

#### Features

- ◆ Ultra-wide 4:1 input range
- ◆ High efficiency up to 86 %
- ◆ Extended operating temperature range  
-40°C to +85°C max.
- ◆ Indefinite short circuit protection
- ◆ I/O isolation 1500 VDC
- ◆ Built-in filter meets EN 55022, Class A and  
FCC, Level A without external components
- ◆ Remote On/Off
- ◆ Industry standard pinout
- ◆ Six-side shielded case
- ◆ Lead free design, fully RoHS compliant
- ◆ 3-year product warranty



The TEN 15WI series of DC/DC converters, comprising 10 different models, has been designed for a wide range of applications including communications, industrial systems and battery powered equipments. Full SMD-design with use of ceramic chip capacitors guarantees a high reliability and a long lifetime. Other features of this converters are internal filter to meet EN 55022, class A and FCC, level A and an extended temperature range of -40°C to +85°C.

#### Models

| Ordercode     | Input voltage range                    | Output voltage | Output current max. | Efficiency typ. |
|---------------|--|----------------|---------------------|-----------------|
| TEN 15-2410WI | <b>9 – 36 VDC</b><br>(24 VDC nominal)  | 3,3 VDC        | 3'000 mA            | 78 %            |
| TEN 15-2411WI |  | 5,1 VDC        | 2'950 mA            | 82 %            |
| TEN 15-2412WI |  | 12 VDC         | 1'250 mA            | 85 %            |
| TEN 15-2422WI |  | ±12 VDC        | ±625 mA             | 85 %            |
| TEN 15-2423WI |  | ±15 VDC        | ±500 mA             | 86 %            |
| TEN 15-4810WI | <b>18 – 75 VDC</b><br>(48 VDC nominal) | 3,3 VDC        | 3'000 mA            | 78 %            |
| TEN 15-4811WI |  | 5,1 VDC        | 2'950 mA            | 82 %            |
| TEN 15-4812WI |  | 12 VDC         | 1'250 mA            | 85 %            |
| TEN 15-4822WI |  | ±12 VDC        | ±625 mA             | 85 %            |
| TEN 15-4823WI |  | ±15 VDC        | ±500 mA             | 86 %            |

## Input Specifications

|                                   |         |  |             |
|-----------------------------------|---------|--|-------------|
| Input current at no load          |         | 24 Vin models:                         | 25 mA typ.  |
|                                   |         | 48 Vin models:                         | 15 mA typ.  |
| Input current at full load        | 24 Vin; | 3.3 Vout models:                       | 528 mA typ. |
|                                   | 24 Vin; | other output models:                   | 740 mA typ. |
|                                   | 48 Vin; | 3.3 Vout models:                       | 264 mA typ. |
|                                   | 48 Vin; | other output models:                   | 370 mA typ. |
| Surge voltage<br>(100 msec. max.) |         | 24 Vin models:                         | 50 V max.   |
|                                   |         | 48 Vin models:                         | 100 V max.  |
| Conducted noise (input)           |         | EN 55022 level A, FCC part 15, level A |             |

## Output Specifications

|                                     |  |                                 |
|-------------------------------------|--|---------------------------------|
| Voltage set accuracy                |  | ±1 %                            |
| Regulation                          | – Input variation Vin min. to Vin max. | 0.5 % max.                      |
|                                     | – Load variation 10 – 100 %            | 1 % max.                        |
| Ripple and noise (20 MHz Bandwidth) |  | 80 mVpk-pk max.                 |
| Temperature coefficient             |  | ±0.02 %/K                       |
| Output current limitation           |  | >110 % of Iout max., foldback   |
| Short circuit protection            |  | indefinite (automatic recovery) |
| Capacitive load                     | single output models:                  | 470 µF max.                     |
|                                     | dual output models:                    | 220 µF max.                     |

## General Specifications

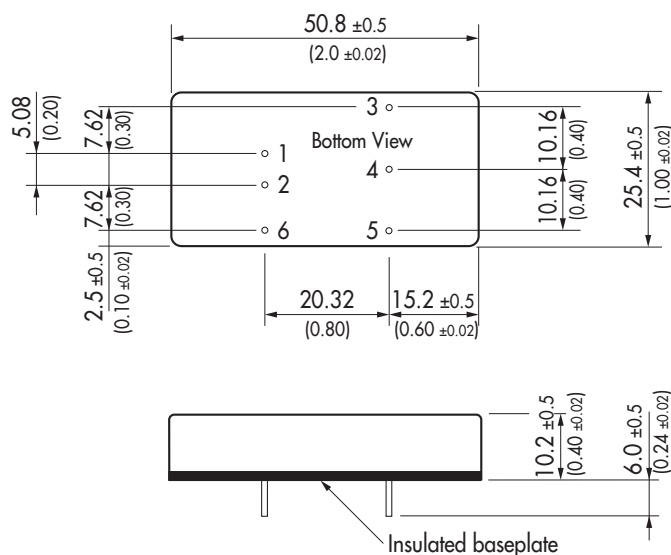
|  |                          |  |
|--|--------------------------|--|
| Temperature ranges   | – Operating              | –40°C to +85°C (–40°F to +185°F)   |
|  | – Case temperature       | +100°C max.  |
|  | – Storage                | –55°C to +125°C (–67°F to +257°F)  |
| Derating   |                          | 3.5 %/K above 70°C   |
| Humidity (non condensing)  |                          | 95 % rel H max.  |
| Reliability, calculated MTTF (MIL-HDBK-217F, @ +25°C, ground benign) |                          | >700'000 h   |
| Isolation voltage (60 sec)   | – Input/Output           | 1'500 VDC  |
| Isolation capacity   | – Input/Output           | 1200 pF typ  |
| Isolation resistance   | – Input/Output (500 VDC) | >1'000 MOhm  |
| Switching frequency (fixed)  |                          | 330 kHz typ. (pulse width modulation)  |
| Remote On/Off:   | – On:                    | 2.5 ... 5.5 VDC or open circuit.   |
|  | – Off:                   | –0.7 ... 0.8 VDC or short circuit pin 2 and pin 6  |
|  | – Off idle current:      | 10 mA max.   |
| Safety standards   |                          | cUL/UL 60950-1, IEC/EN 60950-1   |
| Safety approvals   |                          | CSA File No. 226037<br><a href="http://directories.csa-international.org">http://directories.csa-international.org</a> |

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

## Physical Specifications

|                       |  |
|-----------------------|--|
| Casing material       | copper, nickel plated                          |
| Baseplate material    | non conductive FR4                             |
| Potting material      | Silicon TSE-3331A/B (flammability to UL 94V-0) |
| Weight                | 32 g (1.09oz)                                  |
| Soldering temperature | max. 265°C / 10 sec.                           |

## Outline Dimensions



| Pin-Out |               |            |
|---------|---------------|------------|
| Pin     | Single        | Dual       |
| 1       | +Vin (Vcc)    | +Vin (Vcc) |
| 2       | -Vin (GND)    | -Vin (GND) |
| 3       | +Vout         | +Vout      |
| 4       | No pin        | Common     |
| 5       | -Vout         | -Vout      |
| 6       | Remote On/Off |            |

Dimensions in [mm], (I) = Inch  
Pin diameter: 1.0 ±0.05 (0.039 ±0.002)  
Pin pitch tolerances: ±0.25 (±0.01)  
Casing tolerances: ±0.5 (±0.02)

Specifications can be changed any time without notice