|-------------------|--------------------------|--------------------|-------------|------------|------------------------|---------------|---------------|
| MPD6D101S   | SMD     | 36.0 to 75.0      | 10                       | 12                 | 0.8         | 88%        | 39.9x22.4x4.2          |               |               |
| MPD6D102S   |         |                   |                          | 1.2                | 3.5         | 79%        |                        |               |               |
| MPD6D103S   |         |                   |                          | 1.5                |             | 82%        |                        |               |               |
| MPD6D104S   |         |                   |                          | 1.8                |             | 86%        |                        |               |               |
| MPD6D105S   |         |                   |                          | 2                  | 3           | 88%        |                        |               |               |
| MPD6D106S   |         |                   |                          | 2.5                |             |            |                        |               |               |
| MPD6D107S   |         |                   |                          | 3.3                |             |            |                        |               |               |
| MPD6D108S   |         |                   |                          | 5                  | 2           | 89%        |                        |               |               |
| MPD6D109S   |         |                   |                          | 5.2                |             |            |                        |               |               |
| MPD6D111S   |         |                   |                          | 15                 | 12          | 1.2        |                        | 86%           | 39.9x31.2x4.2 |
| MPD6D112S   |         |                   |                          |                    | 1.2         | 5.2        |                        | 82%           |               |
| MPD6D113S   |         |                   |                          |                    | 1.5         |            |                        | 84%           |               |
| MPD6D114S   |         |                   | 1.8                      |                    | 87%         |            |                        |               |               |
| MPD6D116S   |         |                   | 2.5                      |                    | 4.5         | 88%        |                        |               |               |
| MPD6D117S   |         |                   | 3.3                      |                    |             |            |                        |               |               |
| MPD6D118S   |         |                   | 5                        |                    |             |            |                        |               |               |
| MPD6D119S   |         |                   | 5.2                      |                    | 3           | 90%        |                        |               |               |
| MPD6D122S   |         |                   | 30                       |                    | 1.2         | 12         | 84%                    | 45.0x45.0x4.4 |               |
| MPD6D123S   |         |                   |                          |                    | 1.5         | 11         | 86%                    |               |               |
| MPD6D124S   |         |                   |                          |                    | 1.8         |            | 88%                    |               |               |
| MPD6D126S   |         |                   |                          |                    | 2.5         |            | 10                     |               |               |
| MPD6D127S   |         |                   |                          | 3.3                | 9           | 91%        |                        |               |               |
| MPD6D128S   |         |                   |                          | 5                  | 6           | 92%        |                        |               |               |
| MPD7D067S   |         |                   | 35                       | 3.3                | 10.6        | 90%        | 39.3x30.1x8.0          |               |               |
| MPD7D068S   |         |                   |                          | 5                  | 7           |            |                        |               |               |
| MPD7D052S   |         |                   | 50                       | 1.2                | 16          | 86%        | 45.0x36.2x4.2          |               |               |
| MPD7D053S   |         |                   |                          | 1.5                | 17          | 84%        |                        |               |               |
| MPD7D054S   |         |                   |                          | 1.8                | 16          | 86%        |                        |               |               |
| MPD7D056S   |         |                   |                          | 2.5                | 15          | 89%        |                        |               |               |
| MPD7D057S   |         |                   |                          | 3.3                |             | 90%        |                        |               |               |
| MPD7D058S   |         |                   |                          | 5                  |             |            |                        | 10            |               |
| MPD6D207S   |         |                   | 18.0 to 36.0             | 30                 | 3.3         | 9          | 91%                    | 39.3x30.1x8.0 |               |
| MPD6D209S   |         |                   | 5                        |                    | 6           |            |                        |               |               |
| MPD7D137S   |         |                   | 36.0 to 75.0             | 80                 | 3.3         | 24         | 92%                    | 45.0x45.0x8.5 |               |
| MPD7D138S   |         |                   |                          |                    | 5           | 16         | 93%                    |               |               |
| MPD7D128S   |         |                   |                          |                    | 100         | 20         | 92.5%                  |               |               |

# Applicable Products with Power Supplies

## Ionizer Modules (Ionissimo™)



| Part Number | Input Voltage (V) | Consumption Electricity (W) | Ion Amount (pcs/cc) | Ozone Amount     | Operating Temperature Range | Operating Humidity Range |
|-------------|-------------------|-----------------------------|---------------------|------------------|-----------------------------|--------------------------|
| MHM301-□□   | 12                | 0.4                         | 500,000 or more     | 0.01mg/H or less | 0 to +50°C                  | 30 to 80%RH              |
| MHM302-□□   | 12                | 0.6                         | 500,000 or more     | Max. 1.0mg/H     | 0 to +50°C                  | 30 to 80%RH              |

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# 12

## Sound Components

**Piezoelectric Sounders**

**Piezoelectric Ringers (PIEZORINGER®)**

**Piezoelectric Buzzers**

**Piezoelectric Diaphragms**

● Part Numbering

Piezoelectric Sounders/Piezoelectric Buzzers  
/Piezoelectric Ringers (PIEZORINGER®)

(Part Number) **PK M 13 E P YH 40 00 P -A0**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

- ① Product ID
- ② Product

| Code     | Product         |
|----------|-----------------|
| <b>M</b> | Sounder, Ringer |
| <b>B</b> | Buzzer          |

- ③ Outer Dimensions
- ④ Drive

| Code     | Drive          |
|----------|----------------|
| <b>E</b> | External-Drive |
| <b>S</b> | Self-Drive     |

- ⑤ Outer Electrode Style
- ⑥ Structure

| Code                              | Structure                      |
|-----------------------------------|--------------------------------|
| <b>T</b> <input type="checkbox"/> | Standing Type                  |
| <b>P</b> <input type="checkbox"/> | Flat Type Auto-assemble        |
| <b>Y</b> <input type="checkbox"/> | Flat Type/Available for Taping |
| <b>C</b> <input type="checkbox"/> | Flat Type/Semi-auto-assemble   |
| <input type="checkbox"/>          | Exclude above mentioned        |

means specification of outer electrode.

- ⑦ Oscillating Frequency Type
- ⑧ Individual Specification Code
- ⑨ Special Quality Guarantee

| Code     | Special Quality Guarantee |
|----------|---------------------------|
| <b>P</b> | Post Plated Terminal      |
| —        | Blank                     |

- ⑩ Packaging

SMD Piezoelectric Sounder

(Part Number) **PK LCS 1212 E 40 01 -R1**  
① ② ③ ④ ⑤ ⑥ ⑦

- ① Product ID
- ② Product
- ③ Dimensions
- ④ Drive
- ⑤ Oscillating Frequency Type

| Code      | Oscillating Frequency Type   |
|-----------|--|
| <b>40</b> | Expressed resonant frequency by two-digit alphanumerics. The unit is in 100 hertz (Hz). In case of 4kHz (4000Hz), expressed as "40". |

- ⑥ Individual Specification Code
- ⑦ Packaging

Piezoelectric Diaphragms

(Part Number) **7 N B -31R2 DM -1R5 L 10**  
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product ID
- ② Material of Metal Plate

| Code     | Metal Plate Material |
|----------|----------------------|
| <b>B</b> | Brass                |
| <b>N</b> | Nickel Alloy         |
| <b>S</b> | SUS                  |

- ③ Product
- ④ Metal Plate Diameter
- ⑤ Material of electrode
- ⑥ Resonant Frequency Type

| Code        | Resonant Frequency (kHz)  |
|-------------|---|
| <b>-1R5</b> | A hyphen (-) and three digits alphanumerics express resonant frequency. A decimal point is expressed by the capital letter "R". |

If there is no decimal point, the decimal point is omitted.

- ⑦ With Feedback Electrode

| Code     | With Feedback Electrode    |
|----------|----------------------------|
| <b>C</b> | With Feedback Electrode    |
| —        | Without Feedback Electrode |

- ⑧ Product Specification

| Code     | Product Specification          |
|----------|--------------------------------|
| <b>L</b> | With lead (available for RoHS) |
| —        | No lead (omitted)              |

- ⑨ Individual Specification Code

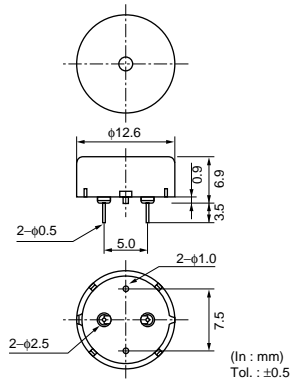
# Piezoelectric Sounders

## External-Drive

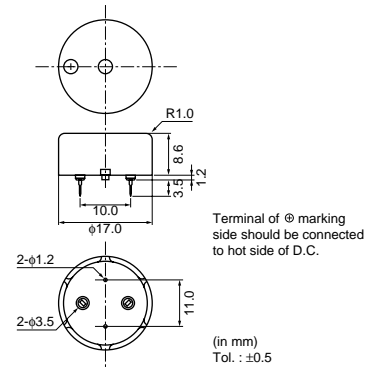
● Pin Type



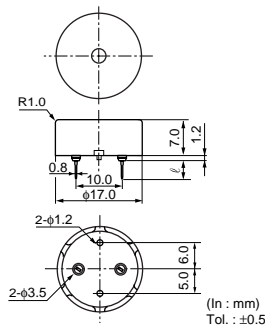
PKM13EPYH4002-B0



PKM17EPP-2002-B0



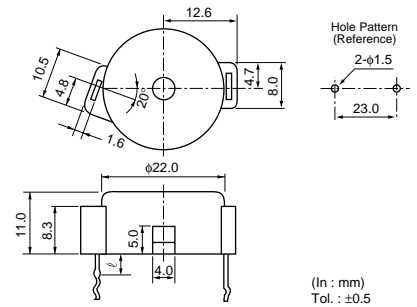
PKM17EPPH4001-B0



| Part Number      | ℓ   |
|------------------|-----|
| PKM17EPPH4001-B0 | 6.5 |
| PKM17EPPH4002-B0 | 3.5 |



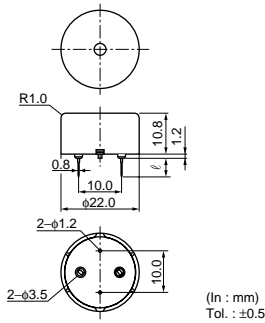
PKM22EPH2001



| Part Number  | ℓ    |
|--------------|------|
| PKM22EPH2001 | 4.0  |
| PKM22EPH2002 | 8.0  |
| PKM22EPH2003 | 12.0 |



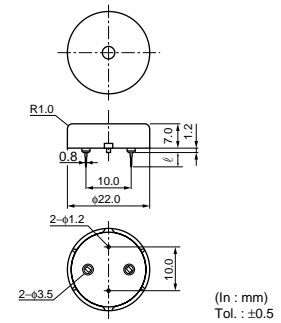
PKM22EPPH2001-B0



| Part Number      | ℓ   |
|------------------|-----|
| PKM22EPPH2001-B0 | 6.5 |
| PKM22EPPH2002-B0 | 3.5 |



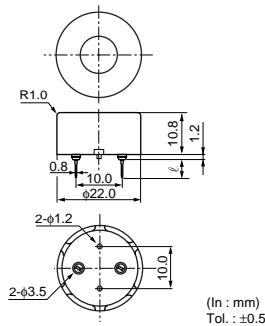
PKM22EPPH4001-B0



| Part Number      | ℓ   |
|------------------|-----|
| PKM22EPPH4001-B0 | 6.5 |
| PKM22EPPH4002-B0 | 3.5 |



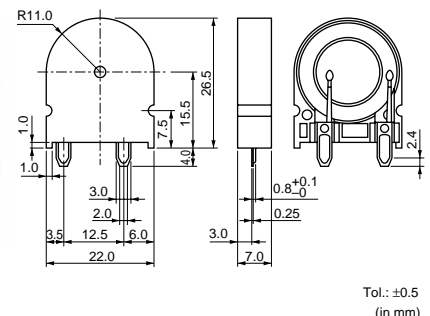
PKM22EPPH4007-B0



| Part Number      | ℓ   |
|------------------|-----|
| PKM22EPPH4007-B0 | 6.5 |
| PKM22EPPH4012-B0 | 3.5 |



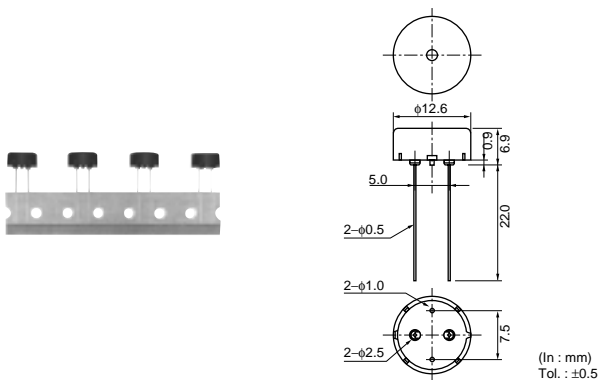
PKM22EPTH2001-B0



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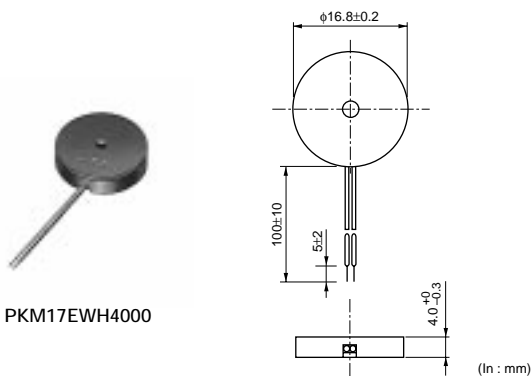
| Part Number             | Sound Pressure Level (dB)            | Operating Voltage Range       | Capacitance (nF) |
|-------------------------|--------------------------------------|-------------------------------|------------------|
| <b>PKM13EPYH4002-B0</b> | 70 min.[3Vp-p,4kHz,square wave,10cm] | 30.0 Vp-p max.                | 5.5 ±30%[1kHz]   |
| <b>PKM17EPP-2002-B0</b> | 70 min.[3Vo-p,2kHz,square wave,10cm] | 25.0 Vo-p max.[with polarity] | 34.0 ±30%[120Hz] |
| <b>PKM17EPPH4001-B0</b> | 72 min.[3Vp-p,4kHz,square wave,10cm] | 25.0 Vp-p max.                | 7.0 ±30%[1kHz]   |
| <b>PKM22EPH2001</b>     | 75 min.[3Vp-p,2kHz,square wave,10cm] | 25.0 Vp-p max.                | 17.0 ±30%[120Hz] |
| <b>PKM22EPPH2001-B0</b> | 70 min.[3Vp-p,2kHz,square wave,10cm] | 30.0 Vp-p max.                | 19.0 ±30%[120Hz] |
| <b>PKM22EPPH4001-B0</b> | 75 min.[3Vp-p,4kHz,square wave,10cm] | 30.0 Vp-p max.                | 12.0 ±30%[1kHz]  |
| <b>PKM22EPPH4005-B0</b> | 75 min.[3Vp-p,4kHz,square wave,10cm] | 30.0 Vp-p max.                | 12.0 ±30%[1kHz]  |
| <b>PKM22EPPH4007-B0</b> | 85 min.[3Vp-p,4kHz,square wave,10cm] | 30.0 Vp-p max.                | 12.0 ±30%[1kHz]  |
| <b>PKM22EPH2001-B0</b>  | 70 min.[3Vp-p,2kHz,square wave,10cm] | 25.0 Vp-p max.                | 19.0 ±30%[120Hz] |

## ● Pin Type Taping



| Part Number             | Sound Pressure Level (dB)            | Operating Voltage Range | Capacitance (nF) |
|-------------------------|--------------------------------------|-------------------------|------------------|
| <b>PKM13EPYH4000-A0</b> | 70 min.[3Vp-p,4kHz,square wave,10cm] | 30.0 Vp-p max.          | 5.5 ±30%[1kHz]   |

## ● Lead Wire Type



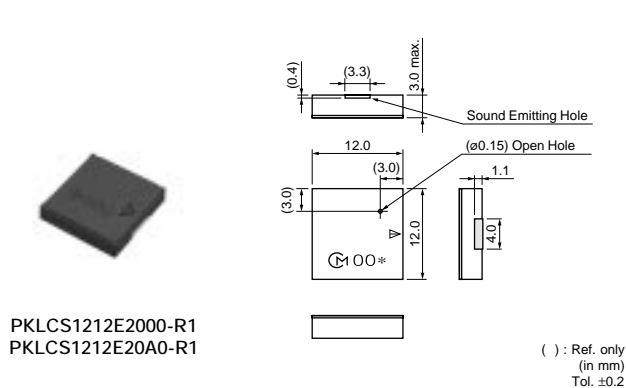
PKM17EWH4000

| Part Number         | Sound Pressure Level (dB)            | Operating Voltage Range | Capacitance (nF) |
|---------------------|--------------------------------------|-------------------------|------------------|
| <b>PKM17EWH2001</b> | 72 min.[3Vp-p,2kHz,square wave,10cm] | 7.0 Vp-p max.           | 40.0 ±30%[120Hz] |
| <b>PKM17EWH4000</b> | 75 min.[3Vp-p,4kHz,square wave,10cm] | 25.0 Vp-p max.          | 9.5 ±30%[1kHz]   |

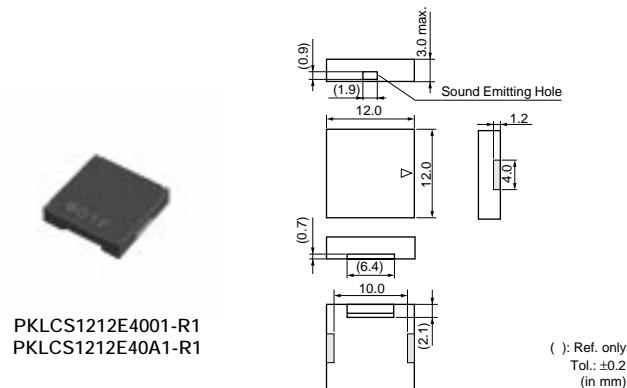
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# Piezoelectric Sounders

SMD



PKLCS1212E2000-R1  
PKLCS1212E20A0-R1

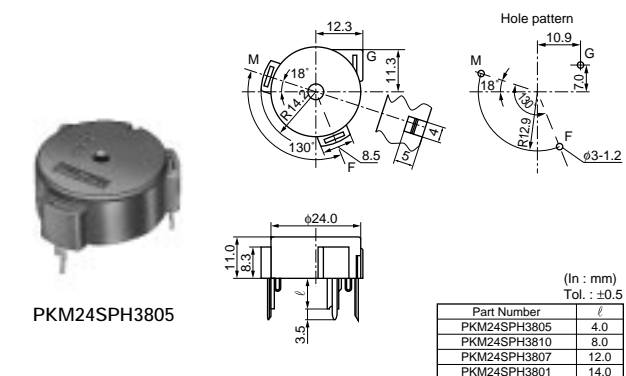


PKLCS1212E4001-R1  
PKLCS1212E40A1-R1

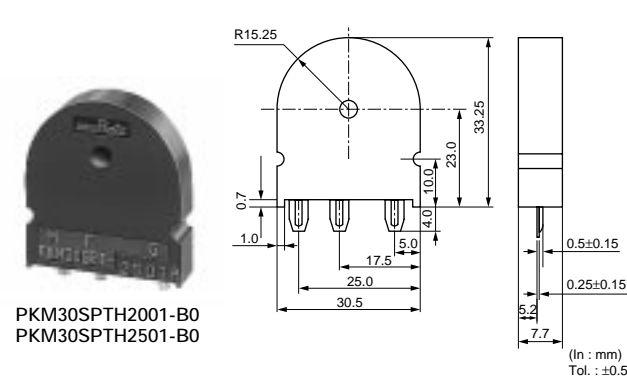
| Part Number       | Sound Pressure Level (dB)            | Operating Voltage Range (Vp-p) | Operating Temperature Range | Storage Temperature Range | Use                        |
|-------------------|--------------------------------------|--------------------------------|-----------------------------|---------------------------|----------------------------|
| PKLCS1212E2000-R1 | 70 min.[3Vp-p,2kHz,square wave,10cm] | 25 max.                        | -20 to +70°C                | -30 to +80°C              | For consumer electronics   |
| PKLCS1212E20A0-R1 | 70 min.[3Vp-p,2kHz,square wave,10cm] | 25 max.                        | -40 to +85°C                | -40 to +85°C              | For automotive electronics |
| PKLCS1212E4001-R1 | 75 min.[3Vp-p,4kHz,square wave,10cm] | 25 max.                        | -20 to +70°C                | -30 to +80°C              | For consumer electronics   |
| PKLCS1212E40A1-R1 | 75 min.[3Vp-p,4kHz,square wave,10cm] | 25 max.                        | -40 to +85°C                | -40 to +85°C              | For automotive electronics |

# Piezoelectric Sounders

Self-Drive



PKM24SPH3805



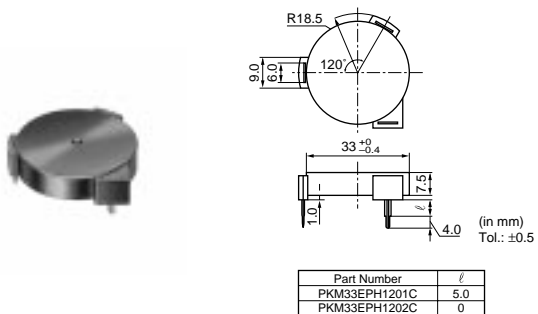
PKM30SPH2001-B0  
PKM30SPH2501-B0

| Part Number     | Sound Pressure Level (dB) | Oscillating Frequency (kHz) | Current Consumption (mA) | Operating Voltage Range |
|-----------------|---------------------------|-----------------------------|--------------------------|-------------------------|
| PKM24SPH3805    | 90 min.[12Vdc,10cm]       | 3.8 ±0.4kHz                 | 12 max.                  | 3.0Vdc to 20.0 Vdc      |
| PKM30SPH2001-B0 | 75 min.[12Vdc,10cm]       | 2.0 ±0.3kHz                 | 20 max.                  | 3.0Vdc to 20.0 Vdc      |
| PKM30SPH2501-B0 | 75 min.[12Vdc,10cm]       | 2.5 ±0.3kHz                 | 20 max.                  | 3.0Vdc to 20.0 Vdc      |

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# Piezoelectric Ringer (PIEZORINGER®)

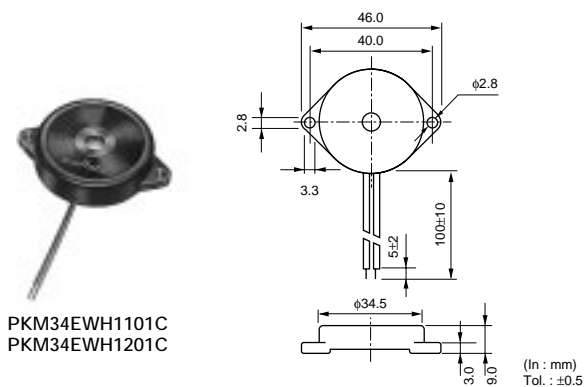
● Pin Type



| Part Number          | Sound Pressure Level (dB)                | Operating Voltage Range | Capacitance (nF) |
|----------------------|--|-------------------------|------------------|
| <b>PKM33EPH1201C</b> | 68 min.[30Vp-p, 1.2kHz, square wave, 1m] | 40.0 Vp-p max.          | 40.0 ±30%[120Hz] |

Operating Temp. Range: -20 to +70°C

● Lead Wire Type



| Part Number          | Sound Pressure Level (dB)                | Operating Voltage Range | Capacitance (nF) |
|----------------------|--|-------------------------|------------------|
| <b>PKM34EWH1101C</b> | 70 min.[30Vp-p, 1.1kHz, square wave, 1m] | 40.0 Vp-p max.          | 40.0 ±30%[120Hz] |
| <b>PKM34EWH1201C</b> | 70 min.[30Vp-p, 1.2kHz, square wave, 1m] | 60.0 Vp-p max.          | 32.0 ±30%[120Hz] |
| <b>PKM44EWH1001C</b> | 75 min.[30Vp-p, 1kHz, square wave, 1m]   | 30.0 Vp-p max.          | 68.0 ±30%[120Hz] |

Operating Temp. Range: -20 to +70°C

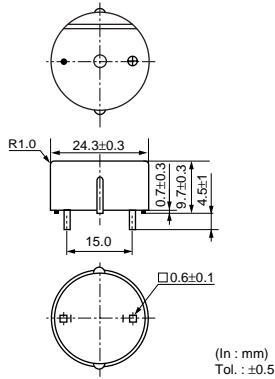
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# Piezoelectric Buzzers

● Pin Type



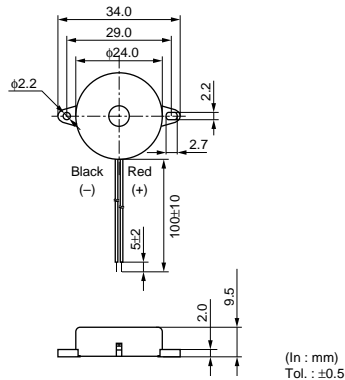
PKB24SPCH3601-B0



| Part Number             | Sound Pressure Level (dB) | Oscillating Frequency (kHz) | Current Consumption (mA) | Operating Voltage Range |
|-------------------------|---------------------------|-----------------------------|--------------------------|-------------------------|
| <b>PKB24SPCH3601-B0</b> | 90 min.[12Vdc,10cm]       | 3.6 ±0.5kHz                 | 16 max.                  | 3.0Vdc to 15.0 Vdc      |

Operating Temp. Range: -20 to +70°C

● Lead Wire Type

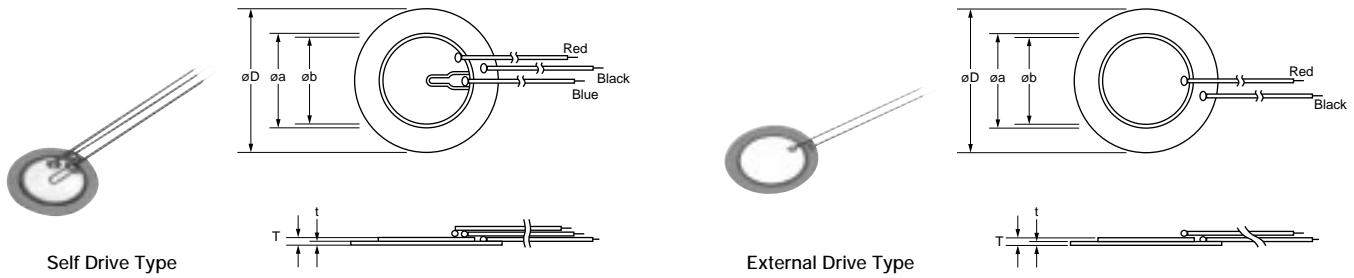


| Part Number         | Sound Pressure Level (dB) | Oscillating Frequency (kHz) | Current Consumption (mA) | Operating Voltage Range |
|---------------------|---------------------------|-----------------------------|--------------------------|-------------------------|
| <b>PKB24SWH3301</b> | 80 min.[12Vdc,10cm]       | 3.3 ±0.5kHz                 | 12 max.                  | 3.0Vdc to 20.0 Vdc      |

Operating Temp. Range: -20 to +70°C

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## Piezoelectric Diaphragms



Self Drive Type

External Drive Type

| Part Number        | Resonant Frequency (kHz) | Resonant Impedance (ohm) | Capacitance (nF)  | Plate Size øD (mm) | Element Size øa (mm) | Electrode Size øb (mm) | Thickness T (mm) | Plate Thickness t (mm) | Plate Material                              | Drive Type     |
|--------------------|--------------------------|--------------------------|-------------------|--------------------|----------------------|------------------------|------------------|------------------------|---|----------------|
| <b>7BB-12-9</b>    | 9.0 ±1.0kHz              | 1000 max.                | 8.0 ±30% [1kHz]   | 12.0               | 9.0                  | 8.0                    | 0.22             | 0.10                   | Brass                                       | External Drive |
| <b>7BB-15-6</b>    | 6.0 ±1.0kHz              | 800 max.                 | 10.0 ±30% [1kHz]  | 15.0               | 10.0                 | 9.0                    | 0.22             | 0.10                   | Brass                                       | External Drive |
| <b>7BB-20-3</b>    | 3.6 ±0.6kHz              | 500 max.                 | 20.0 ±30% [1kHz]  | 20.0               | 14.0                 | 12.8                   | 0.22             | 0.10                   | Brass                                       | External Drive |
| <b>7BB-20-6</b>    | 6.3 ±0.6kHz              | 350 max.                 | 10.0 ±30% [1kHz]  | 20.0               | 14.0                 | 12.8                   | 0.42             | 0.20                   | Brass                                       | External Drive |
| <b>7BB-20-6C</b>   | 6.3 ±0.6kHz              | 500 max.                 | 8.5 ±30% [1kHz]   | 20.0               | 14.0                 | 12.8                   | 0.42             | 0.20                   | Brass                                       | Self Drive     |
| <b>7BB-20-6CLO</b> | 6.3 ±0.6kHz              | 800 max.                 | 8.5 ±30% [1kHz]   | 20.0               | 14.0                 | 12.8                   | 0.42             | 0.20                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | Self Drive     |
| <b>7BB-20-6LO</b>  | 6.3 ±0.6kHz              | 1000 max.                | 10.0 ±30% [1kHz]  | 20.0               | 14.0                 | 12.8                   | 0.42             | 0.20                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | External Drive |
| <b>7BB-27-4</b>    | 4.6 ±0.5kHz              | 200 max.                 | 20.0 ±30% [1kHz]  | 27.0               | 19.7                 | 18.2                   | 0.54             | 0.30                   | Brass                                       | External Drive |
| <b>7BB-27-4C</b>   | 4.6 ±0.5kHz              | 200 max.                 | 18.0 ±30% [1kHz]  | 27.0               | 19.7                 | 18.2                   | 0.54             | 0.30                   | Brass                                       | Self Drive     |
| <b>7BB-27-4CLO</b> | 4.6 ±0.5kHz              | 350 max.                 | 18.0 ±30% [1kHz]  | 27.0               | 19.7                 | 18.2                   | 0.54             | 0.30                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | Self Drive     |
| <b>7BB-27-4LO</b>  | 4.6 ±0.5kHz              | 300 max.                 | 20.0 ±30% [1kHz]  | 27.0               | 19.7                 | 18.2                   | 0.54             | 0.30                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | External Drive |
| <b>7BB-35-3</b>    | 2.8 ±0.5kHz              | 200 max.                 | 30.0 ±30% [1kHz]  | 35.0               | 25.0                 | 23.0                   | 0.53             | 0.30                   | Brass                                       | External Drive |
| <b>7BB-35-3C</b>   | 2.8 ±0.5kHz              | 200 max.                 | 26.0 ±30% [1kHz]  | 35.0               | 25.0                 | 23.0                   | 0.53             | 0.30                   | Brass                                       | Self Drive     |
| <b>7BB-35-3CLO</b> | 2.8 ±0.5kHz              | 200 max.                 | 26.0 ±30% [1kHz]  | 35.0               | 25.0                 | 23.0                   | 0.53             | 0.30                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | Self Drive     |
| <b>7BB-35-3LO</b>  | 2.8 ±0.5kHz              | 200 max.                 | 30.0 ±30% [1kHz]  | 35.0               | 25.0                 | 23.0                   | 0.53             | 0.30                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | External Drive |
| <b>7BB-41-2</b>    | 2.2 ±0.3kHz              | 250 max.                 | 30.0 ±30% [1kHz]  | 41.0               | 25.0                 | 23.0                   | 0.63             | 0.40                   | Brass                                       | External Drive |
| <b>7BB-41-2C</b>   | 2.2 ±0.3kHz              | 250 max.                 | 24.0 ±30% [1kHz]  | 41.0               | 25.0                 | 23.0                   | 0.63             | 0.40                   | Brass                                       | Self Drive     |
| <b>7BB-41-2CLO</b> | 2.2 ±0.3kHz              | 350 max.                 | 24.0 ±30% [1kHz]  | 41.0               | 25.0                 | 23.0                   | 0.63             | 0.40                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | Self Drive     |
| <b>7BB-41-2LO</b>  | 2.2 ±0.3kHz              | 300 max.                 | 30.0 ±30% [1kHz]  | 41.0               | 25.0                 | 23.0                   | 0.63             | 0.40                   | Brass<br>(with Lead Wire:AWG32 Length 50mm) | External Drive |
| <b>7NB-31R2-1</b>  | 1.3 ±0.5kHz              | 300 max.                 | 40.0 ±30% [120Hz] | 31.2               | 19.7                 | 18.2                   | 0.22             | 0.10                   | Nickel Alloy                                | External Drive |
| <b>7SB-34R7-3C</b> | 3.1 ±0.3kHz              | 150 max.                 | 24.0 ±30% [1kHz]  | 34.7               | 25.0                 | 23.4                   | 0.50             | 0.25                   | Stainless                                   | Self Drive     |

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| Monolithic Ceramic Capacitors (Lead Type) | 150°C max. (for Automotive) (DC50V-DC100V) | RH Series.....100-102 |
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