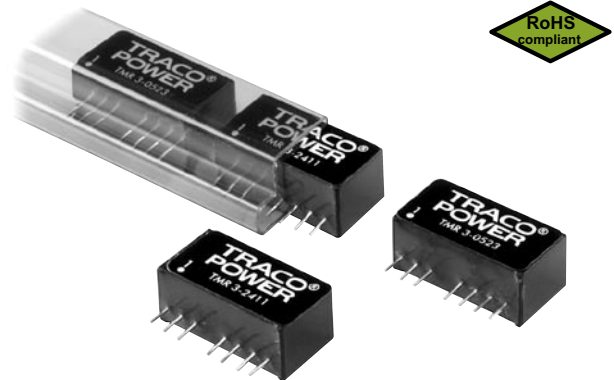


Features

- ◆ Wide 2:1 Input Voltage Range
- ◆ Ultra-compact SIP-8 Package
- ◆ Small Footprint
- ◆ Full SMD Design
- ◆ Temperature Range -40° to $+70^{\circ}\text{C}$
- ◆ High Efficiency
- ◆ Excellent Load and Line Regulation
- ◆ Indefinite Short-circuit Protection
- ◆ I/O-Isolation 1500 VDC
- ◆ Remote On/Off Control
- ◆ Fully RoHS compliant
- ◆ 3 Year Product Warranty



The TMR-3 series is a new family of isolated 3W dc-dc converter modules with regulated output, featuring wide 2:1 input voltage ranges. The product comes in a 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 at full load. 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 3-0510	4.5 – 9.0 VDC (5 VDC nominal)	3.3 VDC	700 mA	73 %
TMR 3-0511		5 VDC	600 mA	77 %
TMR 3-0512		12 VDC	250 mA	79 %
TMR 3-0513		15 VDC	200 mA	80 %
TMR 3-0521		± 5 VDC	± 300 mA	77 %
TMR 3-0522		± 12 VDC	± 125 mA	79 %
TMR 3-0523		± 15 VDC	± 100 mA	80 %
TMR 3-1210	9 – 18 VDC (12 VDC nominal)	3.3 VDC	700 mA	74 %
TMR 3-1211		5 VDC	600 mA	78 %
TMR 3-1212		12 VDC	250 mA	80 %
TMR 3-1213		15 VDC	200 mA	81 %
TMR 3-1221		± 5 VDC	± 300 mA	80 %
TMR 3-1222		± 12 VDC	± 125 mA	81 %
TMR 3-1223		± 15 VDC	± 100 mA	81 %
TMR 3-2410	18 – 36 VDC (24 VDC nominal)	3.3 VDC	700 mA	74 %
TMR 3-2411		5 VDC	600 mA	78 %
TMR 3-2412		12 VDC	250 mA	80 %
TMR 3-2413		15 VDC	200 mA	81 %
TMR 3-2421		± 5 VDC	± 300 mA	80 %
TMR 3-2422		± 12 VDC	± 125 mA	81 %
TMR 3-2423		± 15 VDC	± 100 mA	81 %
TMR 3-4810	36 – 75 VDC (48 VDC nominal)	3.3 VDC	700 mA	74 %
TMR 3-4811		5 VDC	600 mA	78 %
TMR 3-4812		12 VDC	250 mA	80 %
TMR 3-4813		15 VDC	200 mA	81 %
TMR 3-4821		± 5 VDC	± 300 mA	80 %
TMR 3-4822		± 12 VDC	± 125 mA	81 %
TMR 3-4823		± 15 VDC	± 100 mA	81 %

Input Specifications

Input current at full load (nominal input voltage)	4.5–9 Vin models: 820 mA max. 9–18 Vin models: 330 mA max. 18–36 Vin models: 170 mA max. 36–75 Vin models: 85 mA max.
Surge voltage (100 msec. max.)	4.5–9 Vin models: 15 V max. 9–18 Vin models: 36 V max. 18–36 Vin models: 50 V max. 36–75 Vin models: 100 V max.
Input voltage variation (dv/dt)	5 V/ms, max. (complies with ETS300 132 part 4.4)
Input filter	capacitor type
Start up time	< 1ms at nominal input and resistive load

Output Specifications

Voltage set accuracy	± 1 % max
Regulation	– Input variation Vin min. to Vin max. 0.2 % max. – Load variation 25 – 100 %: single output models: 0.5 % max. dual output models: 1.0 % max. balanced load 5.0 % max. unbalanced load 25/100%
Ripple and noise (20 MHz Bandwidth)	75 mVpk-pk max.
Start up time	– Power On 1 ms typ. (constant resistive load) – Remote On 1 ms max.
Transient response setting time (25% load step change)	300 µs typ
Temperature coefficient	± 0.1 %/°C
Short circuit protection	continuous, automatic recovery
Minimum load	25% of rated max current (operation at lower load condition is safe but a higher output ripple will be experienced)
Capacitive load	3.3 VDC / 5 VDC output models: 1'760 µF max. / 1'000 µF max. 12 VDC / 15 VDC output models: 170 µF max. / 110 µF max. ±5 VDC / ±15 VDC output models: ± 470 µF max. / ± 100 µF max. ±15 VDC output models: ± 47 µF max.

General Specifications

Temperature ranges	– Operating – 40 °C ... + 70 °C (no derating) – Case temperature +100 °C max. – Storage – 55 °C ... + 125 °C
Load derating	3.5 %/K above 70°C
Humidity (non condensing)	95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217F ground benign)	>2.4 Mio h @ 25°C
Isolation voltage (60 sec)	– Input/Output 1'500 VDC
Isolation capacity	– Input/Output 1000 pF max.
Isolation resistance	– Input/Output (500 VDC) >10 G Ohm
Switching frequency	100 kHz (PWM)
Remote On/Off	– On: open or high impedance – Off: 4...8mA input current applied via 1KW resistor – Off stand by input current 1mA max.

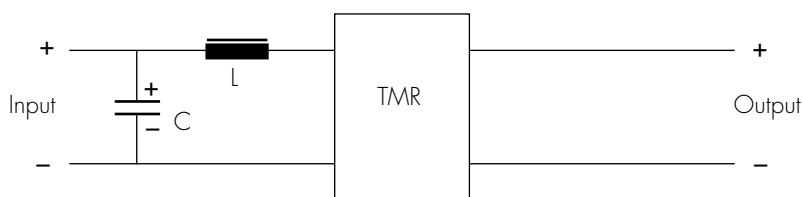
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

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

EMC Characteristics

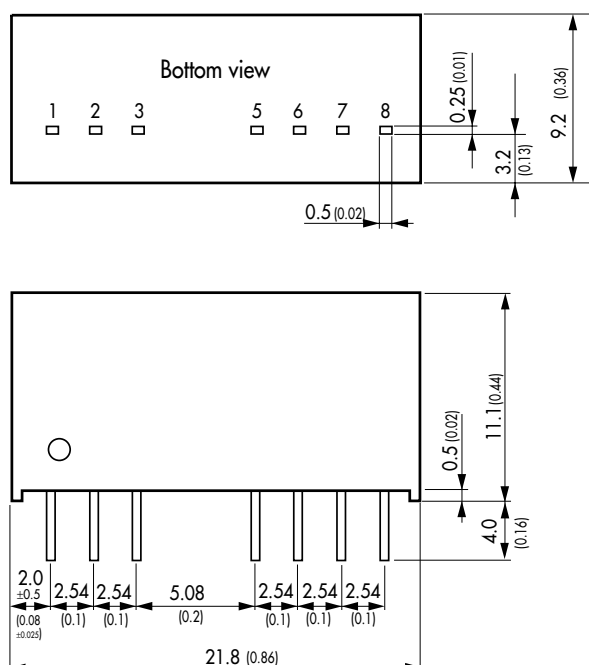
Use an electrolytic low ESR capacitor at input side to reduce reflected ripple current.
In order to meet EN55022 class B additionally use a choke to build an L/C filter as follows:



Recommended values for filter:

Input	C	L
5VDC	100 μ F	10 μ H
12VDC	100 μ F	10 μ H
24VDC	10 μ F	120 μ H
48VDC	10 μ F	120 μ H

Outline Dimensions mm (inches)



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

Specifications can be changed any time without notice