

TRACO POWER®

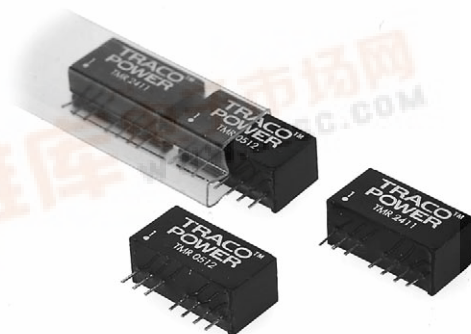
DC/DC Converters

TMR Series, 2 Watt



Features

- ◆ 2 Watt in SIL Package
- ◆ Regulated Output
- ◆ Wide 2 : 1 Input Range
- ◆ No external Capacitors needed
- ◆ Low Ripple and Noise
- ◆ Indefinite Short-Circuit Protection
- ◆ External On/Off - Control
- ◆ Lead free Design, RoHS compliant
- ◆ 3 Year Product Warranty



The TMR series is a range of miniature regulated 2 Watt DC/DC- converters in a SIL- package. Requiring only 2cm² board space they provide a state of art functionality. Wide 2:1 Input voltage range, 1000 VDC isolation voltage, external on/off control and a temperature range of -40°C – 75°C with no derating makes this converter suitable for many applications in telecommunication, control units and industrial equipments.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TMR 0510	4.5 – 9.0 VDC	3.3 VDC	500 mA	64 %
TMR 0511		5 VDC	400 mA	66 %
TMR 0512		12 VDC	167 mA	71 %
TMR 0521		±5 VDC	±200 mA	64 %
TMR 0522		±12 VDC	±83 mA	69 %
TMR 0523		±15 VDC	±67 mA	71 %
TMR 1210	9 – 18 VDC	3.3 VDC	500 mA	70 %
TMR 1211		5 VDC	400 mA	73 %
TMR 1212		12 VDC	167 mA	80 %
TMR 1221		±5 VDC	±200 mA	73 %
TMR 1222		±12 VDC	±83 mA	78 %
TMR 1223		±15 VDC	±67 mA	78 %
TMR 2410	18 – 36 VDC	3.3 VDC	500 mA	71 %
TMR 2411		5 VDC	400 mA	74 %
TMR 2412		12 VDC	167 mA	81 %
TMR 2421		±5 VDC	±200 mA	74 %
TMR 2422		±12 VDC	±83 mA	78 %
TMR 2423		±15 VDC	±67 mA	80 %
TMR 4810	36 – 75 VDC	3.3 VDC	500 mA	70 %
TMR 4811		5 VDC	400 mA	73 %
TMR 4812		12 VDC	167 mA	79 %
TMR 4821		±5 VDC	±200 mA	71 %
TMR 4822		±12 VDC	±83 mA	77 %
TMR 4823		±15 VDC	±67 mA	77 %

Input Specifications

Input current at full load (nominal input)	5 Vin models: 667 mA max. 12 Vin models: 242 mA max. 24 Vin models: 119 mA max. 48 Vin models: 62 mA max.
Surge voltage (100 msec. max.)	5 Vin models: 15 V max. 12 Vin models: 25 V max. 24 Vin models: 50 V max. 48 Vin models: 100 V max.
Input Filter	capacitor type
Start up time	< 1ms (at nominal input and resistive load)

Output Specifications

Voltage set accuracy	± 2 %
Regulation	– Input variation Vin min. to Vin max. ± 0.5 % max. – Load variation 25 – 100 %: ± 0.75 % max. for single output models ± 1.0% max. for dual output models
Ripple and noise (20 MHz Bandwidth)	50 mVpk-pk max
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: 2'200 µF max. / 1'000 µF max. 12 VDC / ±5 VDC output models: 70 µF max. / ±470 µF max. ±12 VDC / ±15 VDC output models: 100 µF max. / ± 47 µF max.

General Specifications

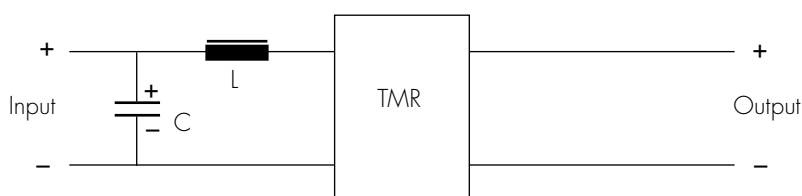
Temperature ranges	– Operating – 40 °C ... + 75 °C (no derating) – Storage – 55 °C ... + 105 °C
Humidity (non condensing)	95 % rel. H max.
Reliability, calculated MTBF (MIL-HDBK-217 F)	> 2.3 Mio h @ 25°C
Isolation voltage	– Input/Output 1'000 VDC
Isolation capacity	– Input/Output 300 pF max.
Isolation resistance	– Input/Output (500 VDC) > 1'000 M Ohm
Switching frequency	100 to 650 kHz (PFM)
Remote On/Off	ON: open or high impedance OFF: 3...6mA input current applied via 1KW resistor OFF stand by input current max 1mA

Physical Specifications

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

EMC Characteristics

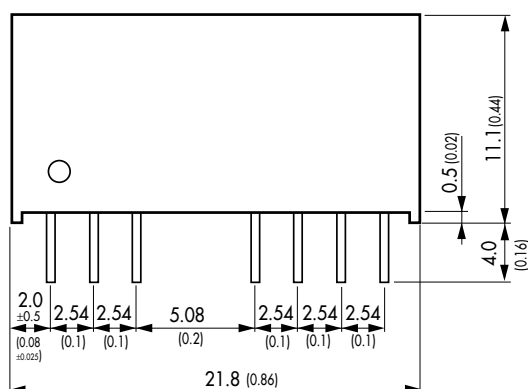
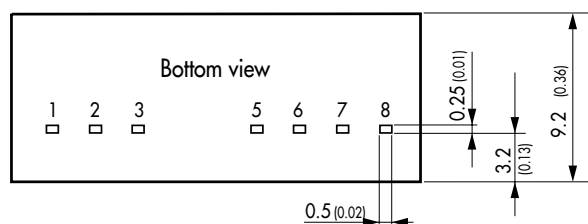
- Use an electrolytic low ESR capacitor at input side to reduce reflected ripple current.
- In order to meet EN55022 class B additionally use a choke to build an L/C filter as follows:



Recommended values for filter:

Input	C	L
5VDC	100µF	10µH
12VDC	100µF	10µH
24VDC	10µF	120µH
48VDC	10µF	120µH

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 without notice