

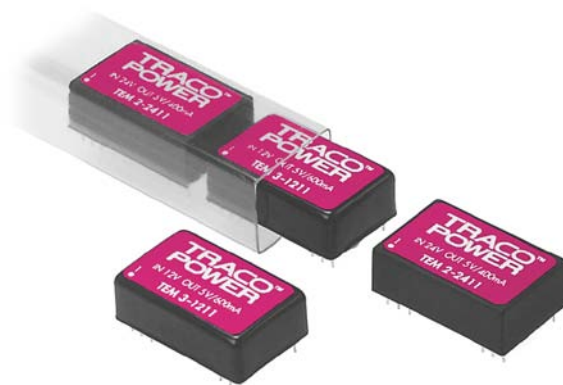
Features

- ◆ DIL-24 plastic package
- ◆ Tightly regulated output
- ◆ Very low output noise
- ◆ Short circuit protection
- ◆ Operating temperature range -25°C to $+70^{\circ}\text{C}$
- ◆ I/O isolation 1'000 VDC
- ◆ Internal filter
- ◆ Industry standard pinout
- ◆ 3-year product warranty

not recommended for new design in



UL 60950-1



The TEM 2 series is a family of isolated dc/dc converters in a DIP-24 package. They offer tight line/load regulation and 1000 VDC I/O isolation. Standard features include an internal filter to reduce reflected input ripple current and to guarantee low output noise. This product series provides a cost effective solution by many industrial or consumer electronics applications.

Models				
Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEM 2-0511	5 VDC $\pm 10\%$	5 VDC	400 mA	50 %
TEM 2-0512		12 VDC	165 mA	54 %
TEM 2-0521		± 12 VDC	± 80 mA	53 %
TEM 2-0522		± 15 VDC	± 65 mA	51 %
TEM 2-1211	12 VDC $\pm 10\%$	5 VDC	400 mA	50 %
TEM 2-1212		12 VDC	165 mA	56 %
TEM 2-1221		± 12 VDC	± 80 mA	59 %
TEM 2-1222		± 15 VDC	± 65 mA	59 %
TEM 2-2411	24 VDC $\pm 10\%$	5 VDC	400 mA	51 %
TEM 2-2412		12 VDC	165 mA	61 %
TEM 2-2421		± 12 VDC	± 80 mA	61 %
TEM 2-2422		± 15 VDC	± 65 mA	61 %

Input Specifications

Input current no load	5 Vin models:	80 mA typ.
	12 Vin models:	40 mA typ.
	24 Vin models:	20 mA typ.
Surge voltage (1 sec. max.)	5 Vin models:	7.5 V max.
	12 Vin models:	15 V max.
	24 Vin models:	30 V max.
Input filter	Pi-Filter	

Output Specifications

Voltage set accuracy	±3 %	
Regulation	– Input variation Vin min. to Vin max.	±0.3 % max.
	– Load variation 10 – 100 %	
	single output models:	±0.5 % max.
	dual output models balanced load:	±1.0 % max.
	dual output models unbalanced load:	±3.0 % max.
Ripple and noise (20 MHz Bandwidth)	50 mVpk-pk max	
Temperature coefficient	±0.02 %/K	
Current limitation	>120 % of Iout max., constant current	
Short circuit protection	indefinite	
Capacitive load	single output models:	470 µF max.
	dual output models:	220 µF max.

General Specifications

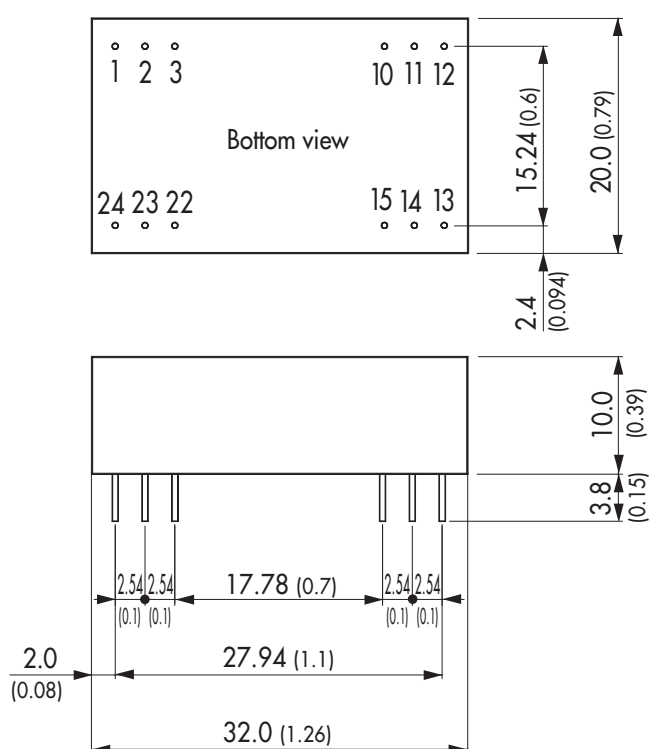
Temperature ranges	– Operating	–25°C to +70°C
	– Case temperature	5 VDC output models: –25°C to +60°C
	– Storage	+95°C max. –40°C to +125°C
Derating	3 %/K above +70°C	
Humidity (non condensing)	95 % rel H max.	
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	>800'000 Mio. h	
Isolation voltage (60 sec.)	– Input/Output	1'000 VDC
Isolation capacitance	– Input/Output	100 pF typ.
Isolation resistance	– Input/Output (500 VDC)	>1'000 M Ohm
Switching frequency	80 kHz typ. (Pulse frequency modulation PFM)	
Safety standards	cUL/UL 60950-1, IEC/EN 60950-1	
Safety approval	CSA File No. 226037 http://directories.csa-international.org	
Environmental compliance	– Reach	www.tracopower.com/products/tem2-reach.pdf directive 2011/65/EU
	– RoHS	

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 (UL94V-0 rated)
Weight	12 g (0.42 oz)
Soldering temperature	max. 260°C / 10 sec.

Outline Dimensions mm (inches)



Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	ntd.	-Vout
3	ntc.	Common
10	-Vout	Common
11	+Vout	+Vout
12	-Vin (GND)	-Vin (GND)
13	-Vin (GND)	-Vin (GND)
14	+Vout	+Vout
15	-Vout	Common
22	ntc.	Common
23	ntc.	-Vout
24	+Vin (Vcc)	+Vin (Vcc)

ntc. = not to connect

Pin diameter $\varnothing 0.5 \pm 0.05$ (0.02) ± 0.002
Tolerances ± 0.5 (± 0.02)

Specifications can be changed any time without notice.