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With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## **DC/DC Converters**

TMR 3WI Series, 3 Watt



## **Features**

- 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°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 in.) of board space. An excellent efficiency allows  $-40^{\circ}$  to  $+85^{\circ}$ 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.

odels				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TMR 3-1210WI	4.5 – 18 VDC (12 VDC nominal)	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	80 %
TMR 3-1222WI		±12 VDC	±125 mA	80 %
TMR 3-1223WI		±15 VDC	±100 mA	80 %
TMR 3-2410WI	<b>9 – 36 VDC</b> (24 VDC nominal)	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	79 %
TMR 3-2422WI		±12 VDC	±125 mA	81 %
TMR 3-2423WI		±15 VDC	±100 mA	81 %
TMR 3-4810WI	<b>18 - 75 VDC</b> (48 VDC nominal)	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	79 %
TMR 3-4822WI		±12 VDC	±125 mA	81 %
TMR 3-4823WI		±15 VDC	±100 mA	81 %



Input Specifications			
Input current at full load		12 Vin models: 24 Vin models: 48 Vin models:	340 mA max. 170 mA max. 85 mA max.
Input current at no load 12		12 Vin models: 24 Vin models: 48 Vin models:	40 mA typ. 25 mA typ. 15 mA typ.
Surge voltage (100 msec. n	nax.)	12 Vin models: 24 Vin models: 48 Vin models:	36 V max. 50 V max. 100 V max.
Input filter			internal capacitor
ESD (electrostatic discharge)			EN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A
Radiated immunity			EN 61000-4-3, 10 V/m, perf. criteria A
Fast transient / Surge			EN 61000-4-4, ± 2 kV, perf. criteria A EN 61000-4-5, ± 1 kV perf. criteria A With external input capacitor e.g. Nippon chemi-con KY 100 μF, 100 V, ESR 110 mOhm
Conducted immunity			EN 61000-4-6, 10 Vrms, perf. criteria A
RF Magnetic Field			EN 61000-4-8, 100 A/m, perf. criteria A
<b>Output Specification</b>	S		
Voltage set accuracy			±1 % max
Regulation			0.2 % max. 1.0 % max. 1.0 % max. balanced load 5.0 % max. (dual output models)
Minimum load			not required
Temperature coefficient			0.02 %/K
Ripple and noise (20 MHz	Bandwidth)		30 mVp-p max.
Start up time (constant resistive load)	– Power On – Remote On		30 ms typ. 30 ms typ.
Transient response setting ti	me (25% load step change)		250 µs typ.
Short circuit protection			continuous, automatic recovery
Capacitive load		3.3 VDC models: 5 VDC models: 12 VDC models: 15 VDC models: ±5 VDC models: ±12 VDC models: ±15 VDC models:	3'300 µF max. 1'680 µF max. 820 µF max. 680 µF max. ±1000 µF max. ±470 µF max. ±330 µF max.
General Specification	ns		
Temperature ranges	<ul><li>Operating</li><li>Case temperature</li><li>Storage</li></ul>		−40°C to +85°C +100°C max. −55°C to +125°C
Load derating			3.3 %/K above 70°C
Humidity (non condensing)			5 – 95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)			>3.4 Mio h

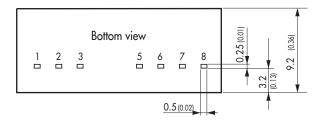
All specifications valid at nominal input voltage, full load and  $+25^{\circ}\text{C}$  after warm-up time unless otherwise stated.

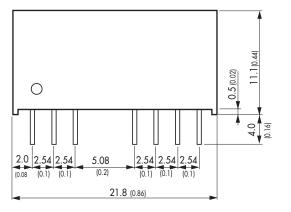


General Specification	ns	
Isolation voltage (60 sec.)	– Input/Output	1'600 VDC
Isolation capacitance	– Input/Output	200 pF max.
Isolation resistance	- Input/Output (500 VDC)	>1 GOhm
Switching frequency		100 kHz min. (PFM)
Remote On/Off	<ul><li>On:</li><li>Off:</li><li>Off stand by input current</li></ul>	open or high impedance 24 mA to applied via 1 kOhm resistor 2.5 mA max.
Vibration and thermal shock		MIL-STD-810F
Safety standards	– Certification documents	UL /cUL 60950-1, IEC 60950-1:2005 (2nd Edition); +A1:2009 www.tracopower.com/overview/tmr3wi
Environmental compliance	- Reach - RoHS	www.tracopower.com/info/reach-declaration.pdf RoHS Directive 2011/65/EU
Altitude	<ul><li>operation</li><li>non operation</li></ul>	< 40'000ft (12'000m) < 50'000ft (15'000m)
Physical Specification	ns	
Casing material		non-conductive plastic
Potting material		silicone, UL 94V-0 rated
Weight		<b>4.8</b> g (0.17oz)

Supporting documents: www.tracopower.com/overview/tmr3wi

## **Outline Dimensions**





Pin-Out				
Pin	Single	Dual		
1	-Vin (GND)	-Vin (GND)		
2	+Vin (Vcc)	+Vin (Vcc)		
3	Remote On/Off	Remote On/Off		
5	No con.	No con.		
6	+Vout	+Vout		
7	-Vout	Common		
8	No con.	-Vout		

Dimensions in [mm], () = Inch Pin dimension tolerances 0.1 (0.004) Pin pitch tolerances: ±0.25 (±0.01)

Tolerances:  $\pm 0.5 (\pm 0.02)$ 

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com

