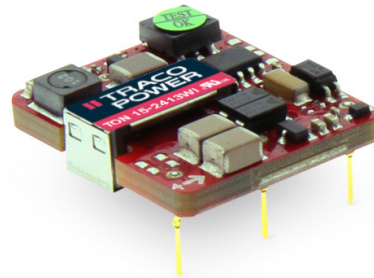


Features

- ◆ Ultra compact 15W converter
- ◆ Ultra wide 4:1 input voltage range
- ◆ Cost efficient open frame design with industry standard pin-out
- ◆ Surface-mount (SM) and through-hole version
- ◆ I/O isolation voltage 2250V, rated for basic insulation
- ◆ Extended operating temperature range -40°C to $+85^{\circ}\text{C}$
- ◆ Remote On/Off
- ◆ Lead free design, RoHS compliant
- ◆ 3-years product warranty



The TON-15WI series is a generation of high performance 15W dc-dc converters with ultra-wide input voltage range and precisely regulated output voltage. The ultra compact open frame design with industry standard pin-out provides the designer now a 50% smaller, cost efficient alternative to existing 10 to 15W converters in the market. Built-in filters for both input and output minimize the need for external filtering.

Further features include remote On/Off, output voltage trimming, over voltage protection and short circuit protection. Typical applications are distributed power systems, instrumentation and industrial electronics, everywhere where space on the PCB is a critical factor.

Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|---------------|--|----------------|---------------------|-----------------|
| TON 15-2410WI | 9 – 36 VDC (24 VDC nominal) | 3.3 VDC | 4'000 mA | 85 % |
| TON 15-2411WI | | 5.0 VDC | 3'000 mA | 87 % |
| TON 15-2412WI | | 12 VDC | 1'300 mA | 86 % |
| TON 15-2413WI | | 15 VDC | 1'000 mA | 86 % |
| TON 15-4810WI | 18 – 75 VDC (48 VDC nominal) | 3.3 VDC | 4'000 mA | 85 % |
| TON 15-4811WI | | 5.0 VDC | 3'000 mA | 87 % |
| TON 15-4812WI | | 12 VDC | 1'300 mA | 86 % |
| TON 15-4813WI | | 15 VDC | 1'000 mA | 86 % |

Add suffix **SM** for surface mount version

Input Specifications

| | |
|--|---|
| Input current at no load | 24 V; 3.3/5 Vout models: 65 mA typ. 24 V; 12/15 Vout models: 10 mA typ. 48 V; 3.3/5 Vout models: 40 mA typ. 48 V; 12/15 Vout models: 15 mA typ. |
| Input current at full load | 24 V; 3.3 Vout models: 680 mA typ. 24 V; other output models: 790 mA typ. 48 V; 3.3 Vout models: 340 mA typ. 48 V; other output models: 390 mA typ. |
| Start-up voltage / under voltage lockout | 24 V models: 9 VDC / 8 VDC 48 V models: 18 VDC / 16 VDC |
| Surge voltage (100 msec. max.) | 24 V models: 50 V max. 48 V models: 100 V max. |
| Input filter | capacitor type (see application note for compliance to EN 55022 class A/B) |
| Radiated immunity | EN 61000-4-3 10 V/m, perf. criteriy A |
| Fast transient / surge | EN 61000-4-4, ± 2 kV, perf. criteria A EN 61000-4-5, ± 1 kV perf. criteria A with external input capacitor e.g. Nippon chemi-con KY 220 μ F, 100 V, ESR 48 mOhm |
| Conducted immunity | EN 61000-4-6, 3 Vrms, perf. criteria A |
| Reflected ripple current | 30 mA _{p-p} typ. |

Output Specifications

| | |
|--|--|
| Voltage set accuracy | ± 1 % |
| Output voltage adjustment | ± 10 % (see application note) |
| Regulation | – Input variation Vin min. to Vin max 0.2 % max. – Load variation 0 – 100 % 0.2 % max. |
| Minimum load | 0 % of rated max. load |
| Temperature coefficient | ± 0.02 %/K |
| Ripple and noise (20 MHz Bandwidth, measured with 1 μ F M/C and 10 μ F TC) | 100 mV _{pk-pk} typ |
| Start up time | – Power On 30 ms typ. (constant resistive load) – Remote On 30 ms typ. |
| Transient response setting time (25% load step chang) | 250 μ s typ. |
| Short circuit protection | indefinite (automatic recovery) |
| Over load protection | at 150 % of lout max., foldback |
| Over voltage protection | 3.3 Vout models: 3.7 – 5.4 Vout 5 Vout models: 5.6 – 7.0 Vout 12 Vout models: 13.8 – 17.5 Vout 15 Vout models: 16.8 – 20.5 Vout |
| Capacitive load | 3.3 Vout & 5.0 Vout models: 1'000 μ F max. 12 Vout models: 330 μ F max. 15 Vout models: 220 μ F max. |

General Specifications

| | |
|---------------------------|---|
| Temperature ranges | – Operating –40°C to +85°C (with derating) – Storage –55°C to +125°C |
| Derating | 6.7 %/K above 75°C |
| Humidity (non condensing) | 5 % to 95 % rel H |

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

General Specifications

| | | |
|--|--|---|
| Thermal shock | | acc. MIL-STD-810F |
| Vibration | | acc. MIL-STD-810F |
| Reliability, calculated MTBF (MIL-HDBK-217F, at 25°C, ground benign) | | >2.4 Mio. h |
| Isolation voltage (60 sec) – Input / Output | | 2'250 VDC (complies with basic insulation rating per EN 60950-1) |
| Isolation resistance – Input / Output | | >1'000 M Ohm |
| Isolation capacitance – Input / Output | | 1500 pF max. |
| Switching frequency (Pulse width modulation PWM) | 3.3 / 5 Vout models: 12 / 15 Vout models: | 350 kHz typ. 400 kHz typ. |
| Remote On/Off | – On: – Off: – Off idle current: | 3.0 to 15 VDC or open circuit. 0 to 1.2 VDC or short circuit pin 6 and pin 2 2.5 mA typ. negative remote On/Off logic on demand |
| Safety approvals | – Certification documents | UL 60950-1, EN 60950-1, IEC 60950-1 www.tracopower.com/overview/ton15wi |
| Environmental compliance | – Reach – RoHS | www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU |

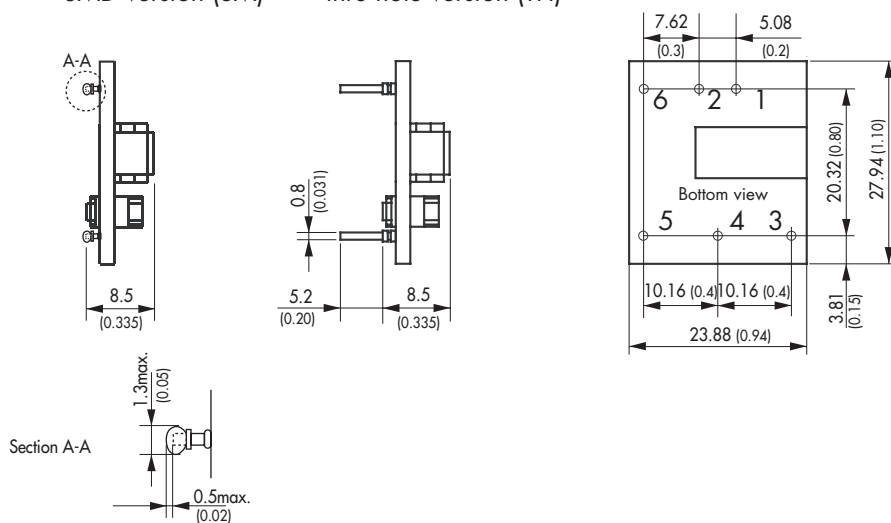
Physical Specifications

| | | |
|--|--|---|
| Weight | | 10.5g (0.36oz) |
| Soldering profile for trough hole version | | max. 265°C / 10 sec. (wave soldering) |
| Lead-free reflow solder process for SMD-package models | | as per J-STD-020D.01 (to find at: www.jedec.org - free registration required) |

Supporting documents: www.tracopower.com/overview/ton15wi

Outline Dimensions

SMD version (SM) thru hole version (TH)



| Pin-Out | |
|---------|---------------|
| Pin | Single |
| 1 | +Vin (Vcc) |
| 2 | -Vin (GND) |
| 3 | +Vout |
| 4 | Trim |
| 5 | -Vout |
| 6 | Remote On/Off |

Dimensions in [mm], () = Inch
Tolerances: ±0.5 (±0.02)
Pin pitch tolerances: ±0.25 (±0.01)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[TRACO Power:](#)

[TON 15-2411WI](#) [TON 15-2412WI](#) [TON 15-2413WISM](#) [TON 15-4812WISM](#) [TON 15-2413WI](#) [TON 15-4812WI](#) [TON 15-4810WISM](#) [TON 15-4811WI](#) [TON 15-4813WI](#) [TON 15-2410WI](#) [TON 15-2412WISM](#) [TON 15-4810WI](#) [TON 15-2411WISM](#) [TON 15-4813WISM](#) [TON 15-2410WISM](#) [TON 15-4811WISM](#)