



Features

- ◆ Smallest encapsulated 15W Converter!
Ultra compact size: 1.0" x 1.0" x 0.4"
- ◆ Shielded metal case with isolated baseplate
- ◆ Ultrawide 4:1 input ranges 9-36 VDC or 18-75VDC
- ◆ Output voltage Trim
- ◆ I/O- isolation voltage 1500 VDC
- ◆ Very high efficiency up to 87%
- ◆ Operating temp. range : -40°C to +85°C
- ◆ Remote On/Off control
- ◆ Industry standard pinout
- ◆ 3-year product warranty



The THN-15WI series is the latest generation of high performance dc-dc converter modules setting new standards concerning power density. This product with 15W comes in a encapsulated, shielded metal package with dimensions of only 1.0"x 1.0"x 0.4" and occupies 50% (!) less board space.

All models have ultra wide 4:1 input voltage range and precisely regulated output voltages. Advanced circuit design provides high efficiency up to 87% which allows a operating temperature range of -40°C to +85°C (with derating) Further features include remote On/Off, trimable output and Basic Insulation. This product is fully compliant to RoHS directive. Typical applications for these converters are battery operated equipment, mobile instrumentation, distributed power architectures in communication and industrial electronics and everywhere where space on PCB is critical.

Models

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THN 15-2410WI	9 – 36 VDC (24 VDC nominal)	3.3 VDC	4'000 mA	86 %
THN 15-2411WI		5.0 VDC	3'000 mA	84 %
THN 15-2412WI		12 VDC	1'300 mA	86 %
THN 15-2413WI		15 VDC	1'000 mA	85 %
THN 15-4810WI	18 – 75 VDC (48 VDC nominal)	3.3 VDC	4'000 mA	86 %
THN 15-4811WI		5.0 VDC	3'000 mA	86 %
THN 15-4812WI		12 VDC	1'300 mA	87 %
THN 15-4813WI		15 VDC	1'000 mA	87 %

Input Specifications

Input current at no load (nominal input)	24 Vin; 3.3 & 5 VDC models: 50 mA typ. 24 Vin; other models: 20 mA typ. 48 Vin; 3.3 & 5 VDC models: 40 mA typ. 48 Vin; other models: 15 mA typ.
Input current at full load (nominal input)	24 Vin models: 770 mA typ. 48 Vin models: 380 mA typ.
Input voltage variation (dv/dt)	5 V/ms, max. (complies with ETS300 132 part 4.4)
Start-up voltage / under voltage shut down	24 Vin models: 9 VDC /8 VDC 48 Vin models: 18 VDC /16 VDC
Surge voltage (100 msec. max.)	24 Vin models: 50 V max. 48 Vin models: 100 V max.
Conducted noise (input)	EN 55022 level A, FCC part 15, level A with external capacitor. See application note: www.tracopower.com/products/thn15wi_application.pdf

Output Specifications

Voltage set accuracy	± 1 %
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
Ripple and noise (20 MHz bandwidth)	100 mVpk-pk max. with external capacitor (see Note 1)
Temperature coefficient	±0.02 %/K
Output current limitation	at 150 % of Iout max., foldback
Short circuit protection	indefinite (automatic recovery)
Over voltage protection	3.3 Vout models: 3.7 – 5.4 Vout 5 Vout models: 5.6 – 7.0 Vout 12 Vout models: 13.5 – 19.6 Vout 15 Vout models: 16.8 – 20.5 Vout
Start-up time	30ms max. (at power on and remote on)
Transient response setting time (25% load step chang)	250 µs typ.
Max. capacitive load	3.3 & 5 VDC models: 1000 µF 12 VDC models: 330 µF 15 VDC models: 220 µF

General Specifications

Temperature ranges	– Operating –40 °C ... +85 °C (with derating) – Case temperature +105 °C max. – Storage –55 °C ... +125 °C
Power derating	3 %/K above 70°C
Reliability, calculated MTBF (MIL-HDBK-217F ground benign)	>560'000h @ +25°C
Isolation voltage (60sec)	– Input/Output 1'500 VDC
Isolation capacity	– Input/Output 1000 pF typ.
Isolation resistance	– Input/Output (500 VDC) >10 GOhm

Application notes can be downloaded under:
www.tracopower.com/products/thn15wi_application.pdf

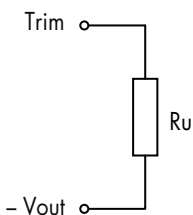
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

Switching frequency (fixed)	400 kHz typ. (pulse width modulation PWM)
Safety standards	UL 60950-1, EN 60950-1, IEC 60950-1
Safety approvals	CSA File No.: pending
Remote On/Off	- On: 3.0 ... 12 VDC or open circuit - Off: 0 ... 1.2 VDC or short circuit pin 1 and pin 2/3 - Off idle current: 2.5 mA
Case material	nickel coated copper
Baseplate	non conductive FR4
Potting material	silicon (UL94V-0 rated)
Weight	15 g (0.53 oz)
Soldering temperature	max. 265 °C / 10sec.

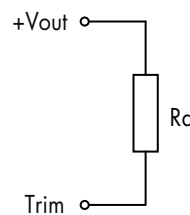
Output Voltage Adjustment

Trim up



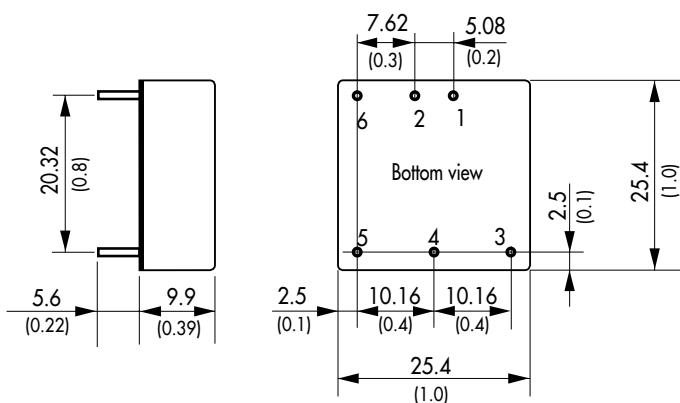
Ru [kohm]*		3.3V	5V	12V	15V
output					
+5%		75	51	36	27
+10%		36	24	16	12

Trim down



Rd [kohm]*		3.3V	5V	12V	15V
output					
-5%		18	43	150	150
-10%		5.1	18	62	68

Outline Dimensions



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

Dimensions in [mm], () = Inch
Pin diameter \varnothing 1.0 (0.04)
Pin pitch tolerances: ± 0.35 (0.014)
Tolerances: ± 0.5 (0.02)

Specifications can be changed any time without notice.