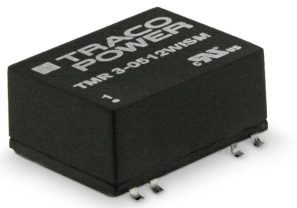
TRACO POWER

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**



UL 62368-1 IEC 62368-1

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 and short current 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 Range	Output 1		Output 2		Efficiency
		Vnom	Imax	Vnom	Imax	typ.
TMR 3-0511WISM	4.5 - 12 VDC (9 VDC nom.)	5 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	–12 VDC	125 mA	83 %
TMR 3-0523WISM		+15 VDC	100 mA	–15 VDC	100 mA	83 %
TMR 3-2411WISM	9 - 36 VDC (24 VDC nom.)	5 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	–12 VDC	125 mA	84 %
TMR 3-2423WISM		+15 VDC	100 mA	–15 VDC	100 mA	84 %
TMR 3-4811WISM	18 - 75 VDC (48 VDC nom.)	5 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	–12 VDC	125 mA	83 %
TMR 3-4823WISM		+15 VDC	100 mA	–15 VDC	100 mA	82 %

Input Specifications

Input Current	- At no load	9 Vin models:	40 mA typ.
		24 Vin models:	20 mA typ.
		48 Vin models:	13 mA typ.
	- At full load	9 Vin models:	730 mA typ.
		24 Vin models:	150 mA typ.
		48 Vin models:	75 mA typ.
Surge Voltage		9 Vin models:	15 VDC max. (1 s max.)
		24 Vin models:	50 VDC max. (1 s max.)
		48 Vin models:	100 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 Pi-Type
Short Circuit Input Power			1.5 W max.

Output Specifications

Voltage Set Accuracy			±1% max.
Regulation	- Input Variation (Vmin - Vmax)	single output models:	0.5% max.
		dual output models:	0.5% max.
	- Load Variation (0 - 100%)	single output models:	1% max.
		dual output models:	1% max. (Output 1)
			1% max. (Output 2)
	- Voltage Balance (symmetrical load)	dual output models:	2% max.
	- Cross Regulation (25% / 100% asym. load)	dual output models:	5% max.
Ripple and Noise	- 20 MHz Bandwidth		50 mVp-p max.
Capacitive Load	- single output	5 Vout models:	1'680 µF max.
		12 Vout models:	820 µF max.
		15 Vout models:	680 µF max.
		24 Vout models:	390 µF max.
	- dual output	12 / -12 Vout models:	470 / 470 µF max.
		15 / -15 Vout models:	330 / 330 µF max.
Minimum Load			Not required
Temperature Coefficient			±0.02 %/K max.
Start-up Time			30 ms max.
Short Circuit Protection			Automatic recovery
Overload Protection			Foldback Mode
Output Current Limitation			160% typ. of Iout max.
Transient Response	- Response Deviation		5% max. (25% Load Step)
	- Response Time		250 µs typ. (25% Load Step)

Safety Specifications

Safety 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/tmr3wism
Pollution Degree		PD 3

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

EMC Specifications

EMI Emissions	- Conducted Emissions		EN 55032 class A (internal filter)
			FCC Part 15 class A (internal filter)
	- Radiated Emissions		EN 55032 class A (internal filter)
			FCC Part 15 class A (internal filter)
EMS Immunity			EN 55024 (IT Equipment)
			EN 55035 (Multimedia)
	- Electrostatic Discharge	Air:	EN 61000-4-2, ±8 kV, perf. criteria A
		Contact:	EN 61000-4-2, ±6 kV, perf. criteria A
	- RF Electromagnetic Field		EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge		EN 61000-4-4, ±2 kV, perf. criteria A
			EN 61000-4-5, ±1 kV, perf. criteria A
		Ext. input component:	220 µF / 100 V
	- Conducted RF Disturbances		EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 3 A/m, perf. criteria A

General Specifications

Relative Humidity			95% max. (non condensing)
Temperature Ranges	- Operating Temperature		–40°C to +80°C
	- Case Temperature		+95°C max.
	- Storage Temperature		–55°C to +125°C
Power Derating	- High Temperature		3.3 %/K above 65°C
		See application note:	www.tracopower.com/overview/tmr3wism
Cooling System			Natural convection (20 LFM)
Remote Control	- Voltage Controlled Remote		On: < 0.6 VDC or open circuit
			Off: 4.7 to 15 VDC
			Refers to 'Remote' and '-Vin' Pin
	- Current Controlled Remote		On: open circuit
			Off: 2 to 4 mA current
	- Off Idle Input Current		3 mA max.
Altitude During Operation			5'000 m max.
Switching Frequency			100 kHz min. (PFM)
Insulation System			Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s		1'500 VDC
	- Input to Output, 1 s		1'800 VDC
Isolation Resistance	- Input to Output, 500 VDC		1'000 MΩ min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V		500 pF typ.
Reliability	- Calculated MTBF		5'090'000 h (MIL-HDBK-217F, ground benign)
Moisture Sensitivity (MSL)			Level 2 (J-STD-033C)
Washing Process			Not allowed
Housing Material			Non-conductive Plastic (UL 94 V-0 rated)
Pin Material			Phosphor Bronze (C5191)
Pin Foundation Plating			Copper (1 - 3 µm)
Pin Surface Plating			Tin (7.5 µm min.), matte
Housing Type			Plastic Case
Mounting Type			PCB Mount
Connection Type			SMD (Surface-Mount Device)
Footprint Type			SMD14
Soldering Profile			Reflow Soldering (J-STD-020E)
Weight			3.5 g

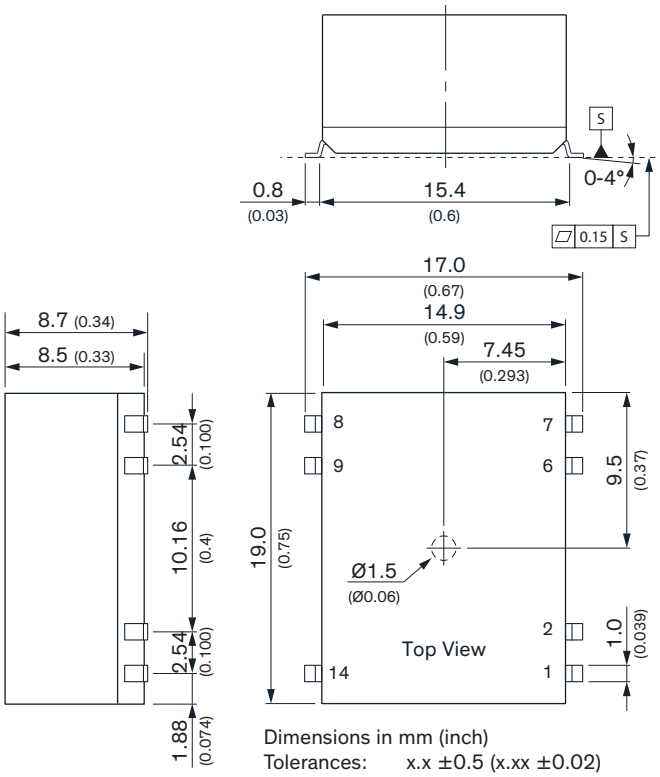
All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

Environmental Compliance	- REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7a (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tmr3wism

Outline Dimensions



Dimensions in mm (inch)
Tolerances: x.x ±0.5 (x.xx ±0.02)
x.xx ±0.25 (x.xxx ±0.01)
Pin dimension tolerance: ±0.05 (±0.002)

Pinout		
Pin	**Single Output**	**Dual Output**
1	–Vin (GND)	–Vin (GND)
2	Remote	Remote
6	NC	Common
7	NC	–Vout
8	+Vout	+Vout
9	–Vout	Common
14	+Vin (Vcc)	+Vin (Vcc)

NC: No Connection

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Recommended Solder Pad Layout