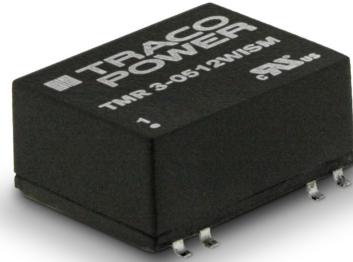


DC/DC Converter

TMR 3WISM Series, 3 Watt

- Ultra wide 4:1 Input: 4.5–12, 9–36 and 18–75 VDC
- I/O-isolation 1'500 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +80°C
- Protection against short circuit
- Remote On/Off
- 3-year product warranty



The TMR 3WISM Series is a set of 3 Watt SMD DC/DC converters. They operate up to 65°C environment temperature at full load or up to 80°C with a 50% load derating. With UL 60950-1 certification, 1'500 VDC I/O-isolation voltage, external On/Off and short current protection they cover a wide range of application when space is limited. The input of the converters is designed for a wide voltage range (4:1) and minimum load is not required.

| Models | | | | |
|----------------|---------------------------------|----------------|---------------------|-----------------|
| Order code | Input voltage | Output voltage | Output current max. | Efficiency typ. |
| TMR 3-0511WISM | 4.5 – 12 VDC (9 VDC nominal) | 5.0 VDC | 600 mA | 81 % |
| TMR 3-0512WISM | | 12 VDC | 250 mA | 84 % |
| TMR 3-0513WISM | | 15 VDC | 200 mA | 84 % |
| TMR 3-0515WISM | | 24 VDC | 125 mA | 84 % |
| TMR 3-0522WISM | | ±12 VDC | ±125 mA | 83 % |
| TMR 3-0523WISM | | ±15 VDC | ±100 mA | 83 % |
| TMR 3-2411WISM | 9 – 36 VDC (24 VDC nominal) | 5.0 VDC | 600 mA | 80 % |
| TMR 3-2412WISM | | 12 VDC | 250 mA | 85 % |
| TMR 3-2413WISM | | 15 VDC | 200 mA | 85 % |
| TMR 3-2415WISM | | 24 VDC | 125 mA | 85 % |
| TMR 3-2422WISM | | ±12 VDC | ±125 mA | 84 % |
| TMR 3-2423WISM | | ±15 VDC | ±100 mA | 84 % |
| TMR 3-4811WISM | 18 – 75 VDC (48 VDC nominal) | 5.0 VDC | 600 mA | 80 % |
| TMR 3-4812WISM | | 12 VDC | 250 mA | 84 % |
| TMR 3-4813WISM | | 15 VDC | 200 mA | 84 % |
| TMR 3-4815WISM | | 24 VDC | 125 mA | 85 % |
| TMR 3-4822WISM | | ±12 VDC | ±125 mA | 83 % |
| TMR 3-4823WISM | | ±15 VDC | ±100 mA | 82 % |

Input Specifications

| | |
|--|---|
| Input current no load | 9 Vin models: 40 mA typ 24 Vin models: 20 mA typ. 48 Vin models: 13 mA typ. |
| Surge voltage (1 s max.) | 9 Vin models: 15 V max. 24 Vin models: 50 V max. 48 Vin models: 100 V max. |
| Start-up voltage | 9 Vin models: 4.5 VDC (or lower) 24 Vin models: 9 VDC (or lower) 48 Vin models: 18 VDC (or lower) |
| Electromagnetic compatibility (EMC), Emissions | EN 55032 class A |
| Electromagnetic compatibility (EMC), Immunity | EN 55024 |
| – Conducted RI suppression on input | IEN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A |
| – Electrostatic discharge (ESD) | EN 61000-4-3, 10 V/m, perf. criteria A |
| – Radiated RF field immunity | EN 61000-4-4, ±2 kV, perf. criteria A |
| – Electrical fast transient / burst immunity | with external capacitor: 220 µF / 100V |
| – Surge immunity | EN 61000-4-5, ±1 kV, perf. criteria A |
| – Immunity to conducted RF disturbances | with external capacitor: 220 µF / 100V |
| – Magnetic field immunity | EN 61000-4-6, 10 Vrms, perf. criteria A |
| EN 61000-4-8, 3 A/m, perf. criteria A | |
| Input filter | internal PI-Type |
| Short Circuit Input Power | 1500 mW max. |

Output Specifications

| | |
|---|--|
| Voltage set accuracy | ±1 % max. |
| Voltage balance (dual output models) | 2 % max. |
| Regulation | 0.5 % max. |
| – Input variation | 1 % max. |
| – Load variation 0 – 100 % | 5 % max. (asymmetrical load 25 % / 100 %) |
| – Cross regulation - dual output: | |
| Temperature coefficient | ±0.02 %/K max. |
| Minimum load | not required |
| Ripple and noise (20 MHz Bandwidth) | 50 mVp-p max. |
| Start up time (constant resistive load) | 30 ms max. |
| Transient response (25% load step change) | 250 µs typ. |
| – Recovery time | 5 % max. |
| – Deviation | |
| Current limitation | 160 % of Iout nom. typ. (foldback) |
| Short circuit protection | continuous, automatic recovery |
| Capacitive load | 5.0 VDC models: 1680 µF max. 12 VDC models: 820 µF max. 15 VDC models: 680 µF max. 24 VDC models: 390 µF max. |
| –Single output | |
| –Dual output | ±12 VDC models: 470 µF max. (each output) +15 VDC models: 330 µF max. (each output) |

General Specifications

| | | |
|---------------------------|--|---|
| Temperature ranges | – Operating (natural convection: 20 LFM, 0.1 m/s) – Case temperature – Storage temperature | –40°C to +80°C +95°C max. –55°C to +125°C |
| Derating | | 3.3 %/K above 65°C |
| Humidity (non condensing) | | 95 % rel H max. |

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

General Specifications

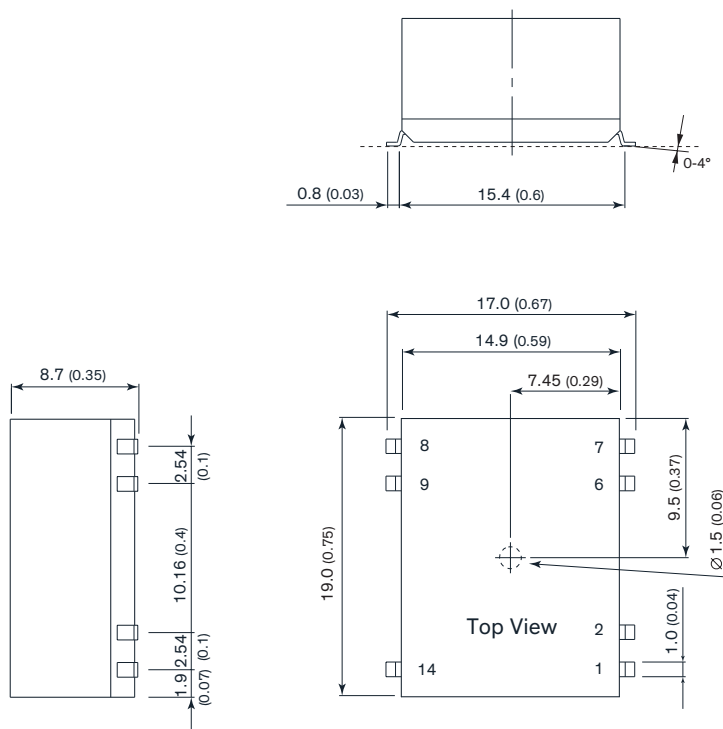
| | | |
|--|---|---|
| Isolation voltage | – I/O isolation voltage (60 s) – I/O isolation voltage (1 s) | 1'500 VDC 1'800 VDC |
| Isolation capacitance (@ 100kHz / 1V) | | 500 pF typ. |
| Isolation resistance (@ 500 VDC) | | >1 GOhm |
| Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign) | | 5'000'000 h min. |
| Switching frequency | | 100 kHz min. (PFM) |
| Safety standards | | IEC/EN 60950-1 UL 60950-1 www.tracopower.com/overview/tmr3wism |
| Remote On/Off | – On: – Off: – Off idle current: | open circuit or high impedance 2 – 4 mA current applied via 1kOhm resistor 2.5 mA typ. |
| Environmental compliance | – Reach – RoHS | www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU |
| Moisture sensitivity level (MSL) | | IPC J-STD-033C Level 2 |
| Washing process | | not recommended, product non-hermetical |

Physical Specifications

| | |
|---------------------------------|---|
| Casing material | non-conducting black plastic (UL 94V-0 rated) |
| Pin material | tinned copper |
| Package weight | 3.5 g (0.12 oz) |
| Lead-free reflow solder process | IPC J-STD-020D |

Supporting Documents: www.tracopower.com/overview/tmr3wism

Outline Dimensions



| Pin-Out | | |
|---------|------------|------------|
| Pin | Single | Dual |
| 1 | –Vin (GND) | –Vin (GND) |
| 2 | On/Off | On/Off |
| 6 | no con. | Com. |
| 7 | no con. | –Vout |
| 8 | +Vout | +Vout |
| 9 | –Vout | Com. |
| 14 | +Vin (Vcc) | +Vin (Vcc) |

Dimensions in [mm], () = Inch

Tolerances: x.x ±0.5 (±0.02)

x.xx ±0.25 (±0.01)

Pin dimension tolerance ±0.05 (±0.002)