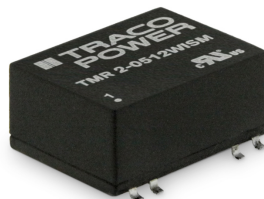


- Ultra wide 4:1 Input: 4.5–12, 9–36 and 18–75 VDC
- I/O-isolation 1'500 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +80°C
- Protection against short circuit and overload
- Remote On/Off
- 3-year product warranty



The TMR 2WISM Series is a set of 2 Watt SMD DC/DC converters. They operate up to 70°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 typ.
		Vnom	I _{max}	Vnom	I _{max}	
TMR 2-0511WISM	4.5 - 12 VDC (9 VDC nom.)	5 VDC	400 mA			80 %
TMR 2-0512WISM		12 VDC	167 mA			84 %
TMR 2-0513WISM		15 VDC	134 mA			83 %
TMR 2-0515WISM		24 VDC	83 mA			84 %
TMR 2-0522WISM		+12 VDC	83 mA	–12 VDC	83 mA	83 %
TMR 2-0523WISM		+15 VDC	67 mA	–15 VDC	67 mA	82 %
TMR 2-2411WISM	9 - 36 VDC (24 VDC nom.)	5 VDC	400 mA			80 %
TMR 2-2412WISM		12 VDC	167 mA			84 %
TMR 2-2413WISM		15 VDC	134 mA			85 %
TMR 2-2415WISM		24 VDC	83 mA			85 %
TMR 2-2422WISM		+12 VDC	83 mA	–12 VDC	83 mA	83 %
TMR 2-2423WISM		+15 VDC	67 mA	–15 VDC	67 mA	83 %
TMR 2-4811WISM	18 - 75 VDC (48 VDC nom.)	5 VDC	400 mA			78 %
TMR 2-4812WISM		12 VDC	167 mA			82 %
TMR 2-4813WISM		15 VDC	134 mA			83 %
TMR 2-4815WISM		24 VDC	83 mA			84 %
TMR 2-4822WISM		+12 VDC	83 mA	–12 VDC	83 mA	82 %
TMR 2-4823WISM		+15 VDC	67 mA	–15 VDC	67 mA	82 %

Input Specifications

Input Current	- at no load	9 Vin models: 40 mA typ. 24 Vin models: 20 mA typ. 48 Vin models: 10 mA typ.
	- at full load	9 Vin models: 490 mA typ. 24 Vin models: 100 mA typ. 48 Vin models: 50 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.)
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)
	- Cross Regulation (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 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	www.tracopower.com/overview/tmr2wism
Pollution Degree		PD 3

EMC Specifications

EMC Emissions	- Conducted Emissions	EN 55032 class A (internal filter) FCC Part 15, class A
	- Radiated Emissions	EN 55032 class A (internal filter) FCC Part 15, class A

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

EMC Immunity		EN 55024 (IT Equipment)
	- 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)	EN 61000-4-4, ± 2 kV, perf. criteria A
	- Surge	EN 61000-4-5, ± 1 kV, perf. criteria A
		Ext. Input Component: Capacitor: 220 μ F / 100 V
	- Conducted RF Disturbances	EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	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	4 %/K above 70°C
Cooling System		Natural convection (20 LFM)
Remote Control	- 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 MOhm min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	500 pF typ.
Reliability	- Calculated MTBF	6'430'000 h (MIL-HDBK-217F, ground benign)
Moisture Sensitivity (MSL)		Level 2 (J-STD-033C)
Washing Process		Not allowed (non-hermetical product)
Housing Material		Non-conductive Plastic (UL94 V-0 rated)
Pin Material		Tinned Copper
Soldering Profile		Reflow Soldering (J-STD-020E)
Connection Type		SMD (Surface-Mount Device)
Weight		3.5 g
Environmental Compliance	- Reach	www.tracopower.com/info/reach-declaration.pdf
	- RoHS	www.tracopower.com/info/rohs-declaration.pdf

Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tmr2wism
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All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

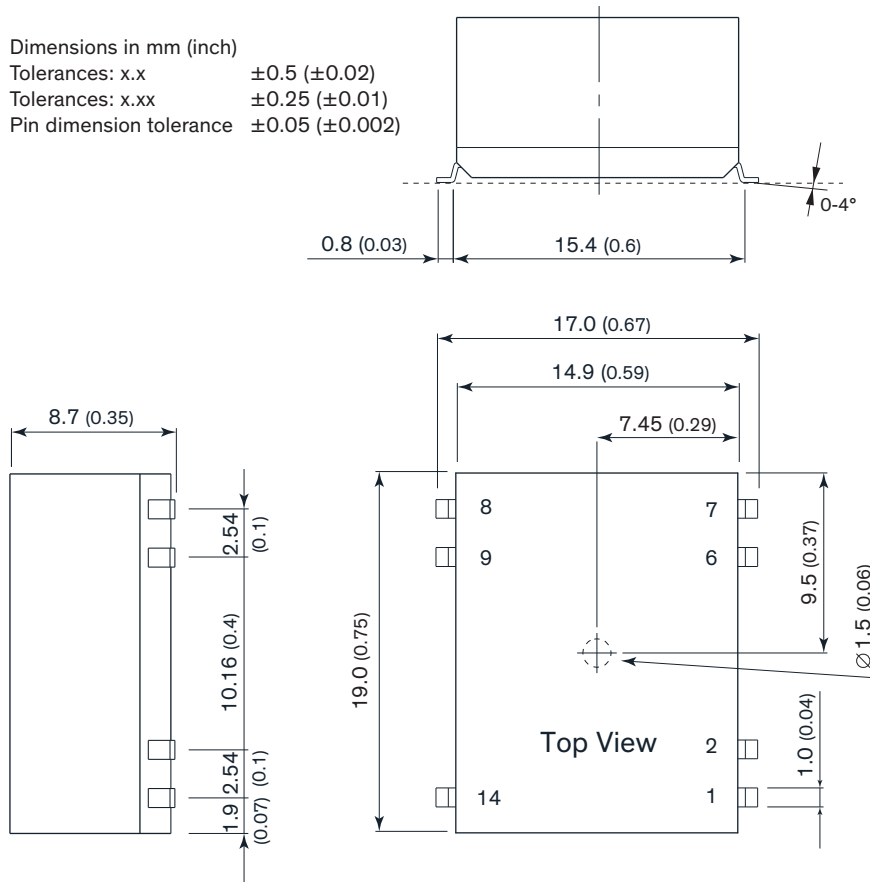
Outline Dimensions

Dimensions in mm (inch)

Tolerances: x.x ± 0.5 (± 0.02)

Tolerances: x.xx ± 0.25 (± 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

Mouser Electronics

Authorized Distributor

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TRACO Power:

<u>TMR 2-0522WISM</u>	<u>TMR 2-4812WISM</u>	<u>TMR 2-2422WISM</u>	<u>TMR 2-2411WISM</u>	<u>TMR 2-0523WISM</u>	<u>TMR 2-2415WISM</u>
<u>TMR 2-4815WISM</u>	<u>TMR 2-4811WISM</u>	<u>TMR 2-0513WISM</u>	<u>TMR 2-0511WISM</u>	<u>TMR 2-2413WISM</u>	<u>TMR 2-4823WISM</u>
<u>TMR 2-4822WISM</u>	<u>TMR 2-2423WISM</u>	<u>TMR 2-2412WISM</u>	<u>TMR 2-4813WISM</u>	<u>TMR 2-0515WISM</u>	<u>TMR 2-0512WISM</u>