DC/DC Converters

TMV Series, 1 Watt

Features

- Single-in-line (SIL) package
- Isolated single and dual output models
- I/O isolation 3'000 VDC
- Unregulated device
- High Efficiency up to 81%
- Extended temperature range –40°C to +85°C
- Pin-compatible with other manufacturers
- 100% Burn-in (8 h)
- Lead free design, RoHS compliant
- 3-year product warranty

The TMV series are miniature, isolated 1 W DC/DC-converters with high isolation in a Single-in-Line package (SIP). Requiring only 1.2 cm^2 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.
TMV 0505S	5 VDC ±10%	5 VDC	200 mA	71 %
TMV 0509S		9 VDC	110 mA	76 %
TMV 0512S		12 VDC	84 mA	78 %
TMV 0515S		15 VDC	67 mA	78 %
TMV 0505D		± 5 VDC	±100 mA	72 %
TMV 0512D		±12 VDC	±42 mA	78 %
TMV 0515D		±15 VDC	±34 mA	79 %
TMV 1205S	12 VDC ±10%	5 VDC	200 mA	73 %
TMV 1212S		12 VDC	84 mA	80 %
TMV 1215S		15 VDC	67 mA	80 %
TMV 1205D		± 5 VDC	±100 mA	74 %
TMV 1212D		±12 VDC	±42 mA	81 %
TMV 1215D		±15 VDC	±34 mA	81 %
TMV 2405S	24 VDC ±10%	5 VDC	200 mA	71 %
TMV 2412S		12 VDC	84 mA	78 %
TMV 2415S		15 VDC	67 mA	79 %
TMV 2405D		± 5 VDC	±100 mA	72 %
TMV 2412D		±12 VDC	±42 mA	79 %
TMV 2415D		±15 VDC	±34 mA	80 %

Input Specifications

Input current no load /full load		5 Vin models 12 Vin models 24 Vin models	30 mA / 270 mA typ. 12 mA / 110 mA typ. 7 mA / 55 mA typ.
Surge voltage (1 s max.)		5 Vin models 12 Vin models 24 Vin models	9 V max. 18 V max. 30 V max.
Reflected input ripple current			can be reduced by ext. 1–3.3 µF polyester film capacitor
Input filter			internal capacitor

Output Specifications

Voltage set accuracy			±1 % typ. / ±3 % max.
Voltage balance (dual output models, balanced loads)			±0.1 % typ. / ±1 % max.
Regulation	– Input variation (1 % change of Vin) – Load variation (20 – 100 %)		1.2 % typ. / 1.5 % max. 5 to 10 % max.
Ripple and noise (20 MHz Bandwidth)			65 mVp-p typ. / 100 mVp-p max.
Temperature coefficient			±0.01 %/K typ. / ±0.02 %/K max.
Short circuit protection			limited 0.5 s max.
Capacitive load		single output models: dual output models:	220 µF max. 100 µF max. (each output)

General Specifications

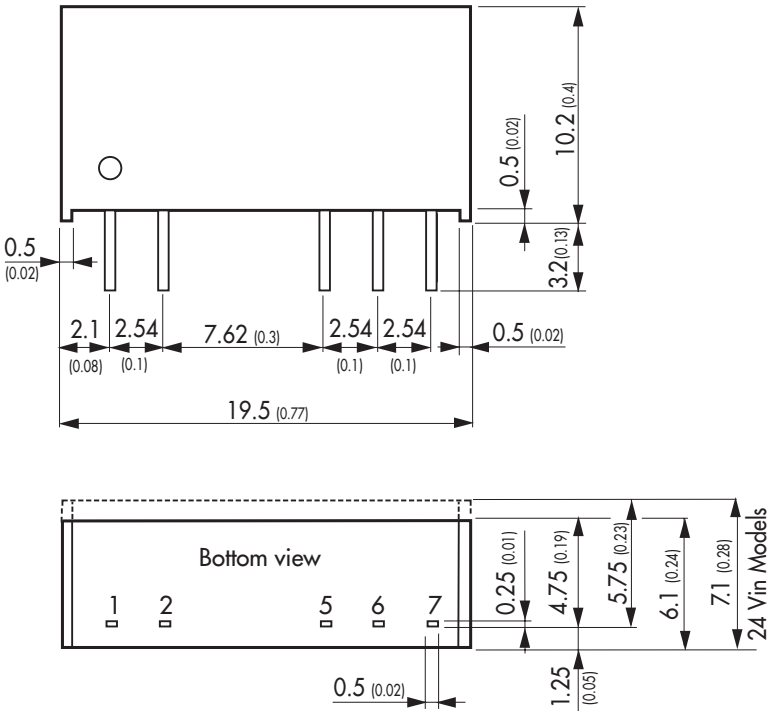
Temperature Ranges	– Operating	3.3, 5 & ±5 Vout models: all other output models:	–40°C to +85°C –40°C to +90°C
	– Case temperature		+105°C max.
	– Storage		–50°C to +125°C
Derating		3.3, 5 & ±5 Vout models: all other output models:	4 %/K above 75 °C 4 %/K above 80 °C
Humidity (non condensing)			95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)			>2'000'000 h
Isolation Test Voltage (Input/Output, 60 s)			3'000 VDC
Insulation System			Functional
Isolation Capacitance (Input/Output)			60 pF typ. / 100 pF max.
Isolation Resistance (Input/Output)			>10 GOhm
Switching Frequency			70 to 120 kHz (Frequency modulation)
Environmental Compliance	– Reach – RoHS		www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU

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

Physical Specifications

Casing material		non conductive plastic (UL 94V-0 rated)
Package weight	5 & 12 Vin models: 24 Vin models:	2.1 g (0.07 oz) 2.6 g (0.09 oz)
Soldering temperature		max. 265°C / 10 s

Outline Dimensions mm (inches)



Pin-Out		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	–Vin (GND)	–Vin (GND)
5	–Vout	–Vout
6	No pin	Common
7	+Vout	+Vout

Dimensions in [mm], () = Inch
Tolerances: ±0.25 (±0.01)
Pins: ±0.05 (±0.002)