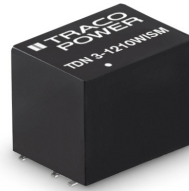


## DC/DC Converter

## TDN 3WISM Series, 3 Watt

- Ultra compact SMD package  
13,2 × 9,1 × 10,2 mm
- I/O-isolation 1'600 VDC
- Fully regulated outputs
- Operating temperature range  
-40°C to +70°C without derating
- Short circuit protection
- Remote On/Off
- 3-year product warranty
- Designed to meet UL 62368-1  
(UL 60950-1)



The TDN 3WISM Series comprises 3 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 70°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 1600 VDC.

Also see:

TDN 3WI, DIP version

Models				
Order code	Input voltage	Output voltage	Output current max.	Efficiency typ.
TDN 3-1210WISM	4.5 – 18 VDC (12 VDC nominal)	3.3 VDC	700 mA	76 %
TDN 3-1211WISM		5.0 VDC	600 mA	80 %
TDN 3-1219WISM		9.0 VDC	333 mA	81 %
TDN 3-1212WISM		12 VDC	250 mA	83 %
TDN 3-1213WISM		15 VDC	200 mA	84 %
TDN 3-1215WISM		24 VDC	125 mA	82 %
TDN 3-1221WISM		± 5.0 VDC	±300 mA	80 %
TDN 3-1222WISM		±12 VDC	±125 mA	82 %
TDN 3-1223WISM		±15 VDC	±100 mA	82 %
TDN 3-2410WISM		9 – 36 VDC (24 VDC nominal)	3.3 VDC	700 mA
TDN 3-2411WISM	5.0 VDC		600 mA	80 %
TDN 3-2419WISM	5.0 VDC		333 mA	81 %
TDN 3-2412WISM	12 VDC		250 mA	83 %
TDN 3-2413WISM	15 VDC		200 mA	83 %
TDN 3-2415WISM	24 VDC		125 mA	82 %
TDN 3-2421WISM	± 5.0 VDC		±300 mA	80 %
TDN 3-2422WISM	±12 VDC		±125 mA	82 %
TDN 3-2423WISM	±15 VDC		±100 mA	82 %
TDN 3-4810WISM	18 – 75 VDC (48 VDC nominal)		3.3 VDC	700 mA
TDN 3-4811WISM		5.0 VDC	600 mA	80 %
TDN 3-4819WISM		9.0 VDC	333 mA	81 %
TDN 3-4812WISM		12 VDC	250 mA	83 %
TDN 3-4813WISM		15 VDC	200 mA	83 %
TDN 3-4815WISM		24 VDC	125 mA	82 %
TDN 3-4821WISM		± 5.0 VDC	±300 mA	80 %
TDN 3-4822WISM		±12 VDC	±125 mA	82 %
TDN 3-4823WISM		±15 VDC	±100 mA	82 %

## Input Specifications

Input current no load	12 Vin models: 40 mA typ 24 Vin models: 25 mA typ. 48 Vin models: 13 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	20 mA <sub>p-p</sub> typ.
Conducted noise	EN 55032 class A or B with external components
ESD (electrostatic discharge)	EN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A
Radiated immunity	EN 61000-4-3, 10 V/m, perf. criteria A
Fast transient / surge (with external input capacitor)	EN 61000-4-4, ±2 kV, perf. criteria A EN 61000-4-5, ±1 kV perf. criteria A all models: Nippon chemi-con KY 220µF/100V
Conducted immunity	EN 61000-4-6, 10 V <sub>rms</sub> , 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
External input fuse required	12 Vin models: 1.6 A (slow blow) 24 Vin models: 0.8 A (slow blow) 48 Vin models: 0.5 A (slow blow)

## Output Specifications

Voltage set accuracy	±1 % max.
Regulation	– Input variation 0.2 % max. – Load variation 0 – 100 % 1 % max. – cross regulation - dual output: 5 % max. (asymmetrical load 25 % / 100 %)
Temperature coefficient	±0.02 %/K typ.
Ripple and noise (20 MHz Bandwidth)	50 mV <sub>p-p</sub> typ.
Start up time	– Power ON 10 ms max. – Remote ON 10 ms max.
Transient response (25% load step change)	500 µs typ.
Short circuit protection	continuous, automatic recovery
Capacitive load	– Single output 3.3 VDC models: 4700 µF max. 5.0 VDC models: 2530 µF max. 9.0 VDC models: 1470 µF max. 12 VDC models: 1220 µF max. 15 VDC models: 1000 µF max. 24 VDC models: 470 µF max. – Dual output ±5.0 VDC models: 1470 µF max. (each output) ±12 VDC models: 680 µF max. (each output) +15 VDC models: 470 µF max. (each output)

## General Specifications

Temperature ranges	– Operating (natural convection: 20 LFM, 0.1m/s) –40°C to +70°C (without derating) – Case temperature +105°C max. – Storage temperature –55°C to +125°C
Derating	2.9%/K above 70°C
Humidity (non condensing)	5 – 95 % rel H max.
Isolation voltage	– I/O isolation voltage (60 s) 1'600 VDC

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

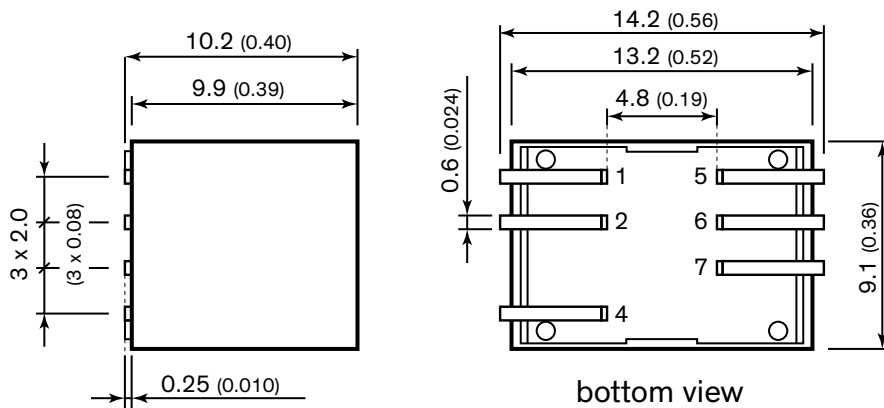
### General Specifications

Isolation capacitance		50 pF max.
Isolation resistance (@ 500 VDC)		>1 Gohm
Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign)		5'627'000 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:</li> <li>- Off:</li> <li>- Off idle current:</li> </ul>	open circuit or high impedance 2 – 4 mA current applied via 1kOhm resistor 2.5 mA max.
Safety standards	- Designed to meet (no certification)	IEC/EN/UL 62368-1, UL 60950-1
Environmental compliance	<ul style="list-style-type: none"> <li>- Reach</li> <li>- RoHS</li> </ul>	RoHS directive 2011/65/EU
Moisture sensitivity level (MSL)		IPC J-STD-033C Level 2

### Physical Specifications

Casing material		non-conducting FR4 (UL 94V-0 rated)
Potting material		silicone (UL 94V-0 rated)
Base material		non-conducting FR4 (UL 94V-0 rated)
Package weight		2.7 g (0.10 oz)
Lead-free reflow solder process		IPC J-STD-020E

### 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)