



Features

- ◆ Single-in-Line (SIL) Package
- ◆ Fully SMD-design
- ◆ Isolated Single and Dual Output
- ◆ I/O-Isolation 1'000 VDC
- ◆ High Efficiency up to 83 %
- ◆ Industry Standard Pinout
- ◆ 100% Burn-in (8 h)
- ◆ Lead free Design, RoHS compliant
- ◆ 3 Year Product Warranty



The TMV series are ultra miniature, isolated 2 Watt DC/DC-converters in a Single-in-Line package (SIP). Requiring only 1.5 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. |
| TMH 0505S | 5 VDC ±10% | 5 VDC | 400 mA | 76 % |
| TMH 0512S | | 12 VDC | 165 mA | 80 % |
| TMH 0515S | | 15 VDC | 130 mA | 80 % |
| TMH 0505D | | ± 5 VDC | ±200 mA | 77 % |
| TMH 0512D | | ±12 VDC | ± 80 mA | 79 % |
| TMH 0515D | | ±15 VDC | ± 65 mA | 79 % |
| TMH 1205S | 12 VDC ±10% | 5 VDC | 400 mA | 78 % |
| TMH 1212S | | 12 VDC | 165 mA | 82 % |
| TMH 1215S | | 15 VDC | 130 mA | 83 % |
| TMH 1205D | | ± 5 VDC | ±200 mA | 79 % |
| TMH 1212D | | ±12 VDC | ± 80 mA | 82 % |
| TMH 1215D | | ±15 VDC | ± 65 mA | 82 % |
| TMH 2405S | 24 VDC ±10% | 5 VDC | 400 mA | 77 % |
| TMH 2412S | | 12 VDC | 165 mA | 81 % |
| TMH 2415S | | 15 VDC | 130 mA | 82 % |
| TMH 2405D | | ± 5 VDC | ±200 mA | 79 % |
| TMH 2412D | | ±12 VDC | ± 80 mA | 81 % |
| TMH 2415D | | ±15 VDC | ± 65 mA | 82 % |

Input Specifications

| | | |
|----------------------------------|---------------|--|
| Input current no load /full load | 5 Vin models | 50 mA / 510 mA typ. |
| | 12 Vin models | 20 mA / 200 mA typ. |
| | 24 Vin models | 10 mA / 100 mA typ. |
| Surge voltage (1 sec. max.) | 5 Vin models | 9 V max. |
| | 12 Vin models | 18 V max. |
| | 24 Vin models | 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 | ± 1.2 % / 1 % change Vin |
| | – Load variation 20 – 100 % | ± 10 % max. |
| Ripple and noise (20 MHz Bandwidth) | 5 Vin models | 75 mV pk-pk max. |
| | 12 /24 Vin models | 150 mV pk-pk max |
| Temperature coefficient | | ± 0.02 % / K |
| Short circuit protection | | limited 1 sec. max. |
| Capacitive load | – Single output models | 470 µF max. |
| | – Dual output models | 390 µF max. |

General Specifications

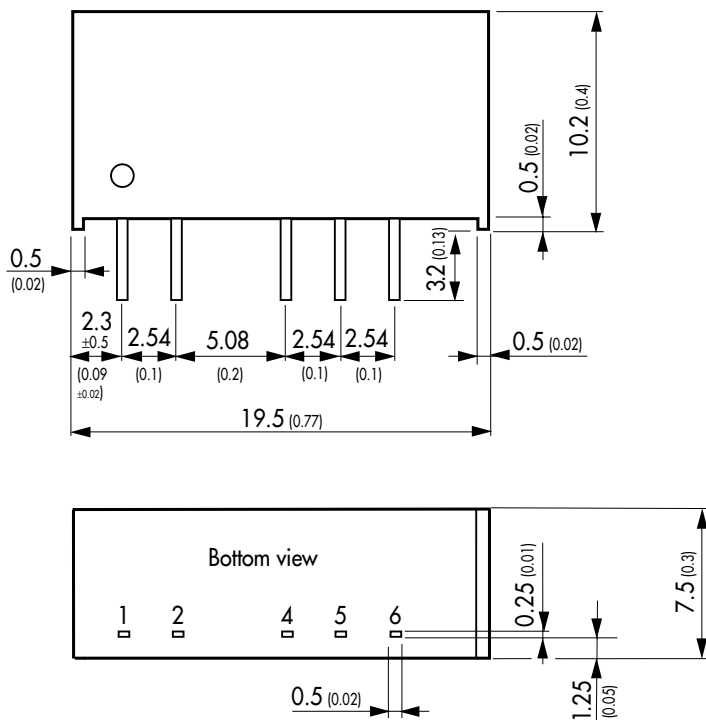
| | | |
|--|--------------------|------------------------------------|
| Temperature ranges | – Operating | –40 °C ... +75 °C |
| | – Case temperature | +95 °C max. |
| | – Storage | –40 °C ... +105 °C |
| Humidity (non condensing) | | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217E) | | >2'000'000 h @ 25 °C |
| Isolation voltage | Input/Output | 1'000 VDC |
| Isolation capacity | Input/Output | 80 pF typ. |
| Isolation resistance | Input/Output | >1'000 Mohm |
| Switching frequency | | 80 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 | 2.7 g (0.1 oz) |
| Soldering temperature | max. 265°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