

### Features

- ◆ Highest power density 30W converter!  
Ultra compact size: 1.0" x 1.0" x 0.4"
- ◆ Shielded metal case with isolated baseplate
- ◆ Wide 2:1 input voltage range
- ◆ Very high efficiency across full load range up to 92%
- ◆ Over temperature protection
- ◆ Operating temp. range  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$  and up to  $85^{\circ}\text{C}$  with heat-sink
- ◆ Ultra low no load input current
- ◆ Remote On/Off control
- ◆ Output voltage adjustable
- ◆ I/O isolation voltage 1500 VDC
- ◆ RoHS 2011/65/EU compliant
- ◆ 3-year product warranty



The THN-30 series is the latest generation of high performance DC/DC converter modules with highest power density. The product achieves 30W output power while it comes in a metal case with dimensions of only 1.0"x 1.0"x 0.4".

All models have an wide 2:1 input voltage range and precisely regulated output voltages, even under no load conditions. Highest efficiency across load range makes this product very reliable and applicable in temperature ranges of up to  $85^{\circ}\text{C}$ . With a low input current at no load and remote On/Off control these converters are the ideal solution for battery-operated systems. Typical applications are in mobile equipments, instrumentation, distributed power architectures in communication and industrial electronics and everywhere where space on the PCB is critical.

### Models

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THN 30-1210	9 – 18 VDC (12 VDC nominal)	3.3 VDC	7000 mA	86 %
THN 30-1211		5.0 VDC	6000 mA	89 %
THN 30-1212		12 VDC	2500 mA	89 %
THN 30-1213		15 VDC	2000 mA	89 %
THN 30-1215		24 VDC	1250 mA	89 %
THN 30-1222		$\pm 12$ VDC	$\pm 1250$ mA	89 %
THN 30-1223		$\pm 15$ VDC	$\pm 1000$ mA	90 %
THN 30-2410	18 – 36 VDC (24 VDC nominal)	3.3 VDC	7000 mA	87 %
THN 30-2411		5.0 VDC	6000 mA	90 %
THN 30-2412		12 VDC	2500 mA	91 %
THN 30-2413		15 VDC	2000 mA	91 %
THN 30-2415		24 VDC	1250 mA	91 %
THN 30-2422		$\pm 12$ VDC	$\pm 1250$ mA	91 %
THN 30-2423		$\pm 15$ VDC	$\pm 1000$ mA	91 %
THN 30-4810	36 – 75 VDC (48 VDC nominal)	3.3 VDC	7000 mA	87 %
THN 30-4811		5.0 VDC	6000 mA	89 %
THN 30-4812		12 VDC	2500 mA	90 %
THN 30-4813		15 VDC	2000 mA	91 %
THN 30-4815		24 VDC	1250 mA	91 %
THN 30-4822		$\pm 12$ VDC	$\pm 1250$ mA	91 %
THN 30-4823		$\pm 15$ VDC	$\pm 1000$ mA	92 %



### Output Specifications

Max. capacitive load	3.3 VDC models:	10'000 $\mu$ F
	5 VDC models:	7'200 $\mu$ F
	12 VDC models:	1'200 $\mu$ F
	15 VDC models:	1'000 $\mu$ F
	24 VDC models:	375 $\mu$ F
	$\pm$ 12 VDC models:	750 $\mu$ F (each output)
	$\pm$ 15 VDC models:	500 $\mu$ F (each output)

### General Specifications

Temperature ranges	- Operating without heat sink	-40°C to +80°C (with derating)
	- Operating with heat sink	-40°C to +85°C (with derating)
	- Case temperature	+105°C max.
	- Storage	-55°C to +125°C
Power derating	- Operating without heat sink	2.2 %/K above +55°C
	- Operating with heat sink	2.5 %/K above +60°C
Thermal impedance	- Natural convection	15.0°C/W
	- Natural convection with heat sink	13.8°C/W
Thermal protection		shutdown at 115°C
Humidity (non condensing)		5 % to 95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +70°C, ground benign)		1.3 Mio. h
Isolation voltage (60sec.)	- Input/Output	1'500 VDC
	- Input, Output/Case	1'000 VDC
Isolation capacitance	- Input/Output	1'500 pF max.
Isolation resistance	- Input/Output (500 VDC)	>1 GOhm
Remote On/Off	- On:	3.0 to 15 VDC or open circuit
	- Off:	0 to 1.2 VDC or short circuit pin 6 and pin 2
	- Off idle current:	2.0 mA
Switching frequency (fixed, pulse width modulation)	3.3 & 5.0 Vout models:	275 kHz $\pm$ 10%
	other models:	330 kHz $\pm$ 10%
Vibration and thermal shock		MIL-STD-810F
Safety approvals		UL/cUL 60950-1 2nd +Am1, IEC/EN 60950-1 <a href="http://www.tracopower.com/overview/thn30">www.tracopower.com/overview/thn30</a>
	- Certification documents	

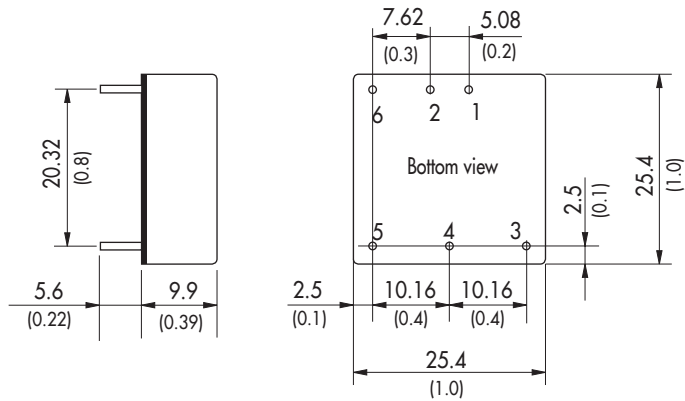
### Physical Specifications

Casing material		copper
Baseplate		non conductive FR4
Potting material		silicone (UL 94V-0 rated)
Weight		16.5 g (0.58oz)
Soldering temperature		max. 265°C / 10sec.
Environmental compliance	- Reach	<a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a>
	- RoHS	RoHS directive 2011/65/EU

**Supporting documents:** [www.tracopower.com/overview/thn30](http://www.tracopower.com/overview/thn30)

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

**Outline Dimensions**

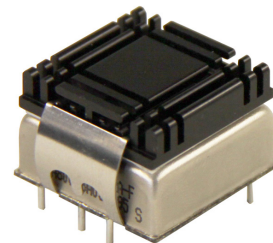


Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
3	+Vout	+Vout
4	Trim	Common
5	-Vout	-Vout
6	Remote On/Off	

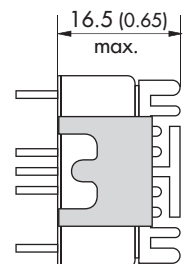
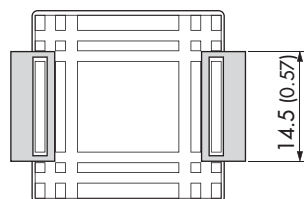
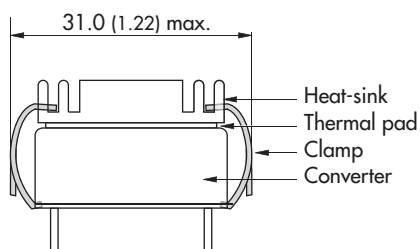
Dimensions in [mm], ( ) = Inch  
 Pin diameter  $\varnothing$  1.0 (0.04)  
 Pin pitch tolerances:  $\pm 0.25$  ( $\pm 0.01$ )  
 Tolerances:  $\pm 0.5$  ( $\pm 0.02$ )

**Heat-Sink (Option)**

- Order code:** THN-HS1  
(cont.: heat-sink, thermal pad, 2 clamps)
- Material:** Aluminum
- Finish:** Anodic treatment (black)
- Weight:** 8 g (0.28oz) without converter
- Thermal impedance after assembling: 14.8 K/W



**Note:**  
 The product label on converter has to be removed before mounting the heat-sink.  
 For volume orders converters will be supplied with heat-sink already mounted. Please contact factory for quotation.  
 Separate heat-sinks are only available for prototypes and small quantity orders.



Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)

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