

Features

- ◆ Wide 4:1 input voltage range
- ◆ Compact SIP-8 package
- ◆ Cost optimized design
- ◆ Temperature range -40°C to $+85^{\circ}\text{C}$
- ◆ I/O isolation 1500 VDC
- ◆ Remote On/Off control
- ◆ 3-year product warranty



The TMR-3WIE series is a family of isolated 3 W dc-dc converter modules with regulated output, featuring wide 4:1 input voltage ranges. The product comes in a compact SIP-8 plastic package with small footprint occupying only 2.0 cm² (0.3 square in.) of board space.

An excellent efficiency allows -40°C to $+85^{\circ}\text{C}$ operation temperature. Further features include remote On/Off control and continuous short circuit protection. The compact dimensions and cost optimized design make this converters an ideal solution for applications in communication equipment, instrumentation and industrial electronics.

Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|---------------|----------------------------------|----------------|---------------------|-----------------|
| TMR 3-1210WIE | 4.5 – 18 VDC (12 VDC nominal) | 3.3 VDC | 700 mA | 74 % |
| TMR 3-1211WIE | | 5.0 VDC | 600 mA | 78 % |
| TMR 3-1212WIE | | 12 VDC | 250 mA | 80 % |
| TMR 3-1213WIE | | 15 VDC | 200 mA | 80 % |
| TMR 3-1221WIE | | ± 5.0 VDC | ± 300 mA | 70 % |
| TMR 3-1222WIE | | ± 12 VDC | ± 125 mA | 80 % |
| TMR 3-1223WIE | | ± 15 VDC | ± 100 mA | 80 % |
| TMR 3-2410WIE | 9 – 36 VDC (24 VDC nominal) | 3.3 VDC | 700 mA | 75 % |
| TMR 3-2411WIE | | 5.0 VDC | 600 mA | 80 % |
| TMR 3-2412WIE | | 12 VDC | 250 mA | 81 % |
| TMR 3-2413WIE | | 15 VDC | 200 mA | 81 % |
| TMR 3-2421WIE | | ± 5.0 VDC | ± 300 mA | 79 % |
| TMR 3-2422WIE | | ± 12 VDC | ± 125 mA | 80 % |
| TMR 3-2423WIE | | ± 15 VDC | ± 100 mA | 81 % |
| TMR 3-4810WIE | 18 – 75 VDC (48 VDC nominal) | 3.3 VDC | 700 mA | 74 % |
| TMR 3-4811WIE | | 5.0 VDC | 600 mA | 79 % |
| TMR 3-4812WIE | | 12 VDC | 250 mA | 79 % |
| TMR 3-4813WIE | | 15 VDC | 200 mA | 79 % |
| TMR 3-4821WIE | | ± 5.0 VDC | ± 300 mA | 79 % |
| TMR 3-4822WIE | | ± 12 VDC | ± 125 mA | 79 % |
| TMR 3-4823WIE | | ± 15 VDC | ± 100 mA | 80 % |

Input Specifications

| | |
|--|---|
| Input current at no load (nominal input voltage) | 12 V models: 60 mA typ. 24 V models: 25 mA typ. 48 V models: 15 mA typ. |
| Surge voltage (1000 msec. max.) | 12 V models: 25 V max. 24 V models: 50 V max. 48 V models: 100 V max. |
| Start-up voltage / under voltage lockout | 12 V models: 4.5 VDC / 4 VDC or lower 24 V models: 9 VDC / 8 VDC or lower 48 V models: 18 VDC / 16 VDC or lower long term operation at undervoltage will damage the converter! |
| max. reverse polarity input current | 1.0 A |
| Recommended Input Fuse (Slow Blow) | 12 V models: 1500 mA 24 V models: 700 mA 48 V models: 350 mA |
| Conducted noise (input) | EN 55022 level A, FCC part 15, level A with external components (see application note) |

Output Specifications

| | | |
|--|---|--|
| Voltage set accuracy | – Single Output Models – Dual Output Models | ±1 % max. ±2 % max. (balanced load) |
| Regulation | – Input variation Vin min. to Vin max. – Load variation 25 – 100% | 0.5 % max. 1.0 % max. |
| Minimum load | | 25 % of rated max. load (operation at lower load condition is safe but a higher output ripple will be experienced) |
| Temperature coefficient | | 0.02 %/K |
| Ripple and noise (20 MHz bandwidth) | | 75 mVp-p max. |
| Transient response setting time (25% load step change) | | 500 µs max. |
| Short circuit protection | | continuous, automatic recovery |
| Capacitive load | 3.3 VDC models: 1'760 µF max. 5 VDC models: 1'000 µF max. 12 VDC models: 170 µF max. 15 VDC models: 110 µF max. ±5 VDC models: 470 µF max. (each output) ±12 VDC models: 100 µF max. (each output) ±15 VDC models: 47 µF max. (each output) | |

General Specifications

| | | |
|---|--|--|
| Temperature ranges | – Operating – Case temperature – Storage | –40°C to +85°C (with derating) +105°C max. –55°C to +125°C |
| Load derating | | 3.3 %/K above +70°C |
| Humidity (non condensing) | | 95 % rel. H max. |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) | | > 800'000 h |
| Isolation voltage (60 sec.) | – Input/Output | 1'500 VDC |
| Isolation capacitance | – Input/Output | 200 pF typ. |
| Isolation resistance | – Input/Output (500 VDC) | >1 GOhm |

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

General Specifications

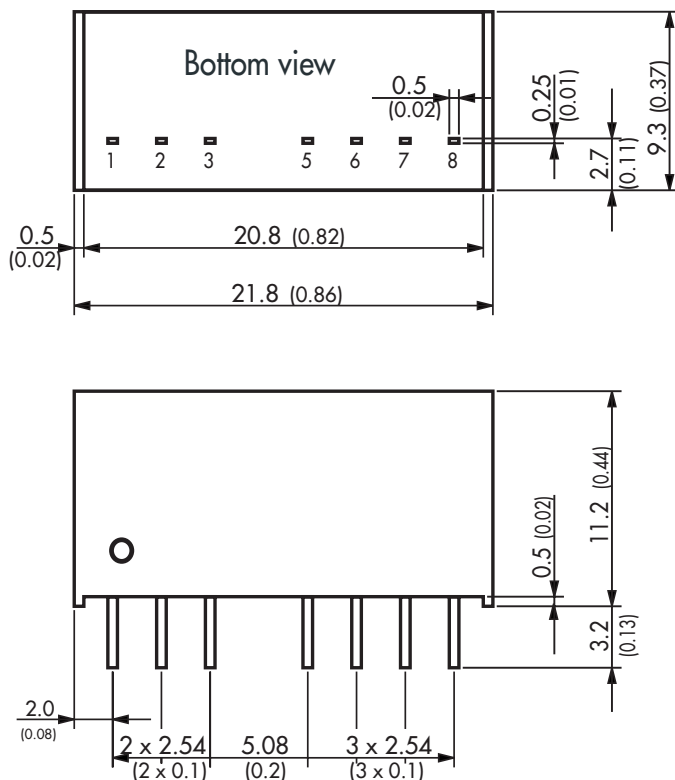
| | | |
|---------------------|---|---|
| Switching frequency | | 350 kHz typ. (PFM) |
| Remote On/Off | <ul style="list-style-type: none"> - On: < 0.6 VDC or open circuit - Off: 2.7 to 15 VDC (ref. to -Vin) - Off standby current: 2.5 mA max. - Off control input current: 1 mA max. | |
| Safety standards | | CAN/CSA-C22.2 No 60950-1-07 Incl. AM1 (2011) ANSI/UL Std No 60950-1, 2nd Ed. Incl. AM1 (2011) IEC 60950-1:2005 (2nd Edition); +A1:2009 www.tracopower.com/overview/tmr3wie - Certification documents |

Physical Specifications

| | | |
|--------------------------|---|---|
| Casing material | | non-conductive plastic (UL 94V-0 rated) |
| Potting material | | Silicon, (UL 94V-0 rated) |
| Weight | | 4.8 g (0.17 oz) |
| Soldering temperature | | max. 260°C / 10 sec. |
| Environmental compliance | <ul style="list-style-type: none"> - Reach - RoHS | www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU |

Supporting documents: www.tracopower.com/overview/tmr3wie

Outline Dimensions



| Pinout | | |
|--------|---------------|---------------|
| Pin | single output | dual output |
| 1 | -Vin (GND) | -Vin (GND) |
| 2 | +Vin (Vcc) | +Vin (Vcc) |
| 3 | Remote On/Off | Remote On/Off |
| 5 | ntc. | ntc. |
| 6 | +Vout | +Vout |
| 7 | -Vout | Common |
| 8 | ntc. | -Vout |

ntc. = Not to connect

Dimensions in [mm], () = Inch
 Tolerances: ±0.5 (±0.02)
 Pin pitch tolerances: ±0.25 (±0.01)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com