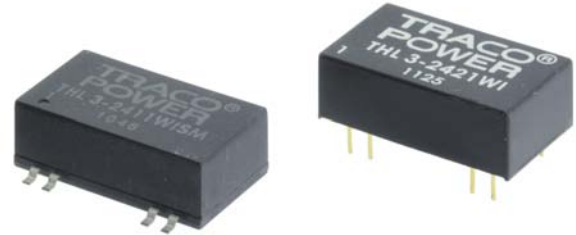


#### Features

- ◆ Compact design in SMD or DIP package
- ◆ Ultra wide 4:1 input voltage range
- ◆ Fully regulated outputs
- ◆ I/O isolation 1500 VDC
- ◆ SMD version qualified for leadfree re flow solder process, MSL 2a
- ◆ Operating temp. range  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- ◆ Short circuit protection
- ◆ Remote On/Off control
- ◆ Input filter to meet EN 55022, class A without external components
- ◆ 3-year product warranty



The THL 3WI(SM) series is a family of compact 3 W dc/dc-converters with 4:1 input voltage ranges. The product is available in SMD- or DIP-package. The internal filter which meets EN55022 Class A without external components makes the converter easy to design in.

They come with remote On/Off and short circuit protection. THL 3WI(SM) converter is an excellent solution for data- and telecom applications and for instrumentation and Industrial electronics.

#### Models

| Order code<br>DIP models | Order code<br>SMD models | Input voltage range             | Output voltage | Output current<br>max. | Efficiency typ. |
|--------------------------|--------------------------|---------------------------------|----------------|------------------------|-----------------|
| THL 3-2410WI             | THL 3-2410WISM           | 9 – 36 VDC<br>(24 VDC nominal)  | 3.3 VDC        | 600 mA                 | 75 %            |
| THL 3-2411WI             | THL 3-2411WISM           |                                 | 5.0 VDC        | 600 mA                 | 78 %            |
| THL 3-2412WI             | THL 3-2412WISM           |                                 | 12 VDC         | 250 mA                 | 80 %            |
| THL 3-2413WI             | THL 3-2413WISM           |                                 | 15 VDC         | 200 mA                 | 80 %            |
| THL 3-2415WI             | THL 3-2415WISM           |                                 | 24 VDC         | 125 mA                 | 80 %            |
| THL 3-2421WI             | THL 3-2421WISM           |                                 | $\pm 5$ VDC    | $\pm 300$ mA           | 77 %            |
| THL 3-2422WI             | THL 3-2422WISM           |                                 | $\pm 12$ VDC   | $\pm 125$ mA           | 80 %            |
| THL 3-2423WI             | THL 3-2423WISM           |                                 | $\pm 15$ VDC   | $\pm 100$ mA           | 80 %            |
| THL 3-4810WI             | THL 3-4810WISM           | 18 – 75 VDC<br>(48 VDC nominal) | 3.3 VDC        | 600 mA                 | 75 %            |
| THL 3-4811WI             | THL 3-4811WISM           |                                 | 5.0 VDC        | 600 mA                 | 78 %            |
| THL 3-4812WI             | THL 3-4812WISM           |                                 | 12 VDC         | 250 mA                 | 80 %            |
| THL 3-4813WI             | THL 3-4813WISM           |                                 | 15 VDC         | 200 mA                 | 80 %            |
| THL 3-4815WI             | THL 3-4815WISM           |                                 | 24 VDC         | 125 mA                 | 80 %            |
| THL 3-4821WI             | THL 3-4821WISM           |                                 | $\pm 5$ VDC    | $\pm 300$ mA           | 77 %            |
| THL 3-4822WI             | THL 3-4822WISM           |                                 | $\pm 12$ VDC   | $\pm 125$ mA           | 80 %            |
| THL 3-4823WI             | THL 3-4823WISM           |                                 | $\pm 15$ VDC   | $\pm 100$ mA           | 80 %            |

### 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: 110 mA typ.<br>24 Vin other models: 160 mA typ.<br>48 Vin; 3.3 VDC model: 55 mA typ.<br>48 Vin other models: 80 mA typ. |
| Surge voltage (1 sec. 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: 800 mA  |

### Output Specifications

|   |  |
|---|--|
| Voltage set accuracy                                    | ±2 % max   |
| Regulation  | – Input variation Vin min. to Vin max. 1.0 % max.<br>– Load variation 15 – 100 % 1.0 % 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)                     | 60 mVp-p typ.  |
| Transient response setting time (25 % load step change) | 300 µs typ.  |
| Short circuit protection                                | indefinite, automatic recovery   |
| Capacitive load   | 3.3 & 5 VDC models: 220 µF max.<br>all other models: 47 µF max.  |

### General Specifications

|   |   |  |
|---|---|--|
| Temperature   | – Operating (natural convection cooling 20 LFM)<br>– Storage<br>– Case              | –40°C to +85°C<br>–40°C to +125°C<br>+105°C max.   |
| Load derating (natural convection cooling 20 LFM)                     | DIP models:<br>SMD 3.3 & 5.0 VDC models:<br>SMD other models:                       | 2.5 %/K above +65°C<br>2.2 %/K above +55°C<br>2.5 %/K above +60°C  |
| Humidity (non condensing)   |   | 95 %   |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) |   | >300'000 h   |
| Isolation voltage (60 sec.)   | – Input/Output  | 1'500 VDC  |
| Isolation capacitance   | – Input/Output  | 500 pF max.  |
| Isolation resistance  | – Input/Output (500 VDC)  | >1 GOhm  |
| Safety standard (designed to meet)                                    |   | IEC 60950-1, UL 60950-1  |
| Safety approvals  | – CB test certificate according IEC 60950-1<br>– CSA certificate for UL/cUL 60950-1 | <a href="http://www.tracopower.com/products/thl3wi-cb.pdf">www.tracopower.com/products/thl3wi-cb.pdf</a><br><a href="http://www.tracopower.com/products/thl3wi-csa.pdf">www.tracopower.com/products/thl3wi-csa.pdf</a> |
| Switching frequency   |   | 350 kHz  |
| Altitude during operation   |   | 5'000 m max. (16'400 ft) approved  |
| Remote On/Off   | – On:<br>– Off:<br>– Off stand by input current                                     | 2.5 to 5.5 VDC or open circuit<br>–0.7 to 0.8 VDC<br>5 mA max.   |
| Environmental compliance  | – Reach<br>– RoHS   | <a href="http://www.tracopower.com/products/thl3wi-reach.pdf">www.tracopower.com/products/thl3wi-reach.pdf</a><br>RoHS directive 2011/65/EU  |

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

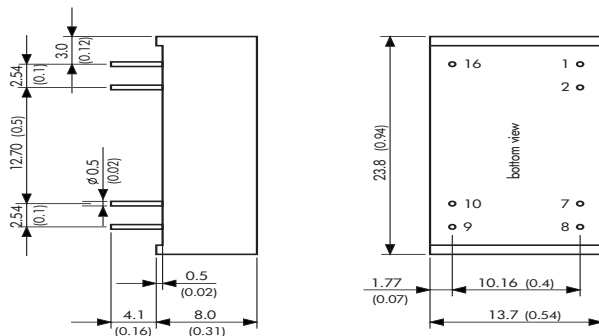
**Physical Specifications**

|  |  |   |
|--|--|---|
| Casing material  | non-conductive plastic (UL94V-0 rated)   |   |
| Package weight   | DIP models: 5.4 g (0.19 oz)<br>SMD models: 4.2 g (0.14 oz)   |   |
| Environmental compliance                               | - Reach<br>- RoHS  | regulation EC 1907/2006<br>directive 2011/65/EU |
| Soldering profile for DIP-package models               | max. 265°C / 10 sec. (wave soldering)  |   |
| Lead-free reflow solder process for SMD-package models | as per J-STD-020D.01 (to find at:<br><a href="http://www.jedec.org">www.jedec.org</a> - free registration required)          |   |
| Moisture sensitivity level (for SMD-package models)    | level 2a as per J-STD-033B.01 (to find at:<br><a href="http://www.jedec.org">www.jedec.org</a> - free registration required) |   |
| Packaging  | <a href="http://www.tracopower.com/products/thl3wism-pack.pdf">www.tracopower.com/products/thl3wism-pack.pdf</a>             |   |

**Application note:** [www.tracopower.com/products/thl3wi-application.pdf](http://www.tracopower.com/products/thl3wi-application.pdf)  
[www.tracopower.com/products/thl3wism-application.pdf](http://www.tracopower.com/products/thl3wism-application.pdf)

**Outline Dimensions**

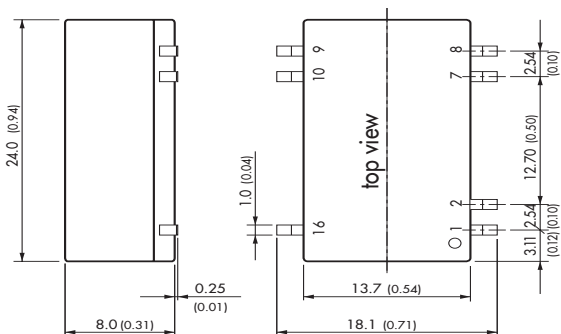
**DIP-Models**



| Pin-Out |               |               |
|---------|---------------|---------------|
| Pin     | Single        | Dual          |
| 1       | -Vin (GND)    | -Vin (GND)    |
| 2       | Remote On/Off | Remote On/Off |
| 7       | ntc.          | ntc.          |
| 8       | ntc.          | Common        |
| 9       | +Vout         | +Vout         |
| 10      | -Vout         | -Vout         |
| 16      | +Vin (Vcc)    | +Vin (Vcc)    |

ntc. = not to connect

**SMD-Models**



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

Specifications can be changed any time without notice.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.