DC/DC Converters

THL 6WISM Series, 6 Watt

c SP us 226037 CB Scheme IEC 60950-1

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°C to +75°C
- Short circuit protection
- Input filter to meet EN 55022, class A
- Qualified for leadfree reflow solder process
- 3-year product warranty

not recommended for new designs

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		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	**9 – 36 VDC**	15 VDC	400 mA	83 %
THL 6-2415WISM	(nominal 24 VDC)	24 VDC	250 mA	83 %
THL 6-2421WISM		±5 VDC	±600 mA	82 %
THL 6-2422WISM		±12 VDC	±250 mA	83 %
THL 6-2423WISM		±15 VDC	±200 mA	83 %
THL 6-4810WISM		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	**18 – 75 VDC**	15 VDC	400 mA	83 %
THL 6-4815WISM	(nominal 48 VDC)	24 VDC	250 mA	83 %
THL 6-4821WISM		±5 VDC	±600 mA	82 %
THL 6-4822WISM		±12 VDC	±250 mA	83 %
THL 6-4823WISM		±15 VDC	±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 +80°C**
	– Storage		**–50°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	– Input/Output	60 sec.	**1'500 VDC**
		1 sec.	**1'800 VDC**
Isolation capacitance	– Input/Output (100 kHz, 1 V)		**1500 pF max.**
Isolation resistance	– Input/Output (500 VDC)		**>1 GOhm**
Safety standard			**IEC/EN 60950-1, UL 60950-1**
	– Certification documents		**www.tracopower.com/overview/thl6wism**
Switching frequency			**330 kHz**
Altitude during operation			**5'000 m max.** (16'400 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		**www.tracopower.com/info/reach-declaration.pdf**
	– RoHS		**RoHS directive 2011/65/EU**

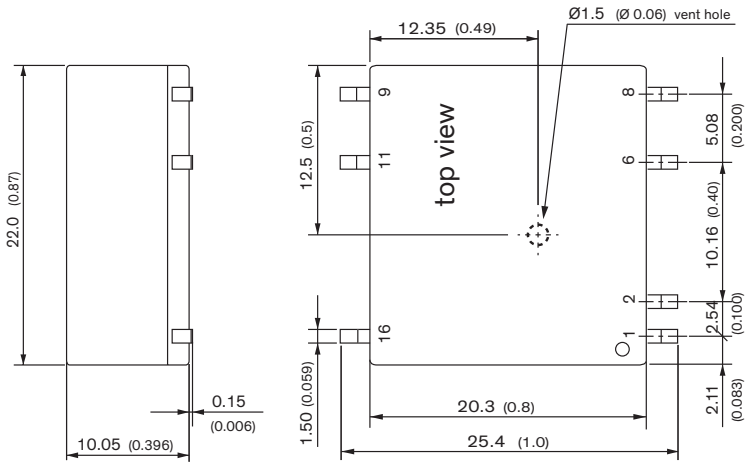
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Pysical 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: www.jedec.org - free registration required)
Moisture sensivity level	**level 2a as per J-STD-033B.01** (to find at: www.jedec.org - free registration required)

Application note: www.tracopower.com/overview/thl6wism

Outline Dimensions



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

NC = Not connected

Dimensions in mm (inch)
Tolerances: x.x±0.25 (x.xx±0.01)
x.xx ±.13 (x.xxx ±.005)
Pin tolerances: ±0.05 (±0.002)