

Features

- Single-in-Line Package (SIP)
- Single and Dual Output Models
- I/O-Isolation 1'000 VDC
- High Efficiency up to 81%
- Operating Temperature -40°C to $+85^{\circ}\text{C}$
- Industry Standard Pinout
- 100% Burn-in (8 h)
- 3 Year Product Warranty



The TMA series are miniature, isolated 1 W DC/DC-converters in a Single-in-Line package (SIP). Requiring only 1.2 cm² board space they offer the ideal solution in many space critical applications for board level power distribution. The use of SMD-technology makes it possible to offer a product with high performance at low cost.

| Models | | | | |
|--|------------------|--|--|--|
| Ordercode | Input voltage | Output voltage | Output current max. | Efficiency typ. |
| TMA 0505S TMA 0512S TMA 0515S TMA 0505D TMA 0512D TMA 0515D | 5 VDC \pm 10% | 5 VDC 12 VDC 15 VDC \pm 5 VDC \pm 12 VDC \pm 15 VDC | 200 mA 80 mA 65 mA \pm 100 mA \pm 40 mA \pm 35 mA | 71 % 78 % 78 % 72 % 78 % 79 % |
| TMA 1205S TMA 1212S TMA 1215S TMA 1205D TMA 1212D TMA 1215D | 12 VDC \pm 10% | 5 VDC 12 VDC 15 VDC \pm 5 VDC \pm 12 VDC \pm 15 VDC | 200 mA 80 mA 65 mA \pm 100 mA \pm 40 mA \pm 35 mA | 73 % 80 % 80 % 74 % 81 % 81 % |
| TMA 1505S TMA 1512S TMA 1515S TMA 1505D TMA 1512D TMA 1515D | 15 VDC \pm 10% | 5 VDC 12 VDC 15 VDC \pm 5 VDC \pm 12 VDC \pm 15 VDC | 200 mA 80 mA 65 mA \pm 100 mA \pm 40 mA \pm 35 mA | 73 % 80 % 80 % 74 % 81 % 81 % |
| TMA 2405S TMA 2412S TMA 2415S TMA 2405D TMA 2412D TMA 2415D | 24 VDC \pm 10% | 5 VDC 12 VDC 15 VDC \pm 5 VDC \pm 12 VDC \pm 15 VDC | 200 mA 80 mA 65 mA \pm 100 mA \pm 40 mA \pm 35 mA | 71 % 78 % 79 % 72 % 79 % 80 % |

Input Specifications

| | | |
|----------------------------------|---|--|
| Input current no load /full load | 5 Vin models 12 Vin models 15 Vin models 24 Vin models | 30 mA / 260 mA typ. 12 mA / 110 mA typ. 12 mA / 100 mA typ. 7 mA / 55 mA typ. |
| Surge voltage (1 sec. max.) | 5 Vin models 12 Vin models 15 Vin models 24 Vin models | 9 V max. 18 V max. 21 V max. 30 V max. |
| Reverse voltage protection | | 0.3 A max. |
| Reflected input ripple current | | can be reduced by ext. 1–3.3 µF polyester film capacitor |
| Input filter | | internal capacitors |

Output Specifications

| | | |
|--------------------------------------|--|---|
| Voltage set accuracy | | ± 3 % |
| Voltage balance (dual output models) | | ± 1 % max. |
| Regulation | – Input variation – Load variation 20 – 100 % | ± 1.2 % / 1 % change Vin ± 10 % max. |
| Ripple and noise (20 MHz Bandwidth) | | 75 mV pk-pk max. |
| Temperature coefficient | | ± 0.02 % / K |
| Short circuit protection | | limited 1 sec. max. |
| Capacitive load | – Single output models – Dual output models | 220 µF max. 100 µF max. |

General Specifications

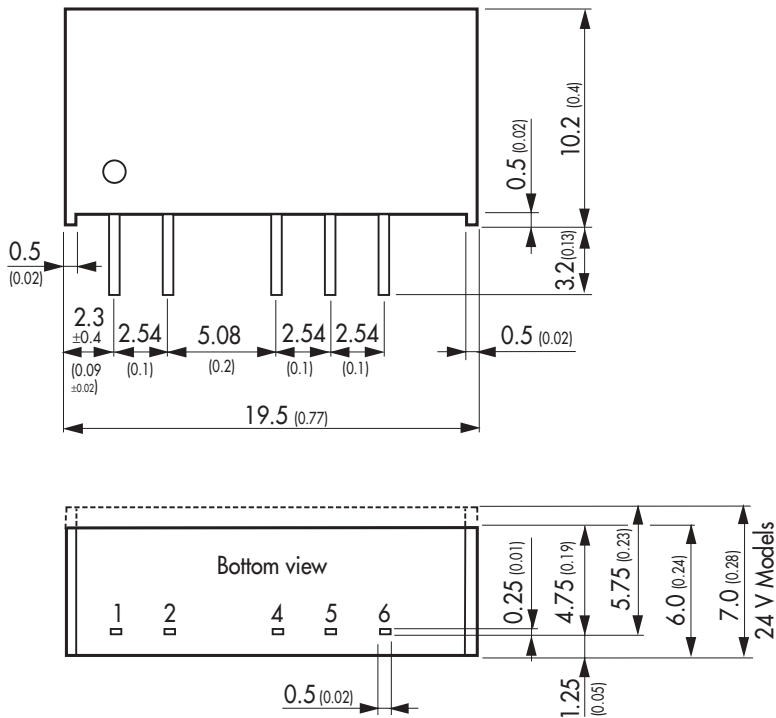
| | | |
|--|--|--|
| Temperature ranges | – Operating – Case temperature – Storage | – 40 °C ... +85 °C +95 °C max. – 40 °C ... +105 °C |
| Humidity (non condensing) | | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217E) | | >2'000'000 h @ 25 °C |
| Isolation voltage | Input/Output | 1'000 VDC |
| Isolation capacity | Input/Output | 60 pF typ. |
| Isolation resistance | Input/Output | >1'000 Mohm |
| Switching frequency | | 100 kHz typ. (Frequency modulation) |
| Frequency change over line and load | | ± 30 % 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 black plastic (UL 94-V0 rated) |
| Package weight | - Single output models - Dual output models | 2.1 g (0.07 oz) 2.6 g (0.09 oz) |
| Soldering temperature | | max. 260°C / 10 sec |

Outline Dimensions mm (inches)



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

Tolerances ± 0.25 (0.01)
pins ± 0.05 (0.002)

Specifications can be changed without notice