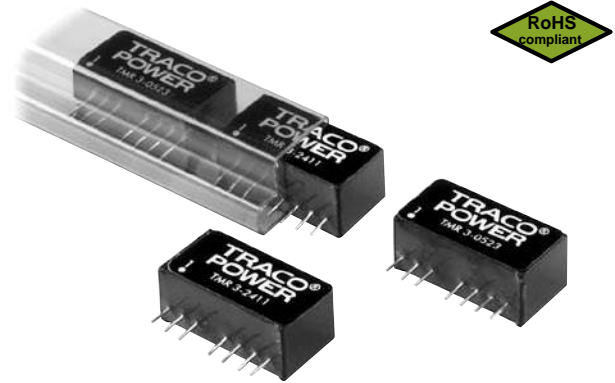


Features

- ◆ Wide 2:1 Input Voltage Range
- ◆ Ultra-compact SIP-8 Package
- ◆ Small Footprint
- ◆ Full SMD Design
- ◆ Temperature Range -40° to $+70^{\circ}\text{C}$
- ◆ High Efficiency
- ◆ Excellent Load and Line Regulation
- ◆ Indefinite Short-circuit Protection
- ◆ I/O-Isolation 1500 VDC
- ◆ Remote On/Off Control
- ◆ Fully RoHS compliant
- ◆ 3 Year Product Warranty



The TMR-3 series is a new family of isolated 3W dc-dc converter modules with regulated output, featuring wide 2:1 input voltage ranges. The product comes in a ultra-compact SIP-8 plastic package with a small footprint occupying only 2.0 cm² (0.3 square in.) of board space.

An excellent efficiency allows -40° to $+70^{\circ}\text{C}$ operation temperatures at full load. Further features include remote On/Off control and continuous short circuit protection. The very compact dimensions of these converters make them an ideal solution for many space critical applications in communication equipment, instrumentation and industrial electronics.

Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|------------|----------------------------------|----------------|---------------------|-----------------|
| TMR 3-0510 | 4.5 – 9.0 VDC (5 VDC nominal) | 3.3 VDC | 700 mA | 73 % |
| TMR 3-0511 | | 5 VDC | 600 mA | 77 % |
| TMR 3-0512 | | 12 VDC | 250 mA | 79 % |
| TMR 3-0513 | | 15 VDC | 200 mA | 80 % |
| TMR 3-0521 | | ± 5 VDC | ± 300 mA | 77 % |
| TMR 3-0522 | | ± 12 VDC | ± 125 mA | 79 % |
| TMR 3-0523 | | ± 15 VDC | ± 100 mA | 80 % |
| TMR 3-1210 | 9 – 18 VDC (12 VDC nominal) | 3.3 VDC | 700 mA | 74 % |
| TMR 3-1211 | | 5 VDC | 600 mA | 78 % |
| TMR 3-1212 | | 12 VDC | 250 mA | 80 % |
| TMR 3-1213 | | 15 VDC | 200 mA | 81 % |
| TMR 3-1221 | | ± 5 VDC | ± 300 mA | 80 % |
| TMR 3-1222 | | ± 12 VDC | ± 125 mA | 81 % |
| TMR 3-1223 | | ± 15 VDC | ± 100 mA | 81 % |
| TMR 3-2410 | 18 – 36 VDC (24 VDC nominal) | 3.3 VDC | 700 mA | 74 % |
| TMR 3-2411 | | 5 VDC | 600 mA | 78 % |
| TMR 3-2412 | | 12 VDC | 250 mA | 80 % |
| TMR 3-2413 | | 15 VDC | 200 mA | 81 % |
| TMR 3-2421 | | ± 5 VDC | ± 300 mA | 80 % |
| TMR 3-2422 | | ± 12 VDC | ± 125 mA | 81 % |
| TMR 3-2423 | | ± 15 VDC | ± 100 mA | 81 % |
| TMR 3-4810 | 36 – 75 VDC (48 VDC nominal) | 3.3 VDC | 700 mA | 74 % |
| TMR 3-4811 | | 5 VDC | 600 mA | 78 % |
| TMR 3-4812 | | 12 VDC | 250 mA | 80 % |
| TMR 3-4813 | | 15 VDC | 200 mA | 81 % |
| TMR 3-4821 | | ± 5 VDC | ± 300 mA | 80 % |
| TMR 3-4822 | | ± 12 VDC | ± 125 mA | 81 % |
| TMR 3-4823 | | ± 15 VDC | ± 100 mA | 81 % |

Input Specifications

| | |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Input current at full load (nominal input voltage) | 4.5–9 Vin models: 820 mA max. 9–18 Vin models: 330 mA max. 18–36 Vin models: 170 mA max. 36–75 Vin models: 85 mA max. |
| Surge voltage (100 msec. max.) | 4.5–9 Vin models: 15 V max. 9–18 Vin models: 36 V max. 18–36 Vin models: 50 V max. 36–75 Vin models: 100 V max. |
| Input voltage variation (dv/dt) | 5 V/ms, max. (complies with ETS300 132 part 4.4) |
| Input filter | capacitor type (see application note for compliance to EN 55022 class A/B) |
| Start up time | < 1ms at nominal input and resistive load |

Output Specifications

| | |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage set accuracy | ± 1 % max |
| Regulation | <ul style="list-style-type: none"> – Input variation Vin min. to Vin max. 0.2 % max. – Load variation 5 – 100% <ul style="list-style-type: none"> single output models: 0.5 % max. dual output models: 1.0 % max. balanced load – Load variation 0 – 100% <ul style="list-style-type: none"> single output models: 1.0 % max. dual output models: 1.0 % max. balanced load – Load cross regulation 25/100% 5.0 % max. (dual output models) |
| Minimum load | 0% of rated max. load |
| Temperature coefficient | 0.1 %/K |
| Ripple and noise (20 MHz Bandwidth) | 75 mVpk-pk max. |
| Start up time (constant resistive load) | <ul style="list-style-type: none"> – Power On 30 ms typ. – Remote On 30 ms typ. |
| Transient response setting time (25% load step change) | 500 µs typ. |
| Temperature coefficient | ± 0.1 %/°C |
| Short circuit protection | continuous, automatic recovery |
| Capacitive load | <ul style="list-style-type: none"> 3.3 VDC / 5 VDC output models: 1'760 µF max. / 1'000 µF max. 12 VDC / 15 VDC output models: 170 µF max. / 110 µF max. ±5 VDC / ±15 VDC output models: ± 470 µF max. / ± 100 µF max. ±15 VDC output models: ± 47 µF max. |

General Specifications

| | |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature ranges | <ul style="list-style-type: none"> – Operating – 40 °C ... + 70 °C (no derating) – Case temperature +100 °C max. – Storage – 55 °C ... + 125 °C |
| Load derating | 3.5 %/K above 70°C |
| Humidity (non condensing) | 95 % rel. H max. |
| Reliability, calculated MTBF (MIL-HDBK-217F ground benign) | >2.4 Mio h @ 25°C |
| Isolation voltage (60 sec) | – Input/Output 1'500 VDC |
| Isolation capacity | – Input/Output 1000 pF max. |
| Isolation resistance | – Input/Output (500 VDC) >10 GOhm |
| Switching frequency | 100 kHz (PWM) |
| Remote On/Off | <ul style="list-style-type: none"> – On: open or high impedance – Off: 2...4 mA current applied via 1KOhm resistor – Off stand by input current 2.5 mA max. |

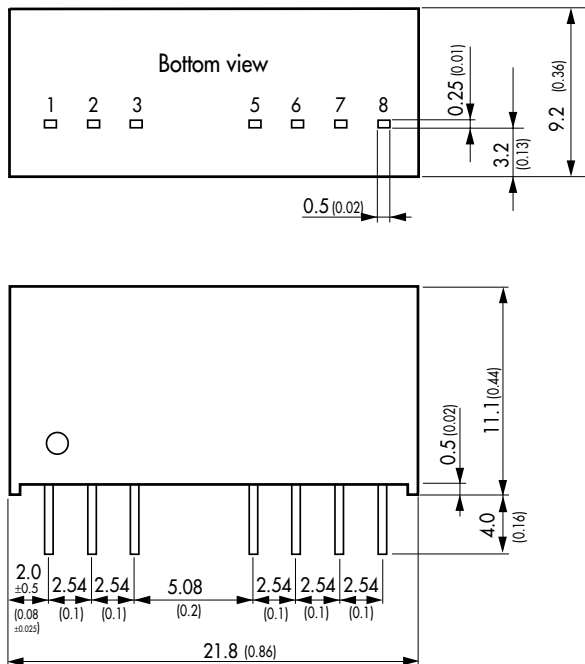
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

| | |
|------------------|-------------------------|
| Case material | non-conductive plastic |
| Potting material | silicon, UL 94V-0 rated |
| Weight | 4.8g (0.17oz) |

Application note can be downloaded under:
www.tracopower.com/products/tmr3_application.pdf

Outline Dimensions mm (inches)



| Pin-Out | | |
|---------|---------------|---------------|
| Pin | Single | Dual |
| 1 | -Vin (GND) | -Vin (GND) |
| 2 | +Vin (Vcc) | +Vin (Vcc) |
| 3 | Remote On/Off | Remote On/Off |
| 5 | No function | No function |
| 6 | +Vout | +Vout |
| 7 | -Vout | Common |
| 8 | No function | -Vout |

Specifications can be changed any time without notice.