

Features

- ◆ I/O isolation voltage 3000 VACrms
- ◆ Reinforced insulation, rated for 300 VAC working voltage
- ◆ 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 Watt non-regulated DC/DC converters with high I/O-isolation. This product features an isolation barrier which is approved for supplementary an 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 0505 EN | 5 VDC ±10 % | 5 VDC | 200 mA | 66 % |
| TMV 0512 EN | | 12 VDC | 80 mA | 66 % |
| TMV 0515 EN | | 15 VDC | 65 mA | 66 % |
| TMV 0505D EN | | ±5 VDC | ±100 mA | 66 % |
| TMV 0512D EN | | ±12 VDC | ±40 mA | 72 % |
| TMV 0515D EN | | ±15 VDC | ±30 mA | 73 % |
| TMV 1205 EN | 12 VDC ±10 % | 5 VDC | 200 mA | 66 % |
| TMV 1212 EN | | 12 VDC | 80 mA | 66 % |
| TMV 1215 EN | | 15 VDC | 65 mA | 66 % |
| TMV 1205D EN | | ±5 VDC | ±100 mA | 66 % |
| TMV 1212D EN | | ±12 VDC | ±40 mA | 74 % |
| TMV 1215D EN | | ±15 VDC | ±30 mA | 75 % |

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: 29 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 capacitor |
| Input fuse | recommended, required for compliance with CB |
| – recommended min. fuse rating | 5 V models: 500 mA 12 V models: 200 mA |

Output Specifications

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|--------------------------------------|--|
| Voltage set accuracy | ±3 % max. |
| Voltage balance (dual output models) | 1 % max. |
| Regulation | – Input variation 1.2 % / 1 % change of Vin – Load variation 20 – 100 % <10 % |
| Ripple and noise (20 MHz Bandwidth) | 100 mVp-p typ. |
| Temperature coefficient | ±0.02 %/K |
| Short circuit protection | limited 0.5 sec. max. |
| Capacitive load | single output models: 680 µF max. dual output models: 220 µF max. (each output) |

Isolation / Safety

| | |
|--------------------------------------|--|
| Isolation voltage | – Isolation test voltage (tested for 1 sec.) 4'500 Vpk – I/O isolation voltage (60 sec.) 3'000 VACrms – Rated max. working voltage 300 VACrms / 640 Vpk |
| Isolation capacitance (input/output) | 15 pF typ. |
| Isolation resistance (input/output) | >10 Gohm |
| Safety standards | IEC 60950-1:2005 +A1:2009 EN 60950-1:2006 +A1:2010 +A11:2009 +A12:2011 UL 60950-1, CSA C22.2 No. 60950-1-03 |
| Safety approvals | – CB report (IEC & EN) www.tracopower.com/products/tmv-en-cb.pdf – UL certification www.tracopower.com/products/tmv-en-ul.pdf |

General Specifications

| | |
|--|--|
| Temperature ranges | – Operating –40°C to +85°C (with derating) – Max. ambient approved IEC/UL 60950-1 +70°C – Case temperature +90°C max. |
| Derating | 2.85 %/K above 70°C |
| Humidity (non condensing) | 95 % rel H max. |
| Temperature coefficient | ±0.02 %/K typ. |
| Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign) | >2'000'000 h |
| Switching frequency | 80 kHz typ. (frequency modulation) |
| Frequency change over line and load | ±30 % max. |
| Altitude during operation | 4'000m max. (13'000 ft) approved |
| Environmental compliance | – Reach www.tracopower.com/overview/tmv-en – RoHS RoHS directive 2011/65/EU |

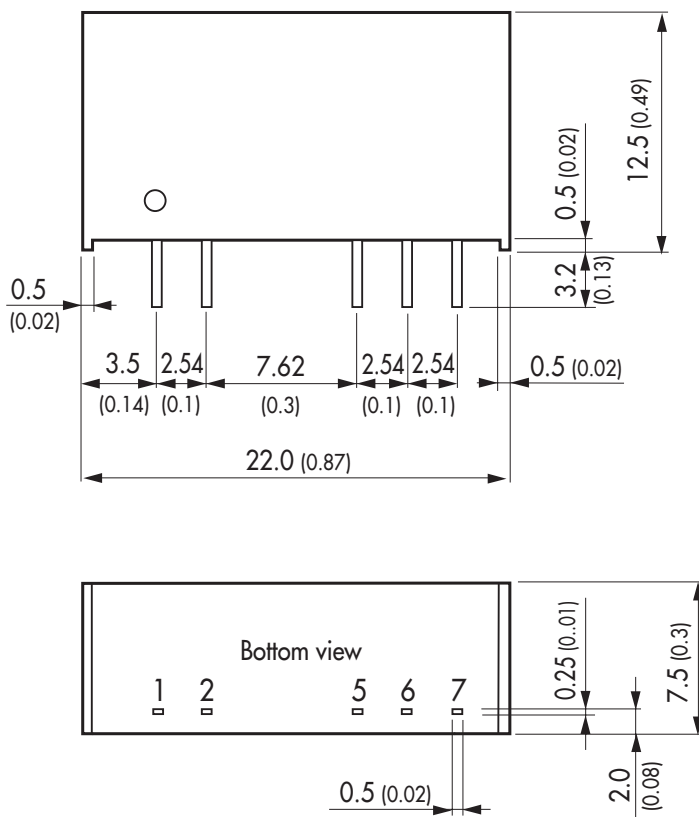
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

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

Application note: www.tracopower.com/products/tmv-en-application.pdf

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 |

Dimensions in [mm], () = Inch
Tolerance ±0.5 (0.02)
Pin pitch tolerance ±0.13 (0.005)
Pin width tolerance ±0.05 (0.002)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com