



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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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- Compact SIP-8 metal case
- EN 50155 railway approval
- Ultra wide 4:1 Input: 9–36, 18–75 and 43–160 VDC
- I/O-isolation 3'000 VDC
- Fully regulated outputs
- Operating temperature range –40°C to +90°C
- Short circuit protection and current limitation
- Remote On/Off
- 3-year product warranty



The TMR 3WIR series is a set of 3 Watt DC/DC converters in a SIP-8 metal case. They operate up to 78°C environment temperature at full load and up to 90°C with a 50% load derating. With EN 50155 and UL 60950-1 certification, 3'000 VDC I/O-isolation voltage, external On/Off, current limitation 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	Output voltage	Output current max.	Efficiency typ.
TMR 3-2410WIR	9 – 36 VDC (24 VDC nominal)	3.3 VDC	700 mA	76 %
TMR 3-2411WIR		5.0 VDC	600 mA	81 %
TMR 3-2419WIR		9.0 VDC	333 mA	81 %
TMR 3-2412WIR		12 VDC	250 mA	83 %
TMR 3-2413WIR		15 VDC	200 mA	83 %
TMR 3-2415WIR		24 VDC	125 mA	82 %
TMR 3-2421WIR		±5 VDC	±300 mA	80 %
TMR 3-2422WIR		±12 VDC	±125 mA	82 %
TMR 3-2423WIR		±15 VDC	±100 mA	82 %
TMR 3-4810WIR	18 – 75 VDC (48 VDC nominal)	3.3 VDC	700 mA	75 %
TMR 3-4811WIR		5.0 VDC	600 mA	81 %
TMR 3-4819WIR		9.0 VDC	333 mA	81 %
TMR 3-4812WIR		12 VDC	250 mA	82 %
TMR 3-4813WIR		15 VDC	200 mA	82 %
TMR 3-4815WIR		24 VDC	125 mA	82 %
TMR 3-4821WIR		±5 VDC	±300 mA	80 %
TMR 3-4822WIR		±12 VDC	±125 mA	82 %
TMR 3-4823WIR		±15 VDC	±100 mA	82 %
TMR 3-7210WIR	43 – 160 VDC (110 VDC nominal)	3.3 VDC	700 mA	76 %
TMR 3-7211WIR		5.0 VDC	600 mA	80 %
TMR 3-7219WIR		9.0 VDC	333 mA	81 %
TMR 3-7212WIR		12 VDC	250 mA	82 %
TMR 3-7213WIR		15 VDC	200 mA	83 %
TMR 3-7215WIR		24 VDC	125 mA	83 %
TMR 3-7221WIR		±5 VDC	±300 mA	80 %
TMR 3-7222WIR		±12 VDC	±125 mA	83 %
TMR 3-7223WIR		±15 VDC	±100 mA	81 %

## Input Specifications

Input current no load	24 Vin models: 4 mA typ 48 Vin models: 4 mA typ. 110 Vin models: 2 mA typ.
Surge voltage (1 s max.)	24 Vin models: 50 V max. 48 Vin models: 100 V max. 110 Vin models: 185 V max.
EMC emissions	– Conducted & Radiated input suppression – Application note for filter class A/B proposal EN 55011, EN 55032 class A or B (with ext. filter) <a href="http://www.tracopower.com/overview/tmr3wir">www.tracopower.com/overview/tmr3wir</a>
EMC immunity	– ESD (electrostatic discharge) – Radiated immunity – Fast transient / surge (with external input capacitor / diode) – Conducted immunity – Magnetic field immunity EN 61000-4-2, air $\pm 8$ kV, contact $\pm 6$ kV, perf. criteria A EN 61000-4-3, 20 V/m, perf. criteria A EN 61000-4-4, $\pm 2$ kV, perf. criteria A EN 61000-4-5, $\pm 2$ kV perf. criteria A 24 Vin models: Nippon chemi-con KY 220 $\mu$ F / 100 V and TVS (SMDJ70A, 70 V, 3000 W) in parallel 48 Vin models: Nippon chemi-con KY 220 $\mu$ F / 100 V and TVS (SMDJ120A, 120 V, 3000 W) in parallel 110 Vin models: Nippon chemi-con KY 150 $\mu$ F / 200 V and TVS (SMBJ250A, 250 V, 600 W) in parallel EN 61000-4-6, 10 Vrms, perf. criteria A EN 61000-4-8 100 A/m, continuous, perf. criteria A 1000 A/m, 1 sec., perf. criteria A
Input filter	capacitor type
Recommended input fuse	24 Vin models: 0.8 A (slow blow) 48 Vin models: 0.5 A (slow blow) 110 Vin models: 0.16 A (slow blow)

## Output Specifications

Voltage set accuracy	$\pm 1$ % max.
Regulation	– Input variation (Vin min. to Vin max.) – Load variation (0 – 100 %) – Cross regulation single output: 0.2 % max. dual output: 0.5 % max. dual output: 1 % max. dual output: 5 % max. (asymmetrical load 25 % / 100 %)
Temperature coefficient	$\pm 0.02$ %/K max.
Minimum load	not required
Ripple and noise (20 MHz Bandwidth with 1 $\mu$ F / 50 V)	75 mVp-p max.
Start up time (constant resistive load)	75 ms max.
Transient response	– Recovery time (25% load step change) 250 $\mu$ s typ.
Current limitation	180% of Iout nom. typ. (hiccup)
Short circuit protection	continuous, automatic recovery
Capacitive load	– Single output 3.3 VDC models: 1100 $\mu$ F max. 5.0 VDC models: 550 $\mu$ F max. 9.0 VDC models: 340 $\mu$ F max. 12 & 15 VDC models: 240 $\mu$ F max. 24 VDC models: 90 $\mu$ F max. – Dual output $\pm 5$ VDC models: 340 $\mu$ F max. (each output) $\pm 12$ VDC models: 170 $\mu$ F max. (each output) $+15$ VDC models: 90 $\mu$ F max. (each output)

## General Specifications

Temperature ranges	– Operating (natural convection: 20 LFM, 0.1m/s) – Case temperature – Storage temperature –40°C to +90°C +100°C max. –55°C to +125°C
Derating	4.5%/K above 78°C
Humidity (non condensing)	5 – 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

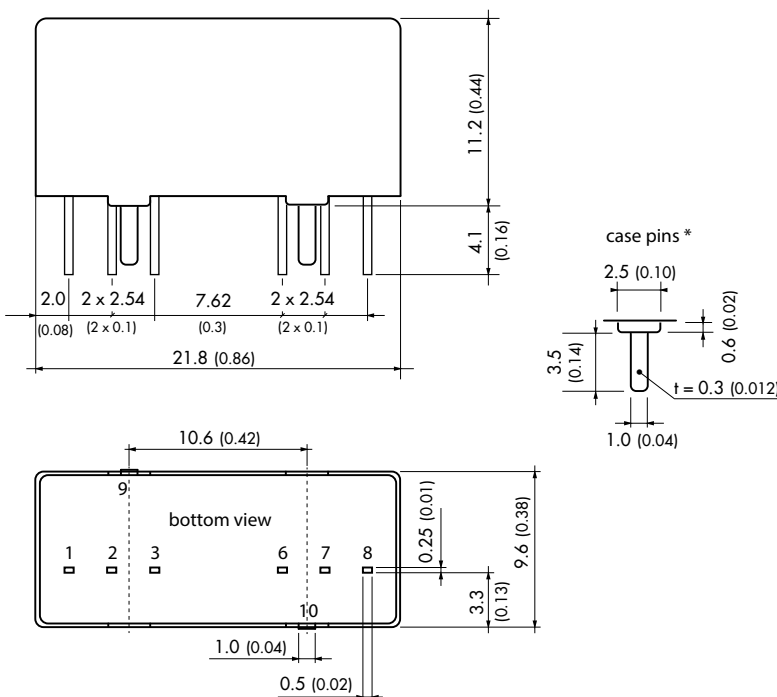
Isolation voltage (60 s)	– Input to output isolation voltage – Input/output to case isolation voltage	3'000 VDC 1'500 VDC
Isolation capacitance		100 pF max.
Isolation resistance (at 500 VDC)		>1 GOhm
Thermal Shock		acc. MIL-STD-810F
Shock & Vibration		acc. EN 61373, MIL-STD-810F
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)		5'535'000 h
Switching frequency	24 & 48 Vin models: 110 Vin models:	400 kHz (±40 kHz) (pulse width modulation) 300 kHz (±30 kHz) (pulse width modulation)
Safety standards	– Certification documents	IEC/EN/UL 60950-1, EN 50155 <a href="http://www.tracopower.com/overview/tmr3wir">www.tracopower.com/overview/tmr3wir</a>
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 – Flamability identified acc. EN 45545-2	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a> RoHS directive 2011/65/EU <a href="http://www.tracopower.com/info/en45545-declaration.pdf">www.tracopower.com/info/en45545-declaration.pdf</a>

### Physical Specifications

Casing material	copper
Potting material	silicone (UL94 V-0 rated)
Package weight	5.9 g (0.21 oz)

Supporting Documents: [www.tracopower.com/overview/tmr3wir](http://www.tracopower.com/overview/tmr3wir)

### Outline Dimensions



Pin-Out		
Pin	Single	Dual
1	-Vin (GND)	-Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	On/Off	On/Off
6	+Vout	+Vout
7	-Vout	Common
8	NC	-Vout
9, 10	Case	Case

Dimensions in [mm], ( ) = Inch

Tolerances: x.x	±0.5 (±0.02)
x.xx	±0.25 (±0.01)
Pin pitch tolerance	±0.25 (±0.01)
Pin dimension tolerance	±0.1 (±0.004)

\* Case pins should not be connected to any circuit