



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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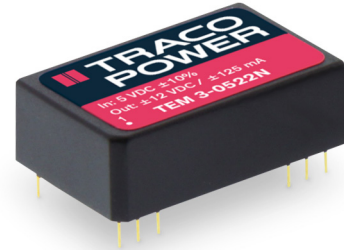
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Features

- ◆ Cost optimized design in DIP-24 package
- ◆ Fully regulated output
- ◆ Output ripple & noise 30 mVp-p typ.
- ◆ Short circuit protection
- ◆ Operating temperature range -40°C to $+75^{\circ}\text{C}$ at full load
- ◆ I/O isolation 1'500 VDC
- ◆ Input filter meet EN 55022, class A
- ◆ No minimum load required
- ◆ Industry standard pinout
- ◆ 3-year product warranty



The TEM 3N series is a range of isolated dc/dc converters in a DIP-24 package. They offer tight output regulation and very low output noise. Operating temperature range is -40°C to $+85^{\circ}\text{C}$. This product series provides a cost effective solution for many industrial or consumer electronics applications.

Models				
Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEM 3-0511N	5 VDC $\pm 10\%$	5 VDC	600 mA	70 %
TEM 3-0512N		12 VDC	250 mA	78 %
TEM 3-0513N		15 VDC	200 mA	78 %
TEM 3-0522N		± 12 VDC	± 125 mA	78 %
TEM 3-0523N		± 15 VDC	± 100 mA	78 %
TEM 3-1211N	12 VDC $\pm 10\%$	5 VDC	600 mA	74 %
TEM 3-1212N		12 VDC	250 mA	80 %
TEM 3-1213N		15 VDC	200 mA	80 %
TEM 3-1222N		± 12 VDC	± 125 mA	81 %
TEM 3-1223N		± 15 VDC	± 100 mA	82 %
TEM 3-2411N	24 VDC $\pm 10\%$	5 VDC	600 mA	75 %
TEM 3-2412N		12 VDC	250 mA	80 %
TEM 3-2413N		15 VDC	200 mA	80 %
TEM 3-2422N		± 12 VDC	± 125 mA	81 %
TEM 3-2423N		± 15 VDC	± 100 mA	82 %

Input Specifications

Input current no load / full load	5 Vin models:	90 mA / 800 mA typ.
	12 Vin models:	45 mA / 320 mA typ.
	24 Vin models:	22 mA / 160 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.

Output Specifications

Voltage set accuracy		±2 %
Regulation	– Input variation Vin min. to Vin max.	±0.5 % max.
	– Load variation 10 – 100 %	
	single output models:	±0.5 % max.
	dual output models balanced load:	±3.0 % max.
Ripple and noise (20 MHz Bandwidth)		60 mVp-p max. (30 mVp-p typ.)
Temperature coefficient		±0.02 %/K
Current limitation		>120 % of Iout max., constant current
Short circuit protection		continuous, automatic recovery
Capacitive load	5 VDC models:	470 µF max.
	other models:	100 µF max.

General Specifications

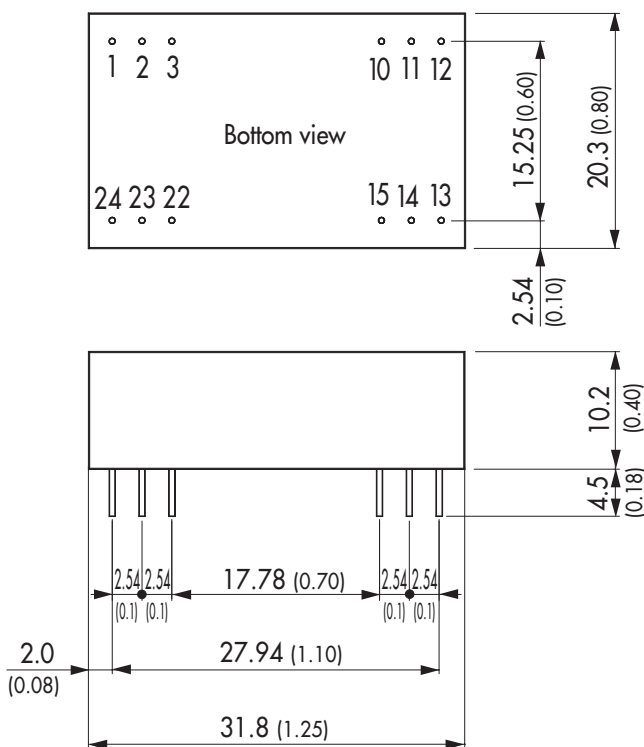
Temperature ranges	– Operating	–40°C to +85°C
	– Case	+95°C max.
	– Storage	–50°C to +125°C
Derating		5 %/K above +75°C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		>700'000 h
Isolation voltage (60 sec.)	– Input/Output	1'500 VDC
Isolation capacitance	– Input/Output	300 pF typ.
Isolation resistance	– Input/Output (500 VDC)	>1'000 M Ohm
Switching frequency		300 kHz typ. (Pulse frequency modulation PFM)
Safety standards		CAN/CSA-C22.2 No 60950-1-07, 2nd ed; A1:2011 ANSI/UL No. 60950-1, 2nd ed.; A1:2011 IEC 60950-1:2005 (2nd edition); A1:2009 EN 60950-1:2006/A11:2009/A1:2010/12:2011 www.tracopower.com/overview/tem3n
	– Certification documents	
Environmental compliance	– Reach	www.tracopower.com/info/reach-declaration.pdf
	– RoHS	RoHS directive 2011/65/EU

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 black plastic (UL 94V-0)
Weight	12.4 g (0.43 oz)
Soldering temperature	max. 260°C / 10 sec.

Outline Dimensions mm (inches)



Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	ntc.	-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 without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com