DC/DC Converters

THN 15WI Series, 15 Watt

CB Scheme UL 60950-1 cULus UL 60950-1

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	86 %
THN 15-2412WI		12 VDC	1'300 mA	87 %
THN 15-2413WI		15 VDC	1'000 mA	87 %
THN 15-2421WI		± 5 VDC	± 1'500 mA	85 %
THN 15-2422WI		± 12 VDC	± 625 mA	87 %
THN 15-2423WI		± 15 VDC	± 500 mA	88 %
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 %
THN 15-4821WI		± 5 VDC	± 1'500 mA	85 %
THN 15-4822WI		± 12 VDC	± 625 mA	86 %
THN 15-4823WI		± 15 VDC	± 500 mA	87 %

Input Specifications

Input current at no load		24 Vin; 3.3 VDC models:	50 mA typ.
		24 Vin; 5 VDC models:	70 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		24 Vin; 3.3 VDC models:	690 mA typ.
		24 Vin; other models:	770 mA typ..
		48 Vin; 3.3 VDC models:	340 mA typ.
		48 Vin; other models:	380 mA typ.
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.
Reflected input ripple current			30 mA typ.
Conducted noise (input)			EN 55022 level A, FCC part 15, level A with external capacitor see application note.

Output Specifications

Voltage set accuracy			±1 %
Output voltage adj. range			±10 % only for single output models. see application note.
Regulation	– Input variation (Vmin – Vmax)	single output models:	0.2 % max.
		dual output models:	0.5 % max.
	– Load variation (0 – 100 %)	single output models:	0.2 % max.
		dual output models balanced load:	1.0 % max.
		dual output models unbalanced load (25% /100%):	5.0 % max.
Minimum load			not required
Ripple and noise (20 MHz bandwidth)			100 mVpk-pk max. with external capacitor see application note.
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 VDC models:	3.7 – 5.4 Vout
		5 VDC models:	5.6 – 7.0 Vout
		12 VDC models:	13.5 – 19.6 Vout
		15 VDC models:	16.8 – 20.5 Vout
Start up time (nominal Vin and constant resistive load)			30 ms typ. (for power on and remote on)
Transient response setting time (25% load step change)			250 µs typ.
Max. capacitive load		3.3 & 5 VDC models:	1000 µF
		12 VDC models:	330 µF
		15 VDC models:	220 µF
		±5 VDC models:	±500 µF
		±12 VDC models:	±150 µF
		±15 VDC models:	±100 µF

Application note

Download: 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.

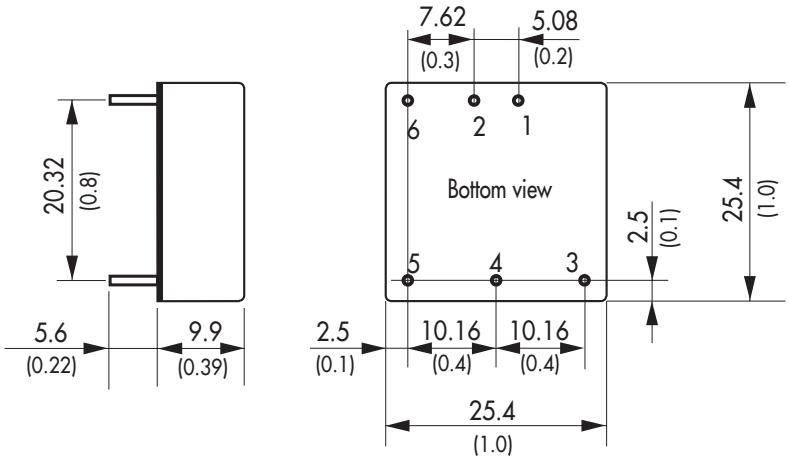
General Specifications

Temperature ranges	– Operating – Case temperature – Storage	–40 °C to +85 °C (with derating) +105 °C max. –55 °C to +125 °C
Power derating		2.2 %/K above 60°C
Thermal inpedance	– Natural convection	18.2 °C/W
Humidity (non condensing)		5 % to 95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F, @ +25°C, ground benign)		>560'000 h
Isolation voltage (60sec)	– Input/Output	1'500 VDC
Isolation capacity	– Input/Output	1000 pF typ.
Isolation resistance	– Input/Output (500 VDC)	>1'000 MOhm
Remote On/Off	– On: – Off: – Off idle current:	3.0 ... 15 VDC or open circuit 0 ... 1.2 VDC or short circuit pin 6 and pin 2 2.5 mA
Switching frequency (fixed)		400 kHz typ. (pulse width modulation PWM)
Vibration and thermal shock		MIL-STD-810E
Safety standards		UL /cUL 60950-1, EN 60950-1, IEC 60950-1
Safety approvals	– UL/cUL	www.ul.com -> certifications -> File E188913

Physical Specifications

Case material	nickel coated copper
Baseplate	non conductive FR4
Potting material	epoxy (UL 94V-0 rated)
Weight	15 g (0.53 oz)
Soldering temperature	max. 265 °C / 10sec.

Outline Dimensions



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

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

Specifications can be changed any time without notice.

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