



**THE DATASHEET OF
TMV 2-15159HI**



- Very high 5200 VDC I/O-isolation (5700 Vpk)
- Unregulated outputs
- Dedicated for IGBT applications
- Operating temperature range $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
- 3-year product warranty



UL 62368-1 IEC 62368-1

The TMV-2HI series is a range of 2 Watt unregulated Dc/DC-converters with very high I/O-isolation of 5700 Vpk. They come in a compact SIP-7 package.

Models

| Order Code | Input Voltage Range | Output 1 | | Output 2 | | Efficiency typ. |
|---------------|----------------------------------|----------------------------------|------------------|----------|------------------|-----------------|
| | | Vnom | I _{max} | Vnom | I _{max} | |
| TMV 2-0503SHI | 4.5 - 5.5 VDC (5 VDC nom.) | 3.3 VDC | 500 mA | | | 74 % |
| TMV 2-0505SHI | | 5 VDC | 400 mA | | | 80 % |
| TMV 2-0509SHI | | 9 VDC | 222 mA | | | 81 % |
| TMV 2-0512SHI | | 12 VDC | 168 mA | | | 82 % |
| TMV 2-0515SHI | | 15 VDC | 132 mA | | | 79 % |
| TMV 2-0505DHI | | +5 VDC | 200 mA | -5 VDC | 200 mA | 78 % |
| TMV 2-0509DHI | | +9 VDC | 112 mA | -9 VDC | 112 mA | 80 % |
| TMV 2-0512DHI | | +12 VDC | 84 mA | -12 VDC | 84 mA | 80 % |
| TMV 2-0515DHI | | +15 VDC | 66 mA | -15 VDC | 66 mA | 79 % |
| TMV 2-05159HI | | +15 VDC | 66 mA | -9 VDC | 110 mA | 80 % |
| TMV 2-1203SHI | | 10.8 - 13.2 VDC (12 VDC nom.) | 3.3 VDC | 500 mA | | |
| TMV 2-1205SHI | 5 VDC | | 400 mA | | | 79 % |
| TMV 2-1209SHI | 9 VDC | | 222 mA | | | 81 % |
| TMV 2-1212SHI | 12 VDC | | 168 mA | | | 83 % |
| TMV 2-1215SHI | 15 VDC | | 132 mA | | | 82 % |
| TMV 2-1205DHI | +5 VDC | | 200 mA | -5 VDC | 200 mA | 79 % |
| TMV 2-1209DHI | +9 VDC | | 112 mA | -9 VDC | 112 mA | 81 % |
| TMV 2-1212DHI | +12 VDC | | 84 mA | -12 VDC | 84 mA | 82 % |
| TMV 2-1215DHI | +15 VDC | | 66 mA | -15 VDC | 66 mA | 83 % |
| TMV 2-12159HI | +15 VDC | | 66 mA | -9 VDC | 110 mA | 81 % |
| TMV 2-1503SHI | 13.5 - 16.5 VDC (15 VDC nom.) | | 3.3 VDC | 500 mA | | |
| TMV 2-1505SHI | | 5 VDC | 400 mA | | | 79 % |
| TMV 2-1509SHI | | 9 VDC | 222 mA | | | 83 % |
| TMV 2-1512SHI | | 12 VDC | 168 mA | | | 83 % |
| TMV 2-1515SHI | | 15 VDC | 132 mA | | | 85 % |
| TMV 2-1505DHI | | +5 VDC | 200 mA | -5 VDC | 200 mA | 81 % |
| TMV 2-1509DHI | | +9 VDC | 112 mA | -9 VDC | 112 mA | 84 % |
| TMV 2-1512DHI | | +12 VDC | 84 mA | -12 VDC | 84 mA | 82 % |
| TMV 2-1515DHI | | +15 VDC | 66 mA | -15 VDC | 66 mA | 82 % |
| TMV 2-15159HI | | +15 VDC | 66 mA | -9 VDC | 110 mA | 83 % |
| TMV 2-2403SHI | | 21.6 - 26.4 VDC (24 VDC nom.) | 3.3 VDC | 500 mA | | |
| TMV 2-2405SHI | 5 VDC | | 400 mA | | | 77 % |
| TMV 2-2409SHI | 9 VDC | | 222 mA | | | 81 % |
| TMV 2-2412SHI | 12 VDC | | 168 mA | | | 82 % |
| TMV 2-2415SHI | 15 VDC | | 132 mA | | | 82 % |
| TMV 2-2405DHI | +5 VDC | | 200 mA | -5 VDC | 200 mA | 77 % |
| TMV 2-2409DHI | +9 VDC | | 112 mA | -9 VDC | 112 mA | 81 % |
| TMV 2-2412DHI | +12 VDC | | 84 mA | -12 VDC | 84 mA | 81 % |
| TMV 2-2415DHI | +15 VDC | | 66 mA | -15 VDC | 66 mA | 80 % |
| TMV 2-24159HI | +15 VDC | | 66 mA | -9 VDC | 110 mA | 81 % |

Input Specifications

| | | |
|------------------------|----------------|--|
| Input Current | - At no load | 5 Vin models: 35 mA typ. 12 Vin models: 17 mA typ. 15 Vin models: 16 mA typ. 24 Vin models: 12 mA typ. |
| | - At full load | 5 Vin models: 500 mA typ. 12 Vin models: 205 mA typ. 15 Vin models: 160 mA typ. 24 Vin models: 105 mA typ. |
| Surge Voltage | | 5 Vin models: 9 VDC max. (1 s max.) 12 Vin models: 18 VDC max. (1 s max.) 15 Vin models: 20 VDC max. (1 s max.) 24 Vin models: 30 VDC max. (1 s max.) |
| Recommended Input Fuse | | (The need of an external fuse has to be assessed in the final application.) |
| Input Filter | | Internal Capacitor |

Output Specifications

| | | |
|-----------------------------|---|---|
| Voltage Set Accuracy | | ±5% max. |
| Regulation (Unregulated) | - Input Variation (1% Vin step) | single output models: 1.2% max. dual output models: 1.2% max. |
| | - Load Variation - Voltage Balance (symmetrical load) | See application note: www.tracopower.com/overview/tmv2hi dual output models: 1% max. |
| Ripple and Noise | - 20 MHz Bandwidth | 100 mVp-p max. |
| Capacitive Load | - single output | 3.3 Vout models: 1'650 µF max. 5 Vout models: 940 µF max. 9 Vout models: 940 µF max. 12 Vout models: 440 µF max. 15 Vout models: 440 µF max. |
| | - dual output | 5 / -5 Vout models: 440 / 440 µF max. 9 / -9 Vout models: 440 / 440 µF max. 12 / -12 Vout models: 200 / 200 µF max. 15 / -15 Vout models: 200 / 200 µF max. 15 / -9 Vout models: 200 / 440 µF max. |
| Minimum Load | | See application note: www.tracopower.com/overview/tmv2hi (Operation at lower load will not damage the converter, but it may not meet all specifications) |
| Temperature Coefficient | | ±0.02 %/K max. |
| Short Circuit Protection | | Continuous, Automatic recovery |

Safety Specifications

| | | |
|------------------|-----------------------------|--|
| Standards | - IT / Multimedia Equipment | EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 62368-1 |
| | - Certification Documents | www.tracopower.com/overview/tmv2hi |
| Pollution Degree | | PD 2 |

General Specifications

| | |
|-------------------|----------------------------------|
| Relative Humidity | 95% max. (non condensing) |
|-------------------|----------------------------------|

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

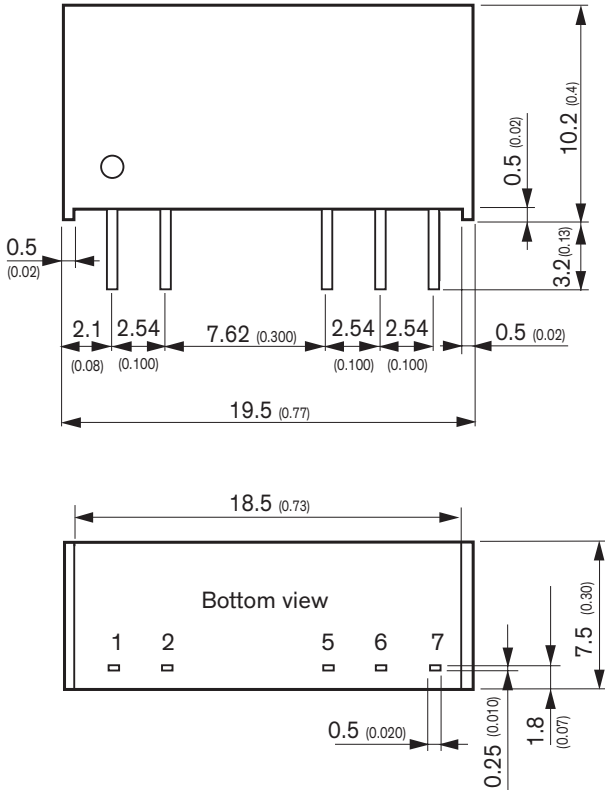
| | | |
|--------------------------------|--|--|
| Temperature Ranges | - Operating Temperature - Case Temperature - Storage Temperature | -40°C to +85°C +95°C max. -55°C to +125°C |
| Power Derating | - High Temperature | 6.7 %/K above 80°C |
| | See application note: | www.tracopower.com/overview/tmv2hi |
| Cooling System | | Natural convection (20 LFM) |
| Altitude During Operation | | 6'000 m max. |
| Switching Frequency | | 100 kHz min. (PFM) |
| Insulation System | | Functional Insulation |
| Isolation Test Voltage | - Input to Output, 60 s - Input to Output, 1 s | 5'200 VDC 5'700 VDC |
| Isolation Resistance | - Input to Output, 500 VDC | 10'000 MΩ min. |
| Isolation Capacitance | - Input to Output, 100 kHz, 1 V | 7 pF typ. |
| Common Mode Transient Immunity | | 15 kV/μs min. |
| Reliability | - Calculated MTBF | 1'110'000 h (MIL-HDBK-217F, ground benign) |
| Washing Process | | According to Cleaning Guideline www.tracopower.com/info/cleaning.pdf |
| Housing Material | | Non-conductive Plastic (UL 94 V-0 rated) |
| Potting Material | | Epoxy (UL 94 V-0 rated) |
| Pin Material | | Nickel-Iron (Alloy 42) |
| Pin Foundation Plating | | Nickel (1 μm min.) |
| Pin Surface Plating | | Tin (3 - 5 μm), matte |
| Housing Type | | Plastic Case |
| Mounting Type | | PCB Mount |
| Connection Type | | THD (Through-Hole Device) |
| Footprint Type | | SIP7 |
| Soldering Profile | | Lead-Free Wave Soldering 260°C / 10 s max. |
| Weight | | 2.4 g |
| Environmental Compliance | - REACH Declaration - RoHS Declaration - SCIP Reference Number | www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a), 7(c)-I (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).) daccb26-15c2-4a56-a54b-e5283c148595 |

Additional Information

| | |
|----------------------------|--|
| Supporting Documents | www.tracopower.com/overview/tmv2hi |
| Frequently Asked Questions | www.tracopower.com/glossary-faq |
| Glossary | www.tracopower.com/info/glossary.pdf |

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

Outline Dimensions



| Pinout | | |
|--------|------------|------------|
| Pin | Single | Dual |
| 1 | +Vin (Vcc) | +Vin (Vcc) |
| 2 | -Vin (GND) | -Vin (GND) |
| 5 | -Vout | -Vout |
| 6 | No pin | Common |
| 7 | +Vout | +Vout |

Looking for pricing, stock, or lifecycle information?

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