

Features

- ◆ Highest power density in SIP package
- ◆ Wide 2:1 input voltage range
- ◆ Ultra-compact SIP-8 package
- ◆ Smallest footprint 6W converter
- ◆ Full SMD design
- ◆ Temperature range -40° to $+70^{\circ}\text{C}$
- ◆ High efficiency up to 84%
- ◆ Indefinite short-circuit protection
- ◆ I/O isolation 1500 VDC
- ◆ Remote On/Off control
- ◆ Fully RoHS compliant
- ◆ 3-year product warranty



The TMR-6 series is a new family of isolated 6W dc-dc converter modules with regulated output, featuring wide 2:1 input voltage ranges. The product comes in an ultra-compact SIP-8 plastic package with a small footprint occupying only 2.0 cm² (0.3 square in.) of board space.

An excellent efficiency allows -40° to $+70^{\circ}\text{C}$ 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 communication equipment, instrumentation and industrial electronics.

Models

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TMR 6-0510	4.5 – 9.0 VDC (5 VDC nominal)	3.3 VDC	1300 mA	76 %
TMR 6-0511		5 VDC	1200 mA	81 %
TMR 6-0512		12 VDC	500 mA	83 %
TMR 6-0513		15 VDC	400 mA	83 %
TMR 6-0521		± 5 VDC	± 600 mA	81 %
TMR 6-0522		± 12 VDC	± 250 mA	83 %
TMR 6-0523		± 15 VDC	± 200 mA	83 %
TMR 6-1210	9 – 18 VDC (12 VDC nominal)	3.3 VDC	1300 mA	77 %
TMR 6-1211		5 VDC	1200 mA	82 %
TMR 6-1212		12 VDC	500 mA	83 %
TMR 6-1213		15 VDC	400 mA	83 %
TMR 6-1221		± 5 VDC	± 600 mA	81 %
TMR 6-1222		± 12 VDC	± 250 mA	83 %
TMR 6-1223		± 15 VDC	± 200 mA	84 %
TMR 6-2410	18 – 36 VDC (24 VDC nominal)	3.3 VDC	1300 mA	77 %
TMR 6-2411		5 VDC	1200 mA	82 %
TMR 6-2412		12 VDC	500 mA	84 %
TMR 6-2413		15 VDC	400 mA	84 %
TMR 6-2421		± 5 VDC	± 600 mA	81 %
TMR 6-2422		± 12 VDC	± 250 mA	84 %
TMR 6-2423		± 15 VDC	± 200 mA	84 %
TMR 6-4810	36 – 75 VDC (48 VDC nominal)	3.3 VDC	1300 mA	76 %
TMR 6-4811		5 VDC	1200 mA	81 %
TMR 6-4812		12 VDC	500 mA	84 %
TMR 6-4813		15 VDC	400 mA	86 %
TMR 6-4821		± 5 VDC	± 600 mA	81 %
TMR 6-4822		± 12 VDC	± 250 mA	84 %
TMR 6-4823		± 15 VDC	± 200 mA	85 %

Input Specifications

Input current at no load (nominal input voltage)	5 V models: 105 mA typ. 12 V models: 55 mA typ. 24 V models: 30 mA typ. 48 V models: 15 mA typ.
Surge voltage (100 msec. max.)	5 V models: 15 V max. 12 V models: 36 V max. 24 V models: 50 V max. 48 V models: 100 V max.
Input filter	capacitor type (application note for compliance to EN 55022 class A/B pending)
Recommended input fuse (normal blow, max. rating)	5 V models: 3.15 A 12 V models: 1.4 A 24 V models: 700 mA 48 V models: 315 mA

Output Specifications

Voltage set accuracy	±1 % max
Regulation	<ul style="list-style-type: none"> – Input variation Vin min. to Vin max. 0.2 % max. – Load variation 0 – 100% <ul style="list-style-type: none"> single output models: 1.0 % max. dual output models: 1.0 % max. balanced load – Load cross regulation 25/100% 5.0 % max. (dual output models)
Minimum load	0 % of rated max. load
Ripple and noise (20 MHz Bandwidth)	50 mVpk-pk max.
Transient response setting time (25% load step change)	500 µs typ.
Short circuit protection	indefinite, automatic recovery
Start up time (constant resistive load)	<ul style="list-style-type: none"> – Power On 30 ms typ. – Remote On 30 ms typ.
Capacitive load	<ul style="list-style-type: none"> 3.3 VDC / 5 VDC output models: 6600 µF max. / 3300 µF max. 12 VDC / 15 VDC output models: 1600 µF max. / 1400 µF max. ±5 VDC / ±12 VDC output models: ±2000 µF max. / ± 900 µF max. ±15 VDC output models: ±660 µF max.

General Specifications

Temperature ranges	<ul style="list-style-type: none"> – Operating –40°C to +70°C – Case temperature +110°C max. – Storage –55°C to +125°C
Load derating	3.3 %/K above 55°C
Humidity (non condensing)	95 % rel. H max.
Temperature coefficient	±0.02 %/K
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	>2.4 Mio h
Isolation voltage (60 sec.)	– Input/Output 1600 VDC
Isolation capacitance	– Input/Output 50 pF max.
Isolation resistance	– Input/Output (500 VDC) >10 GOhm
Switching frequency	100 kHz min. (PFM)
Remote On/Off	<ul style="list-style-type: none"> – On: open or high impedance – Off: 2...4 mA current applied via 1KOhm resistor – Off stand by input current 2.5 mA max.
Safety standards	IEC/EN 60950-1, UL 60950-1
Environmental compliance	<ul style="list-style-type: none"> – Reach www.tracopower.com/products/tmr6-reach.pdf – RoHS RoHS directive 2002/95/EC

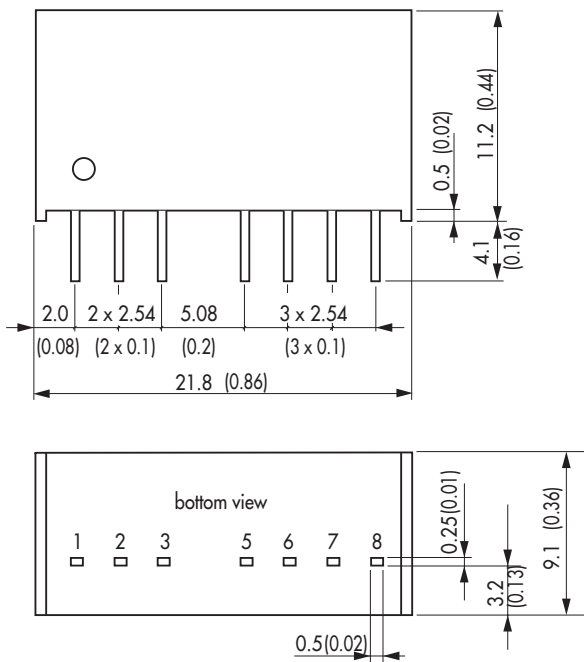
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

Casing material	non-conductive plastic
Potting material	silicon, (UL 94V-0 rated)
Weight	4.8 g (0.17oz)

Application note: www.tracopower.com/products/tmr6-application.pdf

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 function	No function
6	+Vout	+Vout
7	-Vout	Common
8	No function	-Vout

Dimensions in [mm], () = Inch
Tolerances: ±0.5 (±0.02)
Pin pitch tolerances: ±0.25 (±0.01)

Specifications can be changed any time without notice.