

Features

- ◆ Wide 2:1 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-3E series is a family of isolated 3 W dc-dc converter modules with regulated output, featuring wide 2:1 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 3-0510E | 4.5 – 9.0 VDC (5 VDC nominal) | 3.3 VDC | 700 mA | 71 % |
| TMR 3-0511E | | 5.0 VDC | 600 mA | 73 % |
| TMR 3-0512E | | 12 VDC | 250 mA | 79 % |
| TMR 3-0513E | | 15 VDC | 200 mA | 79 % |
| TMR 3-0521E | | ± 5.0 VDC | ± 300 mA | 74 % |
| TMR 3-0522E | | ± 12 VDC | ± 125 mA | 79 % |
| TMR 3-0523E | | ± 15 VDC | ± 100 mA | 79 % |
| TMR 3-1210E | 9.0 – 18 VDC (12 VDC nominal) | 3.3 VDC | 700 mA | 75 % |
| TMR 3-1211E | | 5.0 VDC | 600 mA | 78 % |
| TMR 3-1212E | | 12 VDC | 250 mA | 83 % |
| TMR 3-1213E | | 15 VDC | 200 mA | 83 % |
| TMR 3-1221E | | ± 5.0 VDC | ± 300 mA | 79 % |
| TMR 3-1222E | | ± 12 VDC | ± 125 mA | 83 % |
| TMR 3-1223E | | ± 15 VDC | ± 100 mA | 83 % |
| TMR 3-2410E | 18 – 36 VDC (24 VDC nominal) | 3.3 VDC | 700 mA | 75 % |
| TMR 3-2411E | | 5.0 VDC | 600 mA | 78 % |
| TMR 3-2412E | | 12 VDC | 250 mA | 83 % |
| TMR 3-2413E | | 15 VDC | 200 mA | 83 % |
| TMR 3-2421E | | ± 5.0 VDC | ± 300 mA | 80 % |
| TMR 3-2422E | | ± 12 VDC | ± 125 mA | 83 % |
| TMR 3-2423E | | ± 15 VDC | ± 100 mA | 83 % |
| TMR 3-4810E | 36 – 75 VDC (48 VDC nominal) | 3.3 VDC | 700 mA | 75 % |
| TMR 3-4811E | | 5.0 VDC | 600 mA | 78 % |
| TMR 3-4812E | | 12 VDC | 250 mA | 83 % |
| TMR 3-4813E | | 15 VDC | 200 mA | 83 % |
| TMR 3-4821E | | ± 5.0 VDC | ± 300 mA | 80 % |
| TMR 3-4822E | | ± 12 VDC | ± 125 mA | 83 % |
| TMR 3-4823E | | ± 15 VDC | ± 100 mA | 83 % |

Input Specifications

| | |
|--|---|
| Input current at no load (nominal input voltage) | 5.0 V models: 70 mA typ. 12 V models: 20 mA typ. 24 V models: 10 mA typ. 48 V models: 8 mA typ. |
| Input current at full load (nominal input voltage) | 5.0 V models: 760 mA typ. 12 V models: 300 mA typ. 24 V models: 150 mA typ. 48 V models: 75 mA typ. |
| Surge voltage (1000 msec. max.) | 5.0 V models: 11 V 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 | 5.0 V models: 4.5 VDC / 4 VDC or lower 12 V models: 9 VDC / 8.5 VDC or lower 24 V models: 18 VDC / 17 VDC or lower 48 V models: 36 VDC / 34 VDC or lower long term operation at undervoltage will damage the converter! |
| Reverse polarity input current | 1.0 A max. |
| Conducted noise (input) | EN 55022 level A, FCC part 15, level A with external capacitor (tba) |
| Recommended input fuse (slow blow) | 5 V models: 2000 mA 12 V models: 1000 mA 24 V models: 500 mA 48 V models: 250 mA |

Output Specifications

| | |
|--|--|
| Voltage set accuracy | ±1 % max. |
| Regulation | – Input variation $V_{in\ min.}$ to $V_{in\ max.}$: 0.5 % max. – Load variation 25 – 100%: 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) | 300 μ s typ. (PFM) |
| Current limitation | >120 % of $I_{out\ max.}$ |
| Short circuit protection | continuous, automatic recovery |
| Capacitive load | 3.3 VDC models: 1'760 μ F max. 5 VDC models: 1'000 μ F max. 12 VDC models: 170 μ F max. 15 VDC models: 110 μ F max. \pm 5 VDC models: 470 μ F max. (each output) \pm 12 VDC models: 100 μ F max. (each output) \pm 5 VDC models: 47 μ F max. (each output) |

General Specifications

| | |
|---|--|
| Temperature ranges | – Operating: –40°C to +85°C (with derating) – Case temperature: +100°C max. – Storage: –55°C to +105°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) | >1 Mio h |

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

General Specifications

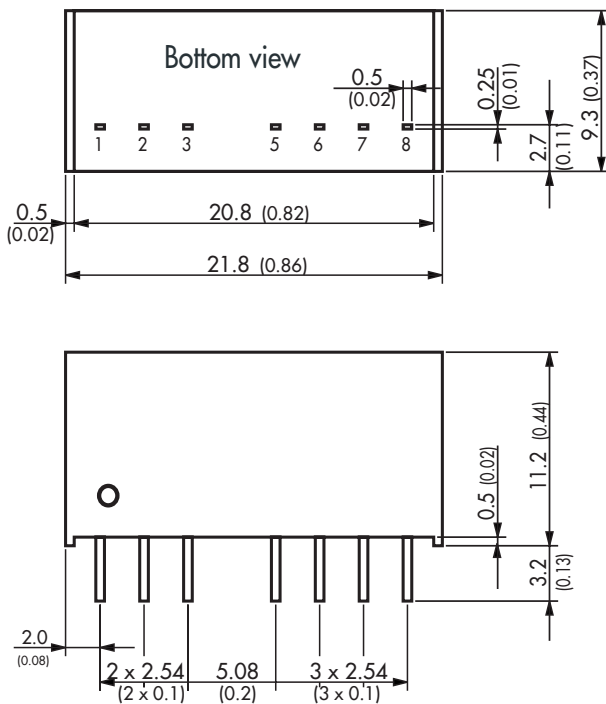
| | | |
|-----------------------------|---|--|
| Isolation voltage (60 sec.) | - Input/Output | 1'500 VDC |
| Isolation capacitance | - Input/Output | 200 pF max. |
| Isolation resistance | - Input/Output (500 VDC) | >1 GOhm |
| Switching frequency | | 200 - 300 kHz (PFM) |
| Altitude during operation | | 5'000 m max. (16'400 ft) approved |
| Safety standards | | UL 60950-1, IEC/EN 60950-1 |
| Safety approvals | - CB test certificate according IEC 60950-1 - CSA certificate for UL/cUL 60950-1 | www.tracopower.com/products/tmr3e-cb.pdf www.tracopower.com/products/tmr3e-csa.pdf |
| Remote On/Off | - On: - Off: - Off standby current: - Off control input current: | < 0.6 VDC or open circuit 2.7 to 15 VDC (ref. to -Vin) 2.5 mA max. 1 mA max. |

Physical Specifications

| | |
|-----------------------|--|
| Casing material | non-conductive plastic (UL94V-0 rated) |
| Potting material | epoxy, (UL 94V-0 rated) |
| Weight | 4.8 g (0.17 oz) |
| Soldering temperature | max. 260°C / 10 sec. |

Application note: www.tracopower.com/products/tmr3e-application.pdf

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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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