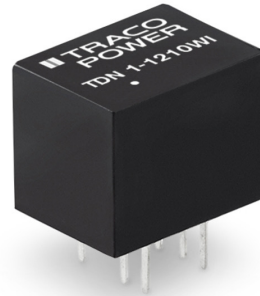


- Compact DIP package
13,2 × 9,1 × 10,2 mm
- Fully regulated outputs
- I/O-isolation 1'600 VDC
- Operating temperature range
-40°C to +90°C without derating
- Short circuit protection
- Remote On/Off
- 3-year product warranty
- Designed to meet UL 62368-1
(UL 60950-1)



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 cm³. 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

| 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) www.tracopower.com/overview/tdn1wi |
| 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) – 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 220 μ 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 | ± 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) | 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 μ s typ. |
| Short circuit protection | continuous, automatic recovery |
| Capacitive load – Single output – Dual output | 3.3 VDC models: 1680 μ F max. 5.0 VDC models: 820 μ F max. 9.0 VDC models: 630 μ F max. 12 VDC models: 470 μ F max. 15 VDC models: 330 μ F max. 24 VDC models: 160 μ F max. ± 5.0 VDC models: 470 μ F max. (each output) ± 12 VDC models: 330 μ F max. (each output) $+15$ VDC models: 220 μ 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

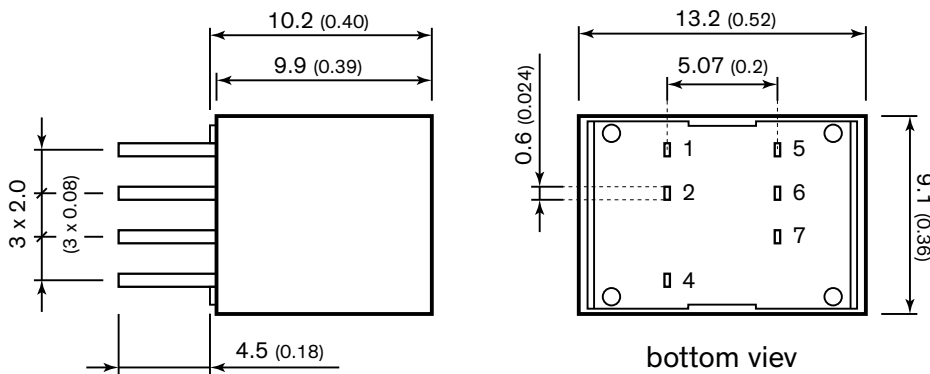
| | |
|--|--|
| Reliability, calculated MTBF (MIL-HDBK-217F at +25°C, ground benign) | 8'400'000 h |
| Switching frequency | 100 kHz min. (pulse frequency modulation) |
| Thermal shock & vibration | MIL-STD-810F |
| Remote On/Off | <ul style="list-style-type: none"> - On: open circuit or high impedance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

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

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)