

### Features

- ◆ Compact design in SMD package
- ◆ Ultra wide 4:1 input voltage range
- ◆ Fully regulated outputs
- ◆ I/O isolation 1500 VDC
- ◆ Operating temp. range  $-40^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$
- ◆ Short circuit protection
- ◆ Input filter to meet EN 55022, class A
- ◆ Qualified for leadfree reflow solder process
- ◆ 3-year product warranty



The THL 6WISM series is a family of compact 6 W dc/dc-converters with 4:1 input voltage ranges. The product is available in SMD-package which is 31% smaller than a standard DIP-24 package. The internal filter to meet EN55022 Class A without external components makes these converters easy to design in.

They come with remote On/Off and short circuit protection. THL 6WISM converter is an excellent solution for data- and telecom applications and for instrumentation and industrial electronics.

### Models

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THL 6-2410WISM	9 – 36 VDC (nominal 24 VDC)	3.3 VDC	1450 mA	76 %
THL 6-2411WISM		5.0 VDC	1200 mA	79 %
THL 6-2412WISM		12 VDC	500 mA	83 %
THL 6-2413WISM		15 VDC	400 mA	83 %
THL 6-2415WISM		24 VDC	250 mA	83 %
THL 6-2421WISM		$\pm 5$ VDC	$\pm 600$ mA	82 %
THL 6-2422WISM		$\pm 12$ VDC	$\pm 250$ mA	83 %
THL 6-2423WISM		$\pm 15$ VDC	$\pm 200$ mA	83 %
THL 6-4810WISM	18 – 75 VDC (nominal 48 VDC)	3.3 VDC	1450 mA	76 %
THL 6-4811WISM		5.0 VDC	1200 mA	79 %
THL 6-4812WISM		12 VDC	500 mA	83 %
THL 6-4813WISM		15 VDC	400 mA	83 %
THL 6-4815WISM		24 VDC	250 mA	83 %
THL 6-4821WISM		$\pm 5$ VDC	$\pm 600$ mA	82 %
THL 6-4822WISM		$\pm 12$ VDC	$\pm 250$ mA	83 %
THL 6-4823WISM		$\pm 15$ VDC	$\pm 200$ mA	83 %

### Input Specifications

Input current at no load (nominal input voltage)	24 Vin models: 30 mA typ. 48 Vin models: 20 mA typ.
Input current at full load (nominal input voltage)	24 Vin; 3.3 VDC model: 260 mA typ. 24 Vin other models: 300 mA typ. 48 Vin; 3.3 VDC model: 130 mA typ. 48 Vin other models: 150 mA typ.
Surge voltage (100 msec. max.)	24 Vin models: 50 V max. 48 Vin models: 100 V max.
Conducted noise	EN 55022 level A, FCC part 15, level A without external components
Recommended input fuse (slow blow)	24 V models: 1500 mA 48 V models: 750 mA

### Output Specifications

Voltage set accuracy	±2 % max
Regulation	– Input variation Vin min. to Vin max. 1.0 % max. – Load variation 15 – 100 % 1.2 % max.
Minimum load	15 % of rated max current (operation at lower load condition is safe but a higher output ripple will be experienced)
Temperature coefficient	±0.02 %/K
Ripple and noise (20 MHz bandwidth)	100 mVp-p max.
Transient response (25 % load step change)	– Recovery time 300 µs typ. – Deviation ± 3 % typ.
Short circuit protection	continuous, automatic recovery
Maximum capacitive load	3.3 & 5 VDC models: 330 µF 12, 15 & 24 VDC models: 100 µF ±5, ±12 & ±15 VDC models: 100 µF (each output)

### General Specifications

Temperature	– Operating (convection cooling 50 LFM, 0.25 m/s) –40°C to +75°C – Storage –40°C to +125°C – Case +105°C max.
Load derating (convection cooling 50 LFM, 0.25 m/s)	3.3 & 5.0 VDC models: 2.2 %/K above +55°C other output models: 2.5 %/K above +60°C
Humidity (non condensing)	95 %
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	>350'000 h
Isolation voltage (60 sec.)	– Input/Output 1'500 VDC
Isolation capacitance	– Input/Output 1500 pF max.
Isolation resistance	– Input/Output (500 VDC) >1 GOhm
Safety standard (designed to meet)	IEC 60950-1, UL 60950-1 – Certification documents <a href="http://www.tracopower.com/overview/thl6wism">www.tracopower.com/overview/thl6wism</a>
Switching frequency	330 kHz
Altitude during operation	5'000 m max. (16400 ft) approved
Remote On/Off	– On: 2.5 to 50 VDC or open circuit – Off: –0.7 to +0.8 VDC – Off stand by input current 10 mA max.
Environmental compliance	– Reach <a href="http://www.tracopower.com/overview/thl6wism">www.tracopower.com/overview/thl6wism</a> – RoHS RoHS directive 2011/65/EU

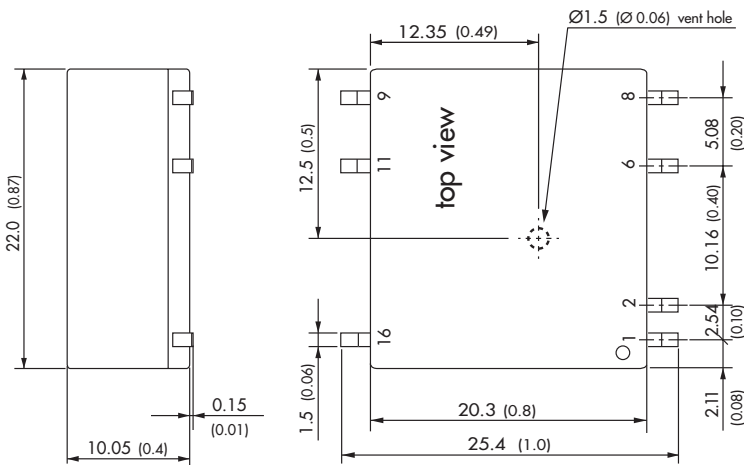
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**Physical Specifications**

Casing material	non-conductive plastic (UL94V-0 rated)
Pin material	Phosphor bronze
Weight	7.8 g (0.27oz)
Lead-free reflow solder process	as per J-STD-020D.01 (to find at: <a href="http://www.jedec.org">www.jedec.org</a> - free registration required)
Moisture sensitivity level	level 2a as per J-STD-033B.01 (to find at: <a href="http://www.jedec.org">www.jedec.org</a> - free registration required)

**Application note:** [www.tracopower.com/products/thl6wism-application.pdf](http://www.tracopower.com/products/thl6wism-application.pdf)

**Outline Dimensions**



Pin-Out		
Pin	Single	Dual
1	Remote On/Off	Remote On/Off
2	-Vin	-Vin
6	ntc.	Common
8	ntc.	-Vout
9	+Vout	+Vout
11	-Vout	Common
16	+Vin (Vcc)	+Vin (Vcc)

ntc. = not to connect

Dimensions in [mm], ( ) = Inch  
Tolerances: ±0.25 (±0.01)  
Pin pitch tolerances: ±0.13 (±0.005)

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