

CHIP TYPE SERIES

TS13C5

FEATURES

- Extra Low impedance with temperature range -55°C to +105°C
- Impedance 40~60% less than TS13C4 series.

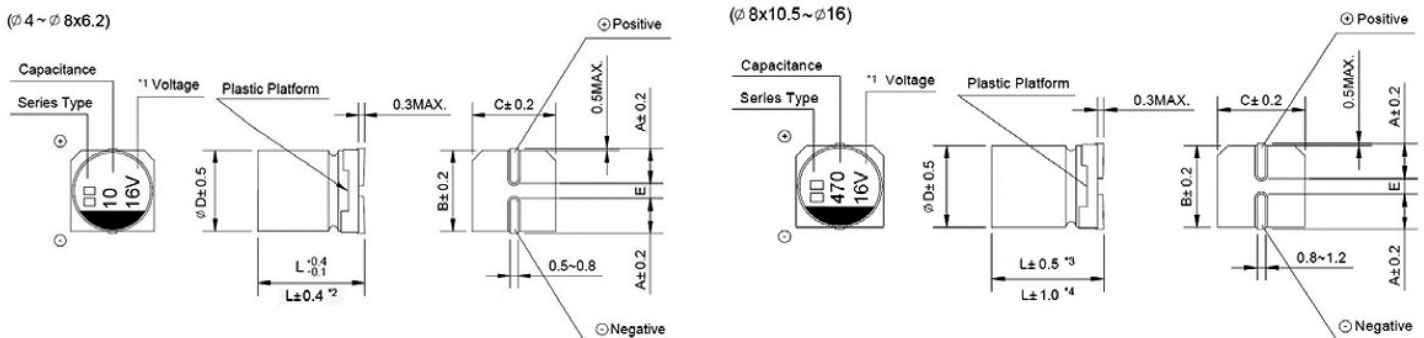
Extra Lower Impedance



◆ Specifications

ITEMS		PERFORMANCE CHARACTERISTICS							
Operating Temperature Range	-55°C ~ +105°C								
Voltage Range	6.3~50V								
Capacitance Range	4.7~4700μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	leakage current (Ø4~Ø10) ≤0.01CV or 3μA, whichever is greater(after 2 minutes' application of rated voltage) leakage current (Ø12.5~Ø16) ≤0.03CV or 4μA, whichever is greater(after 1 minutes' application of rated voltage).								
Dissipation Factor (Tan δ)	Measurement frequency : 120Hz, Temperature : 20°C								
	Rated voltage (V)		6.3	10	16	25	35	50	
	Tan δ (MAX)	Ø4~Ø10	0.22	0.19	0.16	0.14	0.12	0.12	
Ø12.5~Ø16		0.26	0.22	0.18	0.16	0.14	0.12		
Stability at Low Temperature	Measurement frequency : 120Hz								
	Rated voltage (V)		6.3	10	16	25	35	50	
	Impedance ratio ZT / Z20 (MAX)	Ø4~Ø10	Z(-25°C) / Z(20°C)	3	2	2	2	2	2
			Z(-55°C) / Z(20°C)	5	4	4	3	3	3
		Ø12.5~Ø16	Z(-25°C) / Z(20°C)	3	3	2	2	2	2
Z(-55°C) / Z(20°C)			10	8	6	4	3	3	
Load Life	After 3000 hrs.(1000 hrs. for Ø4~Ø6.3*5.4, 2000 hrs. for Ø 6.3*7.7& Ø 8)application of rated voltage at 105°C, they meet the characteristics listed at right.		Capacitance Change		Within ± 25% of initial value				
			Dissipation Factor		200% or less of initial specified value				
			Leakage Current		Initial specified value or less				
Self Life	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above.								
Resistance to Soldering Heat	After reflow soldering according and restored at room temperature, they meet the characteristics listed at right.		Capacitance Change		Within ± 10% of initial value				
			Dissipation Factor		Initial specified value or less				
			Leakage Current		Initial specified value or less				

◆ DRAWING(Unit:mm)



*1 Voltage mark for 6.3V is [6V]
 *2 Applicable to Ø6.3*7.7
 *3 Applicable to Ø8*10.5~ Ø10
 *4 Applicable to Ø12.5~ Ø16

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◆ DIMENSIONS(Unit:mm)

ØD×L	4×5.8	5×5.8	6.3×5.8/7.7	8×6.2	8×10.5	10×10.5/13.5	12.5×13.5/16	16×16.5
A	2.0	2.2	2.6	3.4	3.0	3.3	4.9	5.8
B	4.3	5.3	6.6	8.4	8.4	10.4	13.0	17.0
C	4.3	5.3	6.6	8.4	8.4	10.4	13.0	17.0
E ± 0.2	1.0	1.4	1.9	2.3	3.1	4.7	4.7	6.4
L	5.8	5.8	5.8/7.7	6.2	10.5	10.5/13.5	13.5/16	16.5

◆ DIMENSIONS&MAXIMUM PERMISSIBLE RIPPLE CURRENT&IMPEDANCE

Cap. (µF)	WV	6.3			10			16		
		0J			1A			1C		
10	100							4×5.4	1.8	80
15	150							4×5.4	1.8	80
22	220	4×5.4	1.8	80	4×5.4	1.8	80	5×5.4 (4×5.4)	0.76 (1.8)	150 (80)
33	330	5×5.4 (4×5.4)	0.76 (1.8)	150 (80)	5×5.4 (4×5.4)	0.76 (1.8)	150 (80)	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)
47	470	5×5.4 (4×5.4)	0.76 (1.8)	150 (80)	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)
56	560	5×5.4	0.76	150	6.3×5.4	0.44	230	6.3×5.4	0.44	230
68	680	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)	6.3×5.4	0.44	230	6.3×7.7 (6.3×5.4) (8×6.2)	0.34 (0.44) (0.34)	280 (230) (280)
100	101	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)	6.3×7.7 (6.3×5.4) (8×6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3×7.7 (6.3×5.4) (8×6.2)	0.34 (0.44) (0.34)	280 (230) (280)
150	151	6.3×5.4	0.44	230	6.3×7.7	0.34	280	6.3×7.7	0.34	280
220	221	6.3×7.7 (6.3×5.4) (8×6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3×7.7 (8×6.2)	0.34 (0.34)	280 (280)	8×10.5 (6.3×7.7)	0.17 (0.34)	450 (280)
330	331	6.3×7.7 (8×6.2)	0.34 (0.34)	280 (280)	8×10.5	0.17	450	10×10.5 (8×10.5)	0.09 (0.17)	670 (450)
470	471	8×10.5	0.17	450	8×10.5	0.17	450	10×10.5 (8×10.5)	0.09 (0.17)	670 (450)
680	681	10×10.5 (8×10.5)	0.09 (0.17)	670 (450)	10×10.5	0.09	670	10×13.5 (10×10.5)	0.075 (0.09)	800 (670)
1000	102	10×10.5 (8×10.5)	0.09 (0.17)	670 (450)	10×10.5	0.09	670	16×16.5 (12.5×16) (12.5×13.5)	0.055 (0.06) (0.065)	1350 (1050) (900)
1500	152	10×13.5 (10×10.5)	0.075 (0.09)	800 (670)	12.5×13.5	0.065	900	16×16.5	0.055	1350
2200	222	12.5×13.5	0.065	900	12.5×16	0.060	1050	16×16.5	0.055	1350
3300	332	12.5×16	0.060	1050	16×16.5	0.055	1350	Case Size	Impedance	Ripple Current
4700	472	16×16.5	0.055	1350				ØD×L(mm)	(Ω) at 20°C	(mA rms) at 105°C

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◆ DIMENSIONS&MAXIMUM PERMISSIBLE RIPPLE CURRENT&IMPEDANCE

WV Cap. (μF)		25			35			50		
		1E			1V			1H		
4.7	4R7				4×5.4	1.8	80	5×5.4 (4×5.4)	1.52 (3.0)	85 (60)
10	100	4×5.4	1.8	80	5×5.4 (4×5.4)	0.76 (1.8)	150 (80)	6.3×5.4 (5×5.4)	0.88 (1.52)	165 (85)
15	150	5×5.4	0.76	150	5×5.4	0.76	150	6.3×5.4	0.88	165
22	220	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)	6.3×7.7 (6.3×5.4) (8×6.2)	0.68 (0.88) (0.68)	185 (165) (185)
33	330	6.3×5.4 (5×5.4)	0.44 (0.76)	230 (150)	6.3×5.4 (8×6.2)	0.44 (0.34)	230 (280)	6.3×7.7 (8×6.2)	0.68 (0.68)	185 (185)
47	470	6.3×7.7 (6.3×5.4) (8×6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3×7.7 (6.3×5.4) (8×6.2)	0.34 (0.44) (0.34)	280 (230) (280)	6.3×7.7 (8×6.2)	0.68 (0.68)	185 (185)
56	560	6.3×7.7 (6.3×5.4)	0.34 (0.44)	280 (230)	6.3×7.7	0.34	280	8×10.5 (6.3×7.7)	0.34 (0.68)	350 (185)
68	680	6.3×7.7	0.34	280	6.3×7.7	0.34	280	8×10.5	0.34	350
100	101	6.3×7.7 (8×6.2)	0.34 (0.34)	280 (280)	8×10.5	0.17	450	10×10.5 (8×10.5)	0.18 (0.34)	670 (350)
150	151	8×10.5 (6.3×7.7)	0.17 (0.34)	450 (280)	10×10.5	0.09	670	10×10.5	0.18	670
								Case Size ØD×L(mm)	Impedance (Ω) at 20°C 100kHz	Ripple Current (mA rms) at 105°C 100kHz

◆ DIMENSIONS&MAXIMUM PERMISSIBLE RIPPLE CURRENT&IMPEDANCE

WV Cap. (μF)		6.3			10			16		
		0J			1A			1C		
220	221	8×10.5	0.17	450	10×10.5	0.09	670	10×13.5 (10×10.5)	0.16 (0.18)	750 (670)
330	331	10×10.5 (8×10.5)	0.09 (0.17)	670 (450)	10×10.5	0.09	670	12.5×13.5	0.14	800
470	471	10×13.5 (10×10.5)	0.075 (0.09)	800 (670)	12.5×13.5 (10×13.5)	0.065 (0.075)	900 (800)	16×16.5 (12.5×16)	0.10 (0.12)	1150 (900)
680	681	12.5×13.5	0.065	900	12.5×16 (12×13.5)	0.060 (0.065)	1050 (900)			
1000	102	16×16.5 (12.5×16)	0.055 0.060	1350 (1050)	16×16.5	0.055	1350			
1500	152	16×16.5	0.055	1350				Case Size ØD×L(mm)	Impedance (Ω) at 20°C 100kHz	Ripple Current (mA rms) at 105°C 100kHz

◆ Frequency coefficient of allowable ripple current

Frequency		50Hz	120Hz	300Hz	1kHz	10kHz~
Coefficient	Ø4~Ø10	4.7~68μF	0.35	0.50	0.64	0.83
		100~1500μF	0.40	0.55	0.70	0.85
	Ø12.5~Ø16	~680μF	0.45	0.65	0.80	0.90
		1000~4700μF	0.65	0.85	0.95	1.00

Note: Specification are subject to change without notice. For more detail and update, please visit our website.