

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

CB
Scheme

CS
UL 60950-1



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 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 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 µF polyester film capacitor |
| Input filter | internal capacitor |

Output Specifications

| | |
|--------------------------------------|---|
| Voltage set accuracy | ±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 | ±0.02 %/K |
| Short circuit protection | limited 1 sec. max. |
| Capacitive load | single output models: 680 µF max. dual output models: 220 µF 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 www.tracopower.com/products/tmv-en_cb.pdf – CSA certification www.tracopower.com/products/tmv-en_csa.pdf |

General Specifications

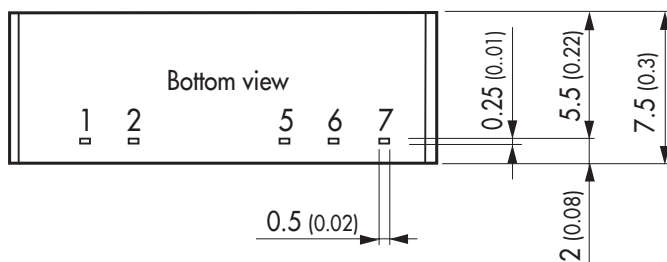
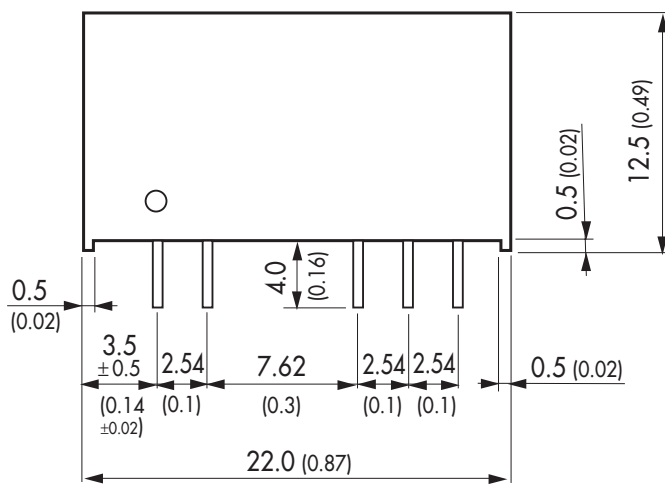
| | |
|---|--|
| Temperature ranges | – Operating –40°C to +85°C – Case temperature +105°C max. – Storage –40°C to +125°C |
| Derating | 4 %/K above 70°C |
| Humidity (non condensing) | 95 % rel H max. |
| Temperature coefficient | ±0.02 %/K typ. |
| Reliability, calculated MTBF (MIL-HDBK-217F @ +25°C,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