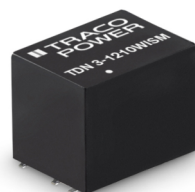


DC/DC Converter

TDN 3WISM Series, 3 Watt

- Ultra compact SMD package
13.2 x 9.1 x 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
- Designed to meet IEC/EN/UL 62368-1
(not certified)
- 3-year product warranty



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 cm³. 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/UL 62368-1 (not certified) with a test voltage (60 s) of 1'600 VDC.

Models						
Order Code	Input Voltage Range	Output 1		Output 2		Efficiency typ.
		Vnom	I _{max}	Vnom	I _{max}	
TDN 3-1210WISM	4.5 - 18 VDC (12 VDC nom.)	3.3 VDC	700 mA			76 %
TDN 3-1211WISM		5 VDC	600 mA			80 %
TDN 3-1219WISM		9 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 VDC	300 mA	-5 VDC	300 mA	80 %
TDN 3-1222WISM		+12 VDC	125 mA	-12 VDC	125 mA	82 %
TDN 3-1223WISM		+15 VDC	100 mA	-15 VDC	100 mA	82 %
TDN 3-2410WISM	9 - 36 VDC (24 VDC nom.)	3.3 VDC	700 mA			77 %
TDN 3-2411WISM		5 VDC	600 mA			80 %
TDN 3-2419WISM		9 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 VDC	300 mA	-5 VDC	300 mA	80 %
TDN 3-2422WISM		+12 VDC	125 mA	-12 VDC	125 mA	82 %
TDN 3-2423WISM		+15 VDC	100 mA	-15 VDC	100 mA	82 %
TDN 3-4810WISM	18 - 75 VDC (48 VDC nom.)	3.3 VDC	700 mA			77 %
TDN 3-4811WISM		5 VDC	600 mA			80 %
TDN 3-4819WISM		9 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 VDC	300 mA	-5 VDC	300 mA	80 %
TDN 3-4822WISM		+12 VDC	125 mA	-12 VDC	125 mA	82 %
TDN 3-4823WISM		+15 VDC	100 mA	-15 VDC	100 mA	82 %

Input Specifications

Input Current	- At no load	12 Vin models: 40 mA typ. 24 Vin models: 24 mA typ. 48 Vin models: 13 mA typ.
Surge Voltage		12 Vin models: 25 VDC max. (1 s max.) 24 Vin models: 50 VDC max. (1 s max.) 48 Vin models: 100 VDC max. (1 s max.)
Reflected Ripple Current		20 mAp-p typ.
Recommended Input Fuse		12 Vin models: 1'600 mA (slow blow) 24 Vin models: 800 mA (slow blow) 48 Vin models: 500 mA (slow blow) (The need of an external fuse has to be assessed in the final application.)
Input Filter		Internal Capacitor

Output Specifications

Voltage Set Accuracy		±1% max.
Regulation	- Input Variation (Vmin - Vmax) - Load Variation (0 - 100%) - Cross Regulation (25% / 100% asym. load)	single output models: 0.2% max. dual output models: 0.2% max. single output models: 1% max. dual output models: 1% max. (Output 1) 1% max. (Output 2) dual output models: 5% max.
Ripple and Noise	- 20 MHz Bandwidth	50 mVp-p typ.
Capacitive Load	- single output - dual output	3.3 Vout models: 4'700 µF max. 5 Vout models: 2'530 µF max. 9 Vout models: 1'470 µF max. 12 Vout models: 1'220 µF max. 15 Vout models: 1'000 µF max. 24 Vout models: 470 µF max. 5 / -5 Vout models: 1'470 / 1'470 µF max. 12 / -12 Vout models: 680 / 680 µF max. 15 / -15 Vout models: 470 / 470 µF max.
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Start-up Time		10 ms typ. / 20 ms max.
Short Circuit Protection		Continuous, Automatic recovery
Transient Response	- Response Time	500 µs typ. (25% Load Step)

Safety Specifications

Standards	- IT / Multimedia Equipment	Designed for IEC/EN/UL 62368-1 (not certified)
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EMC Specifications

EMI (Emissions)	- Conducted Emissions	EN 55032 class A (with external filter) EN 55032 class B (with external filter)
	- Radiated Emissions	EN 55032 class A (with external filter) EN 55032 class B (with external filter)
External filter proposal: www.tracopower.com/overview/tdn3wism		

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

EMS (Immunity)	- Electrostatic Discharge	Air:	EN 61000-4-2, ± 8 kV, perf. criteria A
		Contact:	EN 61000-4-2, ± 6 kV, perf. criteria A
	- RF Electromagnetic Field		EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge		EN 61000-4-4, ± 2 kV, perf. criteria A
			EN 61000-4-5, ± 1 kV, perf. criteria A
		Ext. input component:	KY 220 μ F, 100 V
	- Conducted RF Disturbances		EN 61000-4-6, 10 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 100 A/m, perf. criteria A
		1 s:	EN 61000-4-8, 1000 A/m, perf. criteria A

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-40°C to +70°C (without derating)
	- Case Temperature	+105°C max.
	- Storage Temperature	-55°C to +125°C
Power Derating	- High Temperature	2.86 %/K above 70°C
	See application note:	www.tracopower.com/overview/tdn3wism
Cooling System		Natural convection (20 LFM)
Remote Control	- Current Controlled Remote (passive = on)	On: open circuit
		Off: 2 to 4 mA current (no internal resistor)
		Refers to 'Remote' and '-Vin' Pin
	External circuit proposal:	www.tracopower.com/info/current-remote.pdf
	- Off Idle Input Current	2.5 mA max.
Regulator Topology		RCC Converter
Switching Frequency		100 kHz min. (PFM)
Insulation System		Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s	1'600 VDC
Isolation Resistance	- Input to Output, 500 VDC	1'000 M Ω min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	50 pF max.
Reliability	- Calculated MTBF	5'630'000 h (MIL-HDBK-217F, ground benign)
Moisture Sensitivity (MSL)		Level 2 (J-STD-033C)
Washing Process		According to Cleaning Guideline
		www.tracopower.com/info/cleaning.pdf
Environment	- Vibration	MIL-STD-810F
	- Thermal Shock	MIL-STD-810F
Housing Material		Non-conductive Plastic (UL 94 V-0 rated)
Base Material		Non-conductive Plastic (UL 94 V-0 rated)
Potting Material		Silicone (UL 94 V-0 rated)
Pin Material		Copper
Pin Foundation Plating		Nickel (2 - 3 μ m)
Pin Surface Plating		Tin (3 - 5 μ m), matte
Housing Type		Plastic Case
Mounting Type		PCB Mount
Connection Type		SMD (Surface-Mount Device)
Footprint Type		SMD8
Soldering Profile		Lead-Free Reflow Soldering (acc. J-STD-020E)
		245°C max. (Tp)
		10 s max. (tp, at Tp - 5°C)
		90 s max. (tL, time above 217°C)
	See application note:	www.tracopower.com/info/reflow-soldering.pdf
Weight		2.7 g

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

Environmental Compliance - REACH Declaration

www.tracopower.com/info/reach-declaration.pdf

- RoHS Declaration

REACH SVHC list compliant

REACH Annex XVII compliant

www.tracopower.com/info/rohs-declaration.pdf

Exemptions: 7a, 7c-I

(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)

- SCIP Reference Number

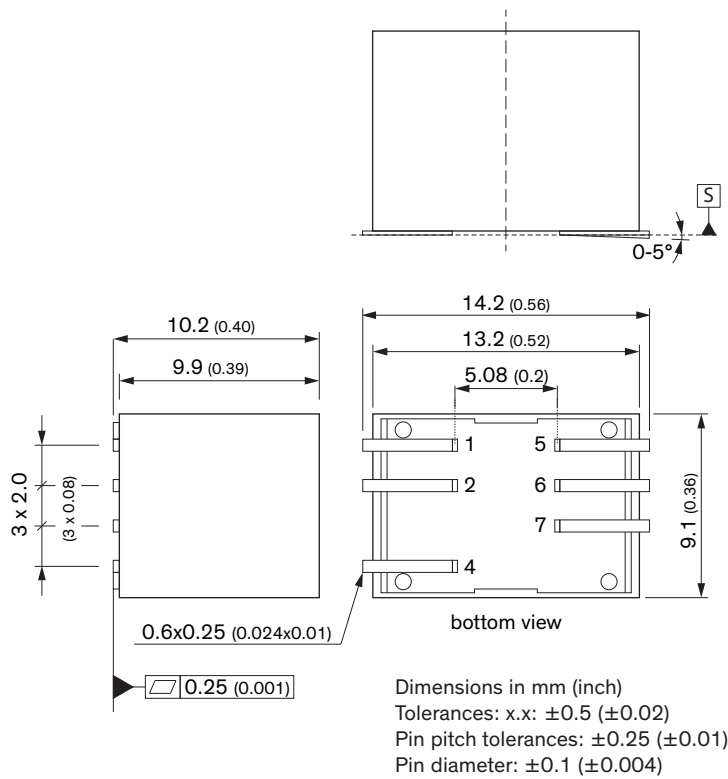
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Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tdn3wism

Outline Dimensions



Pinout		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
4	Remote On/Off	Remote On/Off
5	NC	-Vout
6	-Vout	Common
7	+Vout	+Vout

NC: Not connected

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

Figure 1: Dimensions of the test specimen. The diagram shows a rectangular specimen with various dimensions in mm (inch). The overall width is 16.2 (0.64) mm. The overall height is 10.1 (0.4) mm. The specimen is divided into two main sections by a vertical dashed line. The left section has a width of 3.8 (0.15) mm and contains three rectangular features labeled 5, 6, and 7. The right section has a width of 5.70 (0.244) mm and contains three rectangular features labeled 1, 2, and 4. The distance between the vertical dashed line and the right edge is 2.1 (0.08) mm. The distance between the top and bottom horizontal dashed lines is 6.00 (0.236) mm. The distance between the top and bottom horizontal dashed lines on the right side is 2.00 (0.079) mm. The distance between the top and bottom horizontal dashed lines on the left side is 1.40 (0.055) mm.