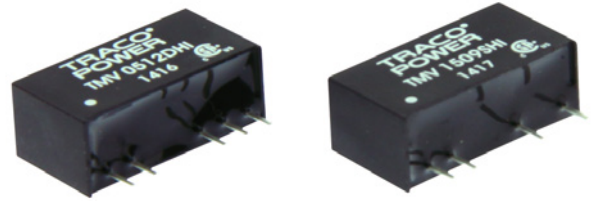


## Features

- ◆ Ultra compact SIP-7 package
- ◆ Very high I/O-isolation 5'200 VDC
- ◆ Dedicated for IGBT applications
- ◆ Operating temperature range -40°C to +85°C
- ◆ Industry standard pinout
- ◆ 3-year product warranty



The TMV-HI series is a range of 1 Watt non regulated dc/dc-converters with very high I/O-isolation. They come in a very compact SIP-7 package.

## Models

Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TMV 0503SHI	5 VDC ±10 %	3.3 VDC	303 mA	70 %
TMV 0505SHI		5.0 VDC	200 mA	70 %
TMV 0509SHI		9.0 VDC	111 mA	75 %
TMV 0512SHI		12 VDC	84 mA	77 %
TMV 0515SHI		15 VDC	66 mA	78 %
TMV 0505DHI		±5.0 VDC	±100 mA	71 %
TMV 0509DHI		±9.0 VDC	±56 mA	75 %
TMV 0512DHI		±12 VDC	±42 mA	77 %
TMV 0515DHI		±15 VDC	±33 mA	78 %
TMV 05159HI		+15 / -9 VDC	+33 / -55 mA	76 %
TMV 1203SHI	12 VDC ±10 %	3.3 VDC	303 mA	71 %
TMV 1205SHI		5.0 VDC	200 mA	71 %
TMV 1209SHI		9.0 VDC	111 mA	76 %
TMV 1212SHI		12 VDC	84 mA	78 %
TMV 1215SHI		15 VDC	66 mA	79 %
TMV 1205DHI		±5.0 VDC	±100 mA	72 %
TMV 1209DHI		±9.0 VDC	±56 mA	76 %
TMV 1212DHI		±12 VDC	±42 mA	78 %
TMV 1215DHI		±15 VDC	±33 mA	79 %
TMV 12159HI		+15 / -9 VDC	+33 / -55 mA	77 %
TMV 1503SHI	15 VDC ±10 %	3.3 VDC	303 mA	70 %
TMV 1505SHI		5.0 VDC	200 mA	70 %
TMV 1509SHI		9.0 VDC	111 mA	75 %
TMV 1512SHI		12 VDC	84 mA	75 %
TMV 1515SHI		15 VDC	66 mA	79 %
TMV 1505DHI		±5.0 VDC	±100 mA	71 %
TMV 1509DHI		±9.0 VDC	±56 mA	75 %
TMV 1512DHI		±12 VDC	±42 mA	78 %
TMV 1515DHI		±15 VDC	±33 mA	79 %
TMV 15159HI		+15 / -9 VDC	+33 / -55 mA	76 %
TMV 2403SHI	24 VDC ±10 %	3.3 VDC	303 mA	70 %
TMV 2405SHI		5.0 VDC	200 mA	70 %
TMV 2409SHI		9.0 VDC	111 mA	75 %
TMV 2412SHI		12 VDC	84 mA	78 %
TMV 2415SHI		15 VDC	66 mA	80 %
TMV 2405DHI		±5.0 VDC	±100 mA	71 %
TMV 2409DHI		±9.0 VDC	±56 mA	75 %
TMV 2412DHI		±12 VDC	±42 mA	77 %
TMV 2415DHI		±15 VDC	±33 mA	78 %
TMV 24159HI		+15 / -9 VDC	+33 / -55 mA	75 %

### Input Specifications

Input current 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.
Surge voltage (1 sec. max.)	5 Vin models: 9 V max. 12 Vin models: 18 V max. 15 Vin models: 20 V max. 24 Vin models: 30 V max.
Input filter	internal capacitor
Internal power dissipation	450 mW max.
Recommended input fuse (slow blow)	5 Vin models: 500 mA 12 Vin models: 200 mA 15 Vin models: 150 mA 24 Vin models: 100 mA

### Output Specifications

Voltage set accuracy	±5 % max.	
Voltage balance (dual output models)	1 % max.	
Regulation	– Input variation – Load variation 20 – 100 %	5 VDC models: 1.2 % / 1 % change Vin other models: <20 % <10 %
Ripple and noise (20 MHz Bandwidth)	100 mVp-p max.	
Short circuit protection	continuous, automatic recovery	
Capacitive load	–Single output –Dual output	3.3 VDC models: 1000 µF max. 5.0 & 9.0 VDC models: 470 µF max. 12 & 15 VDC models: 220 µF max. ±5.0 & ±9.0 VDC models: 220 µF max. (each output) ±12 & ±15 VDC models: 100 µF max. (each output) +15 / –9 VDC models: 100 / 220 µF max.

### Isolation /Safety

Isolation voltage	– Isolation test voltage (tested for 1 sec.) – I/O isolation voltage (60 sec.)	5700 Vpk 5200 VDC
Isolation capacitance (input/output)		7 pF typ.
Isolation resistance (input/output)		>10 Gohm
Common mode transient immunity (dv/dt)		15 kV/µs min.

### General Specifications

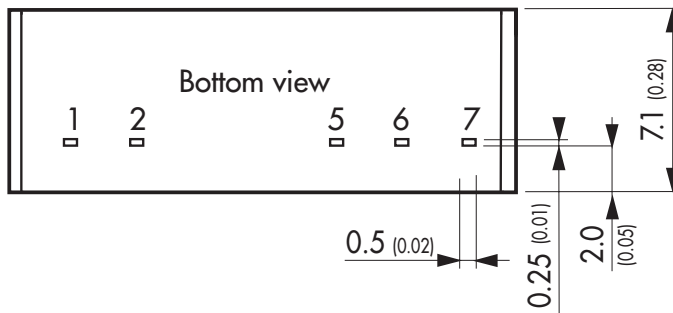
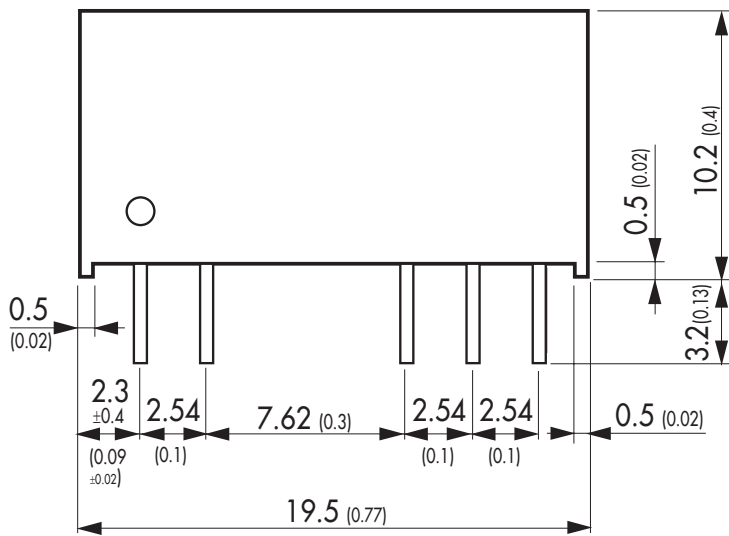
Temperature ranges	– Operating (convection cooling 20LFM, 0,1m/s) – Case temperature	–40°C to +85°C (without derating) +100°C max.
Power derating		6.7 % above +85°C
Humidity (non condensing)		95 % rel H max.
Altitude during operation		4000 m
Temperature coefficient		±0.02 %/K typ.
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)		>2'000'000 h
Switching frequency		100 kHz typ. (frequency modulation)
Safety standards		CAN/CSA-C22.2 No 60950-1-07, 2nd ed; A1:2011 ANSI/UL No. 60950-1, 2nd ed.; A1:2011 IEC 60950-1:2005 (2nd edition); Am 1:2009 EN 60950-1:2006/A11:2009/A1:2010/A12:2011 <a href="http://www.tracopower.com/overview/tmv-hi">www.tracopower.com/overview/tmv-hi</a>
Environmental compliance	– Reach – RoHS	<a href="http://www.tracopower.com/overview/tmv-hi">www.tracopower.com/overview/tmv-hi</a> 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-conducting FR4 (UL 94V-0 rated)
Package weight	2.4 g (0.084 oz)
Soldering temperature	max. 260°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

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