

#### Features

- Single-in-Line Package (SIP)
- Fully SMD-design
- Isolated Single and Dual Output
- I/O-Isolation 1'000 VDC
- High Efficiency up to 83 %
- Pin-compatible with other Manufacturers
- 100% Burn-in (8 h)
- 2 Year Product Warranty



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

### Input Specifications

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

### General Specifications

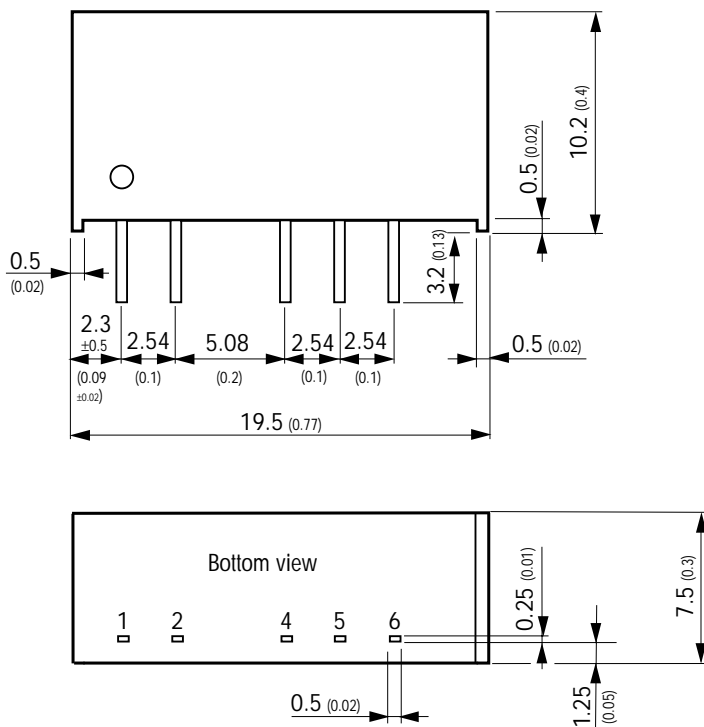
Temperature ranges	– Operating – Case temperature – Storage	– 40 °C ... +75 °C +95 °C max. – 40 °C ... +105 °C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217 E)		>2'000'000 h @ 25 °C
Isolation voltage	Input/Output	1'000 VDC
Isolation capacity	Input/Output	80 pF 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 (flammability to UL 94-V0)
Package weight	2.7 g (0.1 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  $\pm 0.25$  (0.01)  
pins  $\pm 0.05$  (0.002)

Specifications can be changed without notice