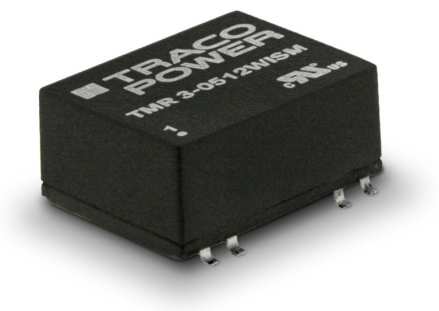
TRACO POWER

DC/DC Converter

TMR 3WISM Series, 3 Watt

- **Ultra wide 4:1 Input: 4.5–12, 9–36 and 18–75 VDC**
- **I/O-isolation 1‘500 VDC**
- **Fully regulated outputs**
- **Operating temperature range –40°C to +80°C**
- **Protection against short circuit and overload**
- **Remote On/Off**
- **3-year product warranty**

Tentative



The TMR 3WISM Series is a set of 3 Watt SMD DC/DC converters. They operate up to 65°C environment temperature at full load or up to 80°C with a 50% load derating. With UL 60950-1 certification, 1’500 VDC I/O-isolation voltage, external On/Off, short current and overload protection they cover a wide range of application when space is limited. The input of the converters is designed for a wide voltage range (4:1) and minimum load is not required.

Models

Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TMR 3-0511WISM	**4.5 – 12 VDC** (9 VDC nominal)	5.0 VDC	600 mA	81 %
TMR 3-0512WISM		12 VDC	250 mA	84 %
TMR 3-0513WISM		15 VDC	200 mA	84 %
TMR 3-0515WISM		24 VDC	125 mA	84 %
TMR 3-0522WISM		±12 VDC	±125 mA	83 %
TMR 3-0523WISM		±15 VDC	±100 mA	83 %
TMR 3-2411WISM	**9 – 36 VDC** (24 VDC nominal)	5.0 VDC	600 mA	80 %
TMR 3-2412WISM		12 VDC	250 mA	85 %
TMR 3-2413WISM		15 VDC	200 mA	85 %
TMR 3-2415WISM		24 VDC	125 mA	85 %
TMR 3-2422WISM		±12 VDC	±125 mA	84 %
TMR 3-2423WISM		±15 VDC	±100 mA	84 %
TMR 3-4811WISM	**18 – 75 VDC** (48 VDC nominal)	5.0 VDC	600 mA	80 %
TMR 3-4812WISM		12 VDC	250 mA	84 %
TMR 3-4813WISM		15 VDC	200 mA	84 %
TMR 3-4815WISM		24 VDC	125 mA	85 %
TMR 3-4822WISM		±12 VDC	±125 mA	83 %
TMR 3-4823WISM		±15 VDC	±100 mA	82 %

Input Specifications

Input current no load	9 Vin models:	40 mA typ	
	24 Vin models:	20 mA typ.	
	48 Vin models:	10 mA typ.	
Surge voltage (1 sec. max.)	9 Vin models:	15 V max.	
	24 Vin models:	50 V max.	
	48 Vin models:	100 V max.	
Start-up voltage	9 Vin models:	4.5 VDC (or lower)	
	24 Vin models:	9 VDC (or lower)	
	48 Vin models:	18 VDC (or lower)	
Electromagnetic compatibility (EMC), Emissions			
– Conducted RI suppression on input		EN 55022 class A,	
Electromagnetic compatibility (EMC), Immunity		EN 55024	
– Electrostatic discharge (ESD)		IEN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A	
– Radiated RF field immunity		EN 61000-4-3	10 V/m criteria A
– Electrical fast transient / burst immunity		EN 61000-4-4	2 kV criteria A
		with external capacitor: 220 µF / 100 V	
– Surge immunity		EN 61000-4-5	1 kV criteria A
		with external capacitor: 220 µF / 100 V	
– Immunity to conducted RF disturbances		EN 61000-4-6	10 Vrms criteria A
– Magnetic field immunity		EN 61000-4-8	3 A/m criteria A
Input filter		capacitor type	
Short Circuit Input Power		1500 mW	

Output Specifications

Voltage set accuracy		±1 % max.	
Voltage balance (dual output models)		2 % max.	
Regulation	– Input variation	0.5 % max.	
	– Load variation 0 – 100 %	1 % max.	
	– cross regulation - dual output:	5 % max. (asymmetrical load 25 % / 100 %)	
Temperature coefficient		±0.02 %/K typ.	
Minimum load		not required	
Ripple and noise (20 MHz Bandwidth)		50 mVp-p typ.	
Start up time (constant resistive load)		30 ms max.	
Transient response (25% load step change)			
– recovery time		250 µs typ.	
– deviation		5 % max.	
Overload protection		160 % of Iout nom. typ. (foldback)	
Short circuit protection		continuous, automatic recovery	
Capacitive load	–Single output	5.0 VDC models:	1680 µF max.
		12 VDC models:	820 µF max.
		15 VDC models:	680 µF max.
		24 VDC models:	390 µF max.
	–Dual output	±12 VDC models:	470 µF max. (each output)
		+15 VDC models:	330 µF max. (each output)

General Specifications

Temperature ranges	– Operating (convection cooling 20LFM, 0,1m/s)	–40°C to +80°C
	– Case temperature	+95°C max.
	– Storage temperature	–55°C to +125°C
Derating		3.3 %/K above 65°C
Humidity (non condensing)		95 % rel H max.

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

General Specifications

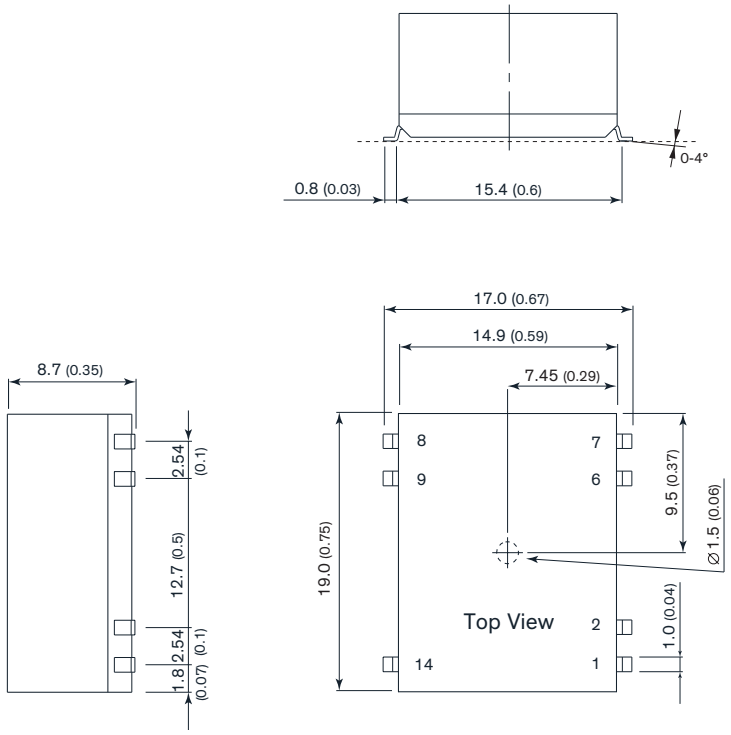
Isolation voltage	– I/O isolation voltage (60 sec.) – I/O isolation voltage (1 sec.)	1'500 VDC 1'800 VDC
Isolation capacitance		500 pF typ.
Isolation resistance (@ 500 VDC)		>1 Gohm
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)		5'086'000 h min.
Switching frequency		100 kHz min. Pulse frequency modulation.
Safety standards	 – Certification documents	IEC/EN 60950-1 UL 60950-1 www.tracopower.com/overview/tmr3wism pending
Remote On/Off	–On: –Off: –Off idle current:	open circuit or high impedance 2 – 4 mA current applied via 1kOhm resistor 2.5 mA max.
Environmental compliance	– Reach – RoHS	www.tracopower.com/products/reach-declaration.pdf RoHS directive 2011/65/EU
Moisture sensitivity level (MSL)		IPC J-STD-020D.1 Level 2

Physical Specifications

Casing material	non-conducting FR4 (UL 94V-0 rated)
Pin material	tinned copper
Package weight	3.5g (0.11oz)
Soldering temperature	max. 260°C / 6 sec
Lead-free reflow solder process	according to IPC J-STD-020D.1

Supporting Documents: www.tracopower.com/overview/tmr2wism

Outline Dimensions



Pin-Out		
Pin	**Single**	**Dual**
1	–Vin (GND)	–Vin (GND)
2	On/Off	On/Off
6	no con.	Com.
7	no con.	–Vout
8	+Vout	+Vout
9	–Vout	Com.
14	+Vin (Vcc)	+Vin (Vcc)

Dimensions in [mm], () = Inch

Tolerances: x.x	±0.5 (±0.02)
x.xx	±0.025 (±0.01)
Pin dimension tolerance	±0.05 (±0.002)

Specifications can be changed without notice!