



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

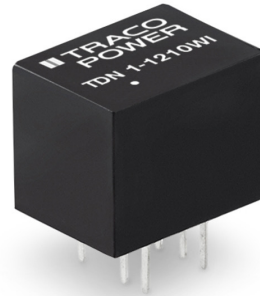
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- Compact DIP package  
13,2 × 9,1 × 10,2 mm
- Fully regulated outputs
- I/O-isolation 1'600 VDC
- Operating temperature range  
-40°C to +90°C without derating
- Short circuit protection
- Remote On/Off
- 3-year product warranty
- Designed to meet UL 62368-1  
(UL 60950-1)



The TDN 1WI Series comprises 1 Watt fully regulated, high performance DC/DC converters. They come in a compact cubical package of only 1.23 cm<sup>3</sup>. Full load operation is reliable up to 90°C environment temperature. With 1'600 VDC I/O-isolation voltage, external On/Off, and short current protection they cover a wide range of application when space is limited. The input of the converters is designed for a wide voltage range (4:1) and minimum load is not required. The functional I/O-isolation system is designed to meet IEC/EN 62368-1 with a test voltage (60 s) of 1500 VDC.

Also see:

**TDN 1WISM, SMD version**

[www.tracopower.com/products/tdn1wism.pdf](http://www.tracopower.com/products/tdn1wism.pdf)

Models				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TDN 1-1210WI	4.5 – 18 VDC (12 VDC nominal)	3.3 VDC	300 mA	77 %
TDN 1-1211WI		5.0 VDC	200 mA	79 %
TDN 1-1219WI		9.0 VDC	112 mA	79 %
TDN 1-1212WI		12 VDC	90 mA	81 %
TDN 1-1213WI		15 VDC	70 mA	81 %
TDN 1-1215WI		24 VDC	45 mA	80 %
TDN 1-1221WI		± 5.0 VDC	±100 mA	77 %
TDN 1-1222WI		±12 VDC	±45 mA	80 %
TDN 1-1223WI		±15 VDC	±35 mA	81 %
TDN 1-2410WI	9 – 36 VDC (24 VDC nominal)	3.3 VDC	300 mA	76 %
TDN 1-2411WI		5.0 VDC	200 mA	78 %
TDN 1-2419WI		9.0 VDC	112 mA	79 %
TDN 1-2412WI		12 VDC	90 mA	81 %
TDN 1-2413WI		15 VDC	70 mA	81 %
TDN 1-2415WI		24 VDC	45 mA	80 %
TDN 1-2421WI		± 5.0 VDC	±100 mA	77 %
TDN 1-2422WI		±12 VDC	±45 mA	80 %
TDN 1-2423WI		±15 VDC	±35 mA	81 %
TDN 1-4810WI	18 – 75 VDC (48 VDC nominal)	3.3 VDC	300 mA	75 %
TDN 1-4811WI		5.0 VDC	200 mA	78 %
TDN 1-4819WI		9.0 VDC	112 mA	79 %
TDN 1-4812WI		12 VDC	90 mA	81 %
TDN 1-4813WI		15 VDC	70 mA	81 %
TDN 1-4815WI		24 VDC	45 mA	80 %
TDN 1-4821WI		± 5.0 VDC	±100 mA	77 %
TDN 1-4822WI		±12 VDC	±45 mA	80 %
TDN 1-4823WI		±15 VDC	±35 mA	81 %

## Input Specifications

Input current no load	12 Vin models: 20 mA typ 24 Vin models: 10 mA typ. 48 Vin models: 5 mA typ.
Surge voltage (1 s max.)	12 Vin models: 25 V max. 24 Vin models: 50 V max. 48 Vin models: 100 V max.
Reflected ripple current	12 Vin models: 15 mAp-p typ. 24 Vin models: 10 mAp-p typ. 48 Vin models: 5 mAp-p typ.
Conducted noise – Filter proposal for complying to class A/B	EN 55032 class A or B (with external components) <a href="http://www.tracopower.com/overview/tdn1wi">www.tracopower.com/overview/tdn1wi</a>
ESD (electrostatic discharge)	EN 61000-4-2, air $\pm 8$ kV, contact $\pm 6$ kV, perf. criteria A
Radiated immunity	EN 61000-4-3, 10 V/m, perf. criteria A
Fast transient / surge (with external input capacitor) – External input capacitor	EN 61000-4-4, $\pm 2$ kV, perf. criteria A EN 61000-4-5, $\pm 1$ kV perf. criteria A all models: Nippon chemi-con KY 220 $\mu$ F/100V
Conducted immunity	EN 61000-4-6, 10 Vrms, perf. criteria A
Magnetic field immunity	EN 61000-4-8, 100 A/m continuous, perf. criteria A 1000 A/m 1 second, perf criteria A

## Output Specifications

Voltage set accuracy	$\pm 1$ % 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	$\pm 0.02$ %/K typ.
Ripple and noise (20 MHz Bandwidth)	30 mVp-p typ.
Start up time (constant resistive load) – Power ON – Remote ON	10 ms max. 10 ms max.
Transient response (25% load step change)	500 $\mu$ s typ.
Short circuit protection	continuous, automatic recovery
Capacitive load – Single output – Dual output	3.3 VDC models: 1680 $\mu$ F max. 5.0 VDC models: 820 $\mu$ F max. 9.0 VDC models: 630 $\mu$ F max. 12 VDC models: 470 $\mu$ F max. 15 VDC models: 330 $\mu$ F max. 24 VDC models: 160 $\mu$ F max. $\pm 5.0$ VDC models: 470 $\mu$ F max. (each output) $\pm 12$ VDC models: 330 $\mu$ F max. (each output) $\pm 15$ VDC models: 220 $\mu$ F max. (each output)

## General Specifications

Temperature ranges – Operating (natural convection: 20 LFM, 0.1m/s) – Case temperature – Storage temperature	–40°C to +90°C (without derating) +105°C max. –55°C to +125°C
Derating	6.7%/K above 90°C
Humidity (non condensing)	5 – 95 % rel H max.
Isolation voltage – I/O isolation voltage (60 s)	1'600 VDC
Isolation capacitance	50 pF max.
Isolation resistance (@ 500 VDC)	>1 GOhm

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

### General Specifications

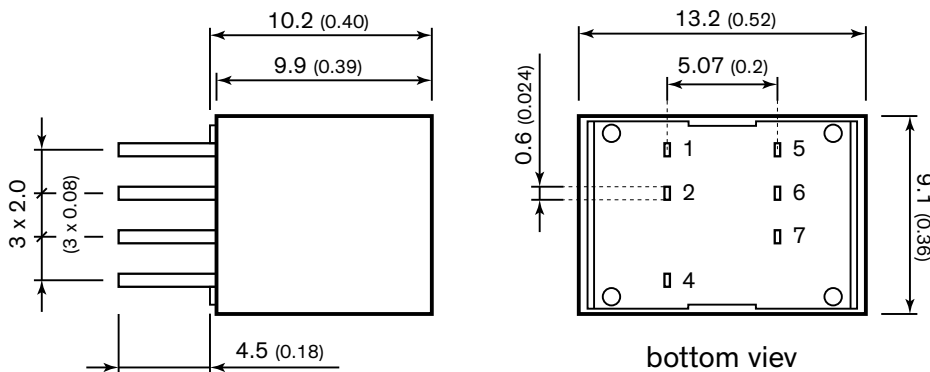
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)	8'400'000 h
Switching frequency	100 kHz min. (pulse frequency modulation)
Thermal shock & vibration	MIL-STD-810F
Remote On/Off	<ul style="list-style-type: none"> <li>- On: open circuit or high impedance</li> <li>- Off: 2 – 4 mA current applied via 1kOhm resistor</li> <li>- Off idle current: 2.5 mA max.</li> </ul>
Safety standards	<ul style="list-style-type: none"> <li>- Designed to meet (no certification) IEC/EN/UL 62368-1, UL 60950-1</li> </ul>
Environmental compliance	<ul style="list-style-type: none"> <li>- Reach <a href="http://www.tracopower.com/products/reach-declaration.pdf">www.tracopower.com/products/reach-declaration.pdf</a></li> <li>- RoHS RoHS directive 2011/65/EU</li> </ul>

### Physical Specifications

Casing material	non-conducting plastic
Potting material	silicone (UL 94V-0 rated)
Package weight	2.7 g (0.10 oz)
Soldering temperature	260°C / 6 s max.

**Supporting Documents:** [www.tracopower.com/overview/tdn1wi](http://www.tracopower.com/overview/tdn1wi)

### Outline Dimensions



Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
4	On/Off	On/Off
5	no con.	-Vout
6	-Vout	Common
7	+Vout	+Vout

Dimensions in [mm], () = Inch

Tolerances: x.x ±0.5 (±0.02)

Pin pitch tolerances ±0.25 (±0.01)

Pin dimension tolerance ±0.1 (±0.004)