



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!



Contact us

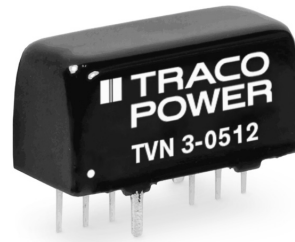
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- Ultra low ripple and noise 10 mVp-p typ.
- Compact SIP-8 package
- Fully regulated outputs
- Input Voltage range
4.5-13.2, 9-18, 18-36, 36-75 VDC
- I/O-isolation 1'600 VDC
- Operating temperature range
-40°C to +90°C
- Short circuit protection
- No minimum load required
- 3-year product warranty



The TVN 3 Series comprises ultra low ripple and noise 3 Watt DC/DC converters. They come in a compact SIP-8 package with fully regulated outputs. Apart from the standard 2:1 input voltage range, the low input voltage models feature an extended input voltage range from 4.5-13.2 VDC (3:1). Full load operation is reliable up to 75°C environment temperature without derating and up to 90°C with 50% derating. With 1'600 VDC I/O-isolation voltage, and short current protection they cover a wide range of applications when space is limited.

Models				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TVN 3-0910	4.5 – 13.2 VDC (9 VDC nominal)	3.3 VDC	700 mA	75 %
TVN 3-0911		5.0 VDC	600 mA	79 %
TVN 3-0919		9.0 VDC	333 mA	80 %
TVN 3-0912		12 VDC	250 mA	83 %
TVN 3-0913		15 VDC	200 mA	83 %
TVN 3-0915		24 VDC	125 mA	82 %
TVN 3-0921		± 5.0 VDC	±300 mA	78 %
TVN 3-0922		±12 VDC	±125 mA	82 %
TVN 3-0923		±15 VDC	±100 mA	81 %
TVN 3-1210		9 – 18 VDC (12 VDC nominal)	3.3 VDC	700 mA
TVN 3-1211	5.0 VDC		600 mA	81 %
TVN 3-1219	9.0 VDC		333 mA	80 %
TVN 3-1212	12 VDC		250 mA	85 %
TVN 3-1213	15 VDC		200 mA	84 %
TVN 3-1215	24 VDC		125 mA	84 %
TVN 3-1221	± 5.0 VDC		±300 mA	82 %
TVN 3-1222	±12 VDC		±125 mA	84 %
TVN 3-1223	±15 VDC		±100 mA	83 %
TVN 3-2410	18 – 36 VDC (24 VDC nominal)		3.3 VDC	700 mA
TVN 3-2411		5.0 VDC	600 mA	82 %
TVN 3-2419		9.0 VDC	333 mA	82 %
TVN 3-2412		12 VDC	250 mA	85 %
TVN 3-2413		15 VDC	200 mA	85 %
TVN 3-2415		24 VDC	125 mA	84 %
TVN 3-2421		± 5.0 VDC	±300 mA	80 %
TVN 3-2422		±12 VDC	±125 mA	84 %
TVN 3-2423		±15 VDC	±100 mA	85 %
TVN 3-4810		36 – 75 VDC (48 VDC nominal)	3.3 VDC	700 mA
TVN 3-4811	5.0 VDC		600 mA	80 %
TVN 3-4819	9.0 VDC		333 mA	80 %
TVN 3-4812	12 VDC		250 mA	84 %
TVN 3-4813	15 VDC		200 mA	84 %
TVN 3-4815	24 VDC		125 mA	84 %
TVN 3-4821	± 5.0 VDC		±300 mA	79 %
TVN 3-4822	±12 VDC		±125 mA	84 %
TVN 3-4823	±15 VDC		±100 mA	83 %

Input Specifications

Input current no load		9 Vin models: 55 mA typ. 12 Vin models: 30 mA typ. 24 Vin models: 16 mA typ. 48 Vin models: 12 mA typ.
Start-up voltage		9 Vin models: < 4.5 VDC 12 Vin models: < 9 VDC 24 Vin models: < 18 VDC 48 Vin models: < 36 VDC
Undervoltage shutdown		9 Vin models: 3.5 VDC typ. 12 Vin models: 7 V typ. 24 Vin models: 15 V typ. 48 Vin models: 33 V typ.
Surge voltage (1 s max.)		9 Vin models: 15 V max. 12 Vin models: 25 V max. 24 Vin models: 50 V max. 48 Vin models: 100 V max.
Conducted noise	– Conducted input emission	EN 55032 class A or B with external components
EMC immunity	– ESD (electrostatic discharge) – Radiated immunity – Fast transient / surge (with external input capacitor) – Conducted immunity – Magnetic field immunity	EN 61000-4-2, air ± 8 kV, contact ± 6 kV, perf. criteria A EN 61000-4-3, 10 V/m, perf. criteria A EN 61000-4-4, ± 2 kV, perf. criteria A EN 61000-4-5, ± 1 kV perf. criteria A Nippon chemi-con KY 220 μ F / 100 V EN 61000-4-6, 10 Vrms, perf. criteria A EN 61000-4-8 100 A/m, continuous, perf. criteria A 1000 A/m, 1 sec., perf. criteria A
Input filter		capacitor type

Output Specifications

Voltage set accuracy		± 1 % max.
Regulation	– Input variation – Load variation 0 – 100 % – Cross regulation - dual output	0.2 % max. 1 % max. 5 % max. (asymmetrical load 25 % / 100 %)
Temperature coefficient		± 0.02 %/K typ.
Ripple and noise (20 MHz Bandwidth)	– Without external components – With a 10 μ F capacitor on each output	15 mVp-p typ. 10 mVp-p typ.
Start-up time		30 ms typ.
Transient response (25% load step change)		500 μ s typ.
Short circuit protection		continuous, automatic recovery
Capacitive load	– Single output – Dual output	3.3 VDC models: 4'400 μ F max. 5.0 VDC models: 2'200 μ F max. 9.0 VDC models: 1'300 μ F max. 12 VDC models: 1'000 μ F max. 15 VDC models: 820 μ F max. 24 VDC models: 470 μ F max. ± 5.0 VDC models: 1'200 μ F max. (each output) ± 12 VDC models: 520 μ F max. (each output) +15 VDC models: 440 μ F max. (each output)

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

General Specifications

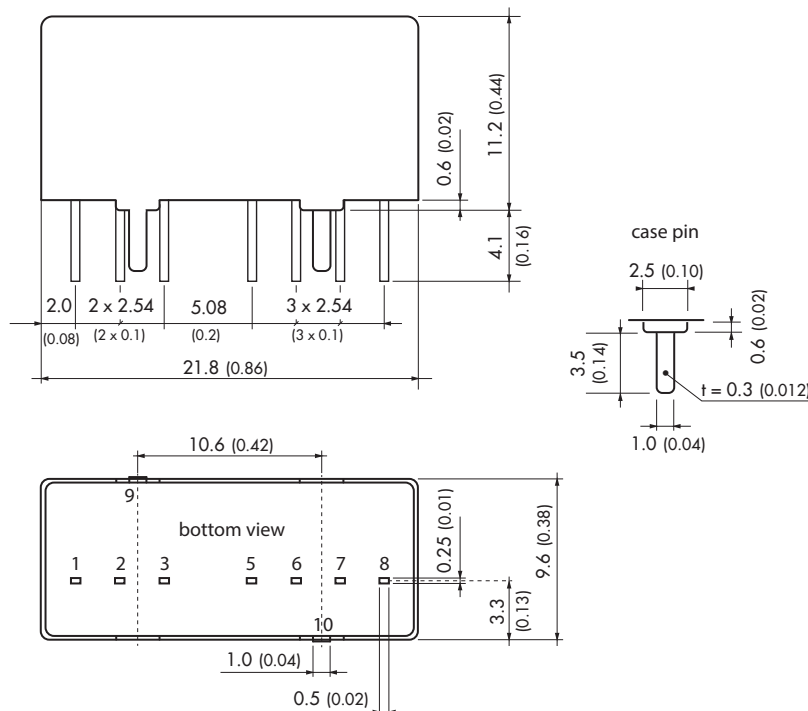
Temperature ranges	<ul style="list-style-type: none"> – Operating (natural convection: 20 LFM, 0.1m/s) – Case temperature – Storage temperature 	–40°C to +90°C +105°C max. –55°C to +125°C
Derating		3.3%/K above 75°C
Humidity (non condensing)		5 – 95 % rel H max.
Isolation voltage	<ul style="list-style-type: none"> – I/O isolation voltage (60 sec.) – Input/Case isolation voltage (60 sec.) 	1'600 VDC 1'000 VDC
Isolation capacitance		1'500 pF max.
Isolation resistance (@ 500 VDC)		>1 GOhm
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)		5'600'000 h
Switching frequency		100 kHz min. Pulse frequency modulation.
Thermal shock & vibration		MIL-STD-810F
Remote On/Off	<ul style="list-style-type: none"> – On – Off – Off idle current 	open circuit or high impedance 2 - 4 mA current applied via 1kOhm resistor 2.5 mA max.
Safety standards	– Information technology	IEC/EN 60950-1, UL 60950-1
Environmental compliance	<ul style="list-style-type: none"> – Reach – RoHS 	www.tracopower.com/products/reach-declaration.pdf RoHS directive 2011/65/EU

Physical Specifications

Casing material	copper
Potting material	silicone (UL 94V-0 rated)
Package weight	5.9 g (0.21 oz)

Supporting Documents: www.tracopower.com/overview/tvn3

Outline Dimensions



Pin-Out		
Pin	Single	Dual
1	–Vin (GND)	–Vin (GND)
2	+Vin (Vcc)	+Vin (Vcc)
3	On/Off	On/Off
5	NC	NC
6	+Vout	+Vout
7	–Vout	Common
8	NC	–Vout
9/10	Case	Case

Dimensions in [mm], () = Inch

Tolerances: x.x ±0.5 (±0.02)

x.xx ±0.25 (±0.01)

Pin pitch tolerances ±0.25 (±0.01)

Pin dimension tolerance ±0.1 (±0.004)