

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
- 2 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 – 85°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 TMR 0511 TMR 0512	4.5 – 9.0 VDC	3.3 VDC	500 mA	64 %
		5 VDC	400 mA	66 %
		12 VDC	167 mA	71 %
TMR 1210 TMR 1211 TMR 1212	9 – 18 VDC	3.3 VDC	500 mA	70 %
		5 VDC	400 mA	73 %
		12 VDC	167 mA	80 %
TMR 2410 TMR 2411 TMR 2412	18 – 36 VDC	3.3 VDC	500 mA	71 %
		5 VDC	400 mA	74 %
		12 VDC	167 mA	81 %
TMR 4810 TMR 4811 TMR 4812	36 – 75 VDC	3.3 VDC	500 mA	70 %
		5 VDC	400 mA	73 %
		12 VDC	167 mA	79 %

Input Specifications

Input current at full load (nominal input)	5 Vin models:	930 mA typ.
	12 Vin models:	420 mA typ.
	24 Vin models:	205 mA typ.
	48 Vin models:	100 mA typ.
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.
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 output models:	2'200 µF max.
	5 VDC output models:	1'000 µF max.
	12 VDC output models:	170 µF max.

General Specifications

Temperature ranges	– Operating	– 40 °C ... + 85 °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 1KΩ resistor
	OFF stand by input current	max 1mA

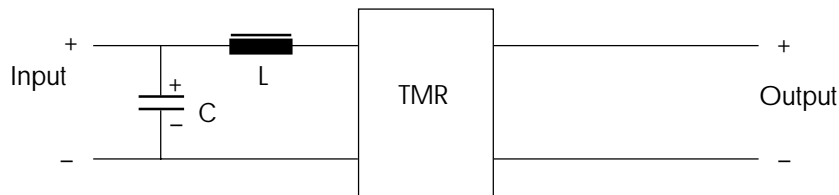
Physical Specifications

Case material	Non-conductive plastic
Potting material	Epoxy, flammability to UL94V-0
Weight	4.8g (0.17oz)

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

EMC Characteristics

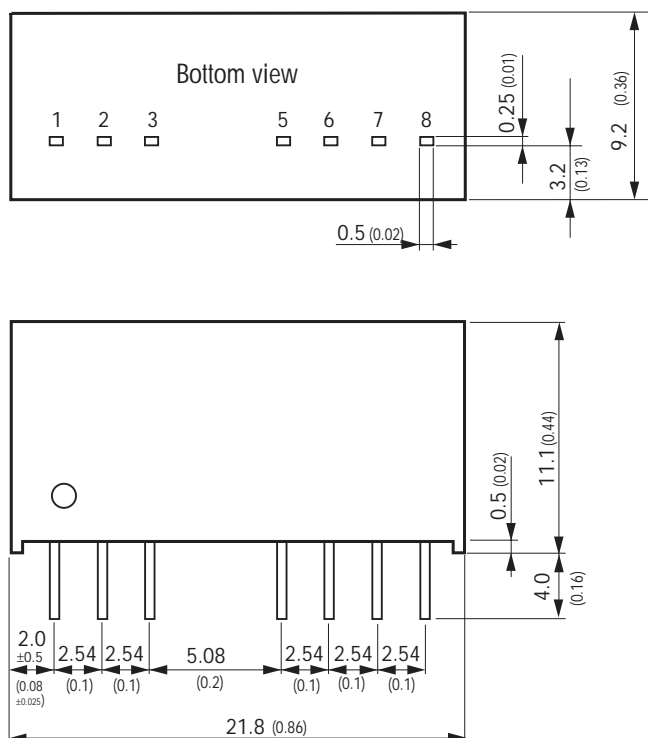
- Use an electrolytic low ESR capacitor at input side to reduce reflected ripple current.
- In order to meet EN55022 class B additionally use a choke to build an L/C filter as follows:



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
1	-Vin (GND)
2	+Vin (Vcc)
3	Remote ON/OFF
5	No function
6	+Vout
7	-Vout
8	No function

Specifications can be changed without notice