



#### 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 %
- ◆ Industry Standard Pinout
- ◆ 100% Burn-in (8 h)
- ◆ Lead free Design, RoHS compliant
- ◆ 3 Year Product Warranty



The TMH series are ultra miniature, isolated 2 Watt 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	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 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 % / K
Short circuit protection		limited 1 sec. max.
Capacitive load	– Single output models – Dual output models	470 µF max. 390 µF max.

### General Specifications

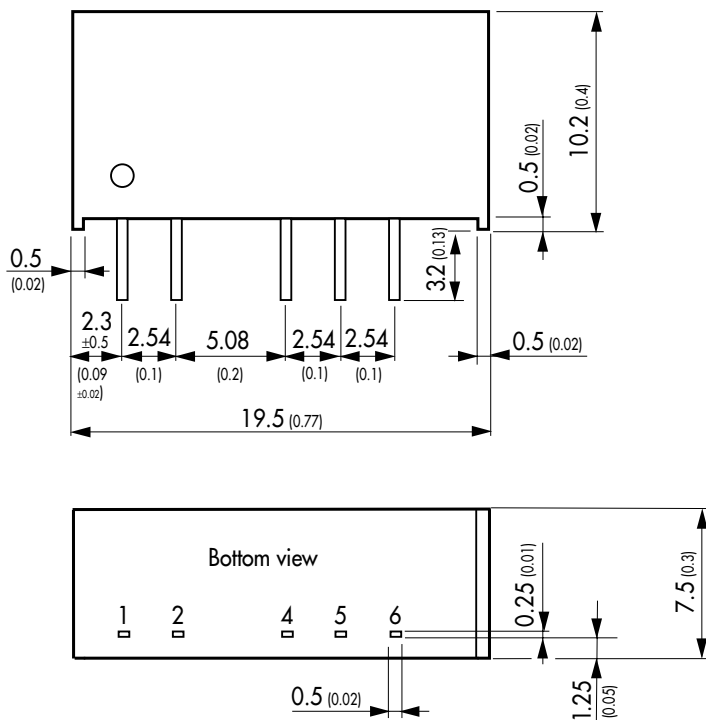
Temperature ranges	– Operating – Case temperature – Storage	–40 °C ... +75 °C +95 °C max. –40 °C ... +105 °C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217E ground benign)		>2'000'000 h @ 25 °C
Isolation voltage (60sec.)	Input/Output	1'000 VDC
Isolation capacity	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  $\pm 0.25$  (0.01)  
pins  $\pm 0.05$  (0.002)

Specifications can be changed any time without notice