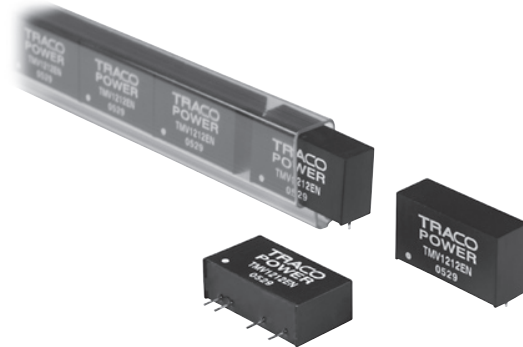


**Features**

- ◆ Isolation test voltage 6'000 Vpk
- ◆ With reinforced insulation, rated for 300 Vrms working voltage
- ◆ Physical clearance of isolation barrier 2.0 mm min.
- ◆ Certified to IEC/EN/UL 60950-1 safety standards
- ◆ Safety barrier 100 % production test
- ◆ Low coupling capacity
- ◆ Single-in-line package (SIP)
- ◆ Lead-free design, RoHS compliant
- ◆ 3-year product warranty



The TMV-EN series is a range of 1 W DC/DC converters with high I/O-isolation. This product features an isolation barrier which is approved for supplementary reinforced insulation. SMD construction and a special designed toroidal transformer made it possible to built these converters in a standard SIP package with a very small footprint. These features making the TMV-EN series an economical solution in many DC/DC converter applications requiring safety agency approval.

Models				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TMV 0505EN	5 VDC ±10 %	5 VDC	200 mA	65 %
TMV 0512EN		12 VDC	80 mA	65 %
TMV 0515EN		15 VDC	65 mA	65 %
TMV 0505DEN		±5 VDC	±100 mA	65 %
TMV 0512DEN		±12 VDC	±40 mA	71 %
TMV 0515DEN		±15 VDC	±30 mA	72 %
TMV 1205EN	12 VDC ±10 %	5 VDC	200 mA	65 %
TMV 1212EN		12 VDC	80 mA	65 %
TMV 1215EN		15 VDC	65 mA	65 %
TMV 1205DEN		±5 VDC	±100 mA	65 %
TMV 1212DEN		±12 VDC	±40 mA	73 %
TMV 1215DEN		±15 VDC	±30 mA	74 %

### Input Specifications

Input current no load / full load	5 Vin models: 55 mA / 300 mA typ. 12 Vin models: 30 mA / 125 mA typ.
Surge voltage (1 sec. max.)	5 Vin models: 9 V max. 12 Vin models: 18 V max.
Reverse voltage protection	0.3 A max.
Reflected input ripple current	can be reduced by ext. 1–3.3 $\mu$ F polyester film capacitor
Input filter	internal capacitor

### Output Specifications

Voltage set accuracy	$\pm 3$ %
Voltage balance (dual output models)	1 % max.
Regulation	– Input variation 1.2 % / 1 % change Vin – Load variation 20 – 100 % <10 %
Ripple and noise (20 MHz Bandwidth)	120 mV pk-pk typ.
Temperature coefficient	$\pm 0.02$ %/K
Short circuit protection	limited 1 sec. max.
Capacitive load	single output models: 680 $\mu$ F max. dual output models: 220 $\mu$ F max.

### Isolation / Safety

Isolation voltage	– Isolation test voltage (tested for 1 sec.) 6'000 Vpk – I/O isolation voltage (60 sec.) 3'000 VACrms
Isolation capacity (input/output)	10 pF typ.
Isolation resistance (input/output)	>1'000 Mohm
Working voltage (rated)	300 VACrms
Safety standards	IEC/EN 60950-1, UL 60950-1 CSA C22.2 No. 60950-1-03
Safety approvals	– CB report <a href="http://www.tracopower.com/products/tmv-en_cb.pdf">www.tracopower.com/products/tmv-en_cb.pdf</a> – CSA certification <a href="http://www.tracopower.com/products/tmv-en_csa.pdf">www.tracopower.com/products/tmv-en_csa.pdf</a>

### General Specifications

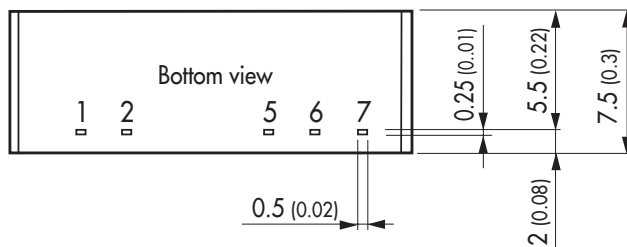
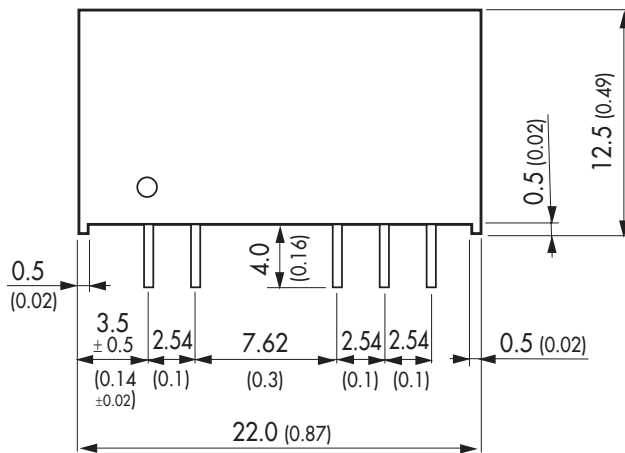
Temperature ranges	– Operating –40°C to +85°C – Case temperature +105°C max. – Storage –40°C to +125°C
Derating	4 %/K above 70°C
Humidity (non condensing)	95 % rel H max.
Temperature coefficient	$\pm 0.02$ %/K typ.
Reliability, calculated MTBF (MIL-HDBK-217F @ +25°C, ground benign)	>2'000'000 h
Switching frequency	50 kHz typ. (frequency modulation)
Frequency change over line and load	$\pm 30$ % max.

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

**Physical Specifications**

Casing material	non-conducting FR4 (UL 94V-0 - rated)
Package weight	4.0 g (0.14 oz)
Soldering temperature	max. 265°C / 10 sec

**Outline Dimensions**



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

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

Specifications can be changed any time without notice.