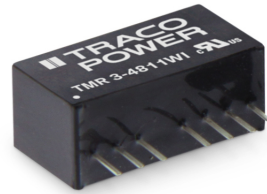


- Highest power density in SIP package
- Ultra wide 4:1 input range
- Small footprint: 21.8 x 9.2 mm
- Temperature range -40° to $+85^{\circ}\text{C}$
- High efficiency up to 82%
- Excellent load and line regulation
- Short-circuit protection
- I/O isolation 1600 VDC
- Remote On/Off control
- 3-year product warranty



The TMR 3WI series is a new family of isolated 3W DC/DC converters with regulated output, featuring ultra-wide 4:1 input voltage range. The product comes in a ultra-compact SIP plastic package with a small footprint occupying only 2.0 cm² (0.3 square inch) of board space. An excellent efficiency allows -40° to $+85^{\circ}\text{C}$ operation temperatures.

Further features include remote On/Off control and continuous short circuit protection. The very compact dimensions of these converters make them an ideal solution for many space critical applications in battery-powered equipment and instrumentation.

Models

Order Code	Input Voltage Range	Output 1		Output 2		Efficiency typ.
		Vnom	I _{max}	Vnom	I _{max}	
TMR 3-1210WI	4.5 - 18 VDC (12 VDC nom.)	3.3 VDC	700 mA			74 %
TMR 3-1211WI		5 VDC	600 mA			78 %
TMR 3-1212WI		12 VDC	250 mA			80 %
TMR 3-1213WI		15 VDC	200 mA			80 %
TMR 3-1221WI		+5 VDC	300 mA	-5 VDC	300 mA	80 %
TMR 3-1222WI		+12 VDC	125 mA	-12 VDC	125 mA	80 %
TMR 3-1223WI		+15 VDC	100 mA	-15 VDC	100 mA	80 %
TMR 3-2410WI	9 - 36 VDC (24 VDC nom.)	3.3 VDC	700 mA			75 %
TMR 3-2411WI		5 VDC	600 mA			80 %
TMR 3-2412WI		12 VDC	250 mA			82 %
TMR 3-2413WI		15 VDC	200 mA			82 %
TMR 3-2421WI		+5 VDC	300 mA	-5 VDC	300 mA	79 %
TMR 3-2422WI		+12 VDC	125 mA	-12 VDC	125 mA	81 %
TMR 3-2423WI		+15 VDC	100 mA	-15 VDC	100 mA	81 %
TMR 3-4810WI	18 - 75 VDC (48 VDC nom.)	3.3 VDC	700 mA			74 %
TMR 3-4811WI		5 VDC	600 mA			80 %
TMR 3-4812WI		12 VDC	250 mA			81 %
TMR 3-4813WI		15 VDC	200 mA			81 %
TMR 3-4821WI		+5 VDC	300 mA	-5 VDC	300 mA	79 %
TMR 3-4822WI		+12 VDC	125 mA	-12 VDC	125 mA	81 %
TMR 3-4823WI		+15 VDC	100 mA	-15 VDC	100 mA	81 %

Input Specifications

Input Current	- at no load	12 Vin models: 40 mA typ. 24 Vin models: 25 mA typ. 48 Vin models: 15 mA typ.
	- at full load	12 Vin models: 340 mA max. 24 Vin models: 170 mA max. 48 Vin models: 85 mA max.
Surge Voltage		12 Vin models: 36 VDC max. (100 ms max.) 24 Vin models: 50 VDC max. (100 ms max.) 48 Vin models: 100 VDC max. (100 ms max.)
Input Filter		Internal Capacitor

Output Specifications

Voltage Set Accuracy		±1% max.
Regulation	- Input Variation (Vmin - Vmax)	single output models: 0.2% max. dual output models: 0.2% max.
	- Load Variation (5 - 100%)	single output models: 0.5% max. dual output models: 1% max. (Output 1) 1% max. (Output 2)
	- Cross Regulation (25% / 100% asym. load)	dual output models: 5% max.
Ripple and Noise	- 20 MHz Bandwidth	30 mVp-p max.
Capacitive Load	- single output	3.3 Vout models: 3'300 µF max. 5 Vout models: 1'680 µF max. 12 Vout models: 820 µF max. 15 Vout models: 680 µF max.
	- dual output	5 / -5 Vout models: 1'000 / 1'000 µF max. 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 typ.
Short Circuit Protection		Continuous, Automatic recovery
Transient Response	- Response Time	250 µs typ. (25% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	IEC 60950-1 EN 60950-1 UL 60950-1
	- Certification Documents	www.tracopower.com/overview/tmr3wi

EMC Specifications

EMC Emissions	- Conducted Emissions	EN 55032 class A (with external filter) EN 55032 class B (with external filter)
	- Radiated Emissions	EN 55032 class A (with external filter) EN 55032 class B (with external filter)
	- External Filter Proposal	www.tracopower.com/overview/tmr3wi
EMC Immunity	- 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
	- Conducted RF Disturbances	Ext. Input Component: Nippon chemi-con KY, 100 µF / 110 mOhm EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	EN 61000-4-8, 100 A/m, perf. criteria A

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

General Specifications

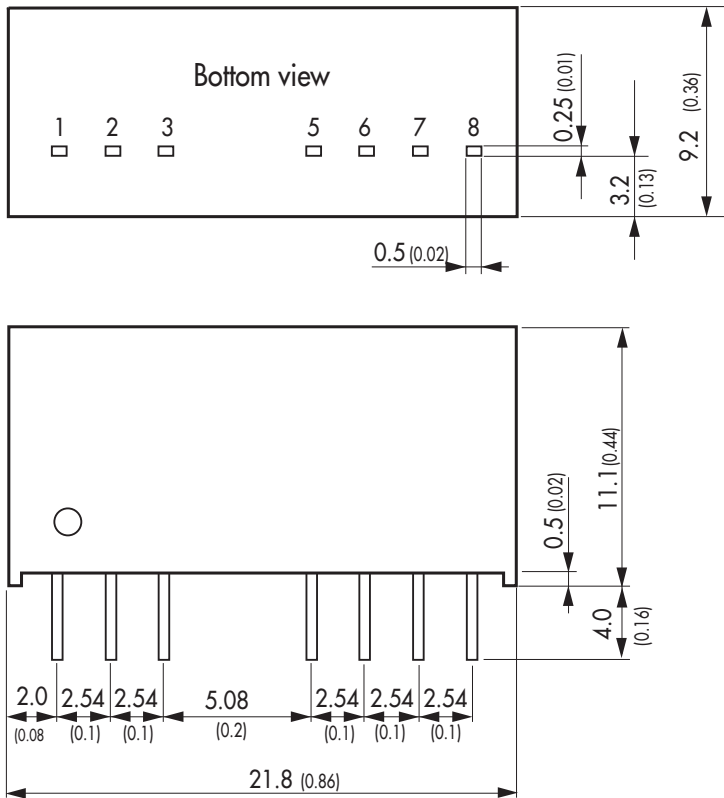
Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature - Case Temperature - Storage Temperature	-40°C to +85°C +100°C max. -55°C to +125°C
Power Derating	- High Temperature	3.3 %/K above 70°C
Cooling System		Natural convection (20 LFM)
Altitude During Operation		12'000 m max.
Switching Frequency		100 kHz min. (RCC)
Insulation System		Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s	1'600 VDC
Isolation Resistance	- Input to Output, 500 VDC	1'000 MOhm min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	200 pF max.
Reliability	- Calculated MTBF	3'400'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration - Thermal Shock	MIL-STD-810F MIL-STD-810F
Housing Material		Non-conductive Plastic (UL94 V-0 rated)
Potting Material		Silicone (UL94 V-0 rated)
Connection Type		THD (Through-Hole Device)
Weight		4.8 g
Remote Control	- Current Controlled Remote - External Circuit Proposal - Off Idle Input Current	On: open circuit Off: 2 to 4 mA current (internal 1 kOhm resistor) www.tracopower.com/info/current-remote.pdf 2.5 mA max.
Environmental Compliance	- Reach - RoHS	www.tracopower.com/info/reach-declaration.pdf www.tracopower.com/info/rohs-declaration.pdf

Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tmr3wi
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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)
 Pin diameter $\varnothing 0.5 \pm 0.05$ (0.02 \pm 0.002)
 Tolerances ± 0.5 (± 0.02)
 Pin pitch tolerance ± 0.2 (± 0.008)

Pinout		
Pin	Single Output	Dual Output
1	-Vin (GND)	-Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	Remote	Remote
5	NC	NC
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout

NC: No Connection