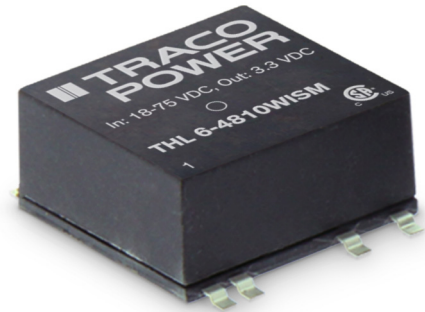


#### Features

- ◆ 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<br>(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<br>(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.<br>48 Vin models: 20 mA typ.   |
| Input current at full load (nominal input voltage) | 24 Vin; 3.3 VDC model: 260 mA typ.<br>24 Vin other models: 300 mA typ.<br>48 Vin; 3.3 VDC model: 130 mA typ.<br>48 Vin other models: 150 mA typ. |
| Surge voltage (100 msec. max.)                     | 24 Vin models: 50 V max.<br>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<br>48 V models: 750 mA  |

### Output Specifications

|  |  |
|--|--|
| Voltage set accuracy                       | ±2 % max   |
| Regulation                                 | – Input variation Vin min. to Vin max. 1.0 % max.<br>– 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.<br>– Deviation ± 3 % typ.  |
| Short circuit protection                   | continuous, automatic recovery   |
| Maximum capacitive load                    | 3.3 & 5 VDC models: 330 µF<br>12, 15 & 24 VDC models: 100 µF<br>±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<br>– Storage –40°C to +125°C<br>– 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<br>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<br>– 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<br>– Off: –0.7 to +0.8 VDC<br>– Off stand by input current 10 mA max.  |
| Environmental compliance  | – Reach <a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a><br>– RoHS RoHS directive 2011/65/EU |

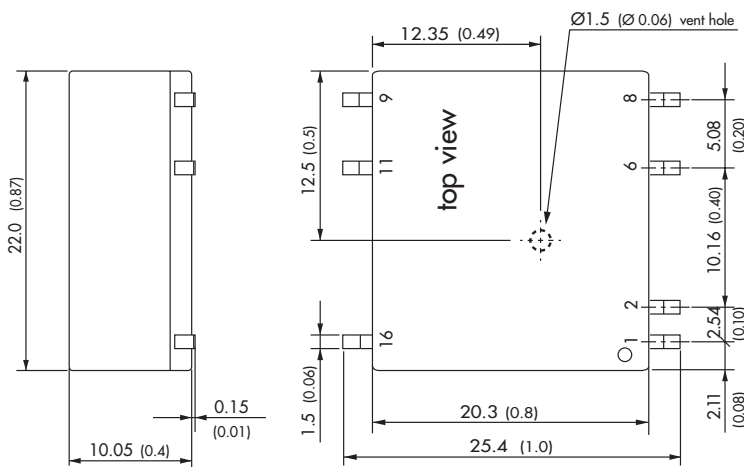
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

**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/overview/thl6wism](http://www.tracopower.com/overview/thl6wism)

**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)