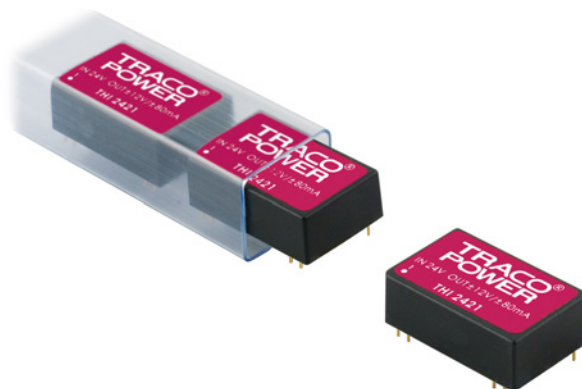


#### Features

- ◆ DIP-24 plastic package
- ◆ I/O isolation voltage 2500 VACrms
- ◆ Supplementary insulation rated for working voltage up to 250 VAC
- ◆ Regulated output
- ◆ Operating temp. range -40°C to +85°C
- ◆ Low coupling capacity
- ◆ Short circuit protection
- ◆ 3-years product warranty



The THI 2 series is a family of dc/dc converter with very high I/O isolation specification. They offer a cost effective solution for all industrial, telecom and medical applications where a supplementary insulation is required. SMD technology and a 100 % production test of the safety barrier ensure a very high reliability of this product.

#### Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|------------|---------------------|----------------|---------------------|-----------------|
| THI 0511   | 5.0 VDC $\pm$ 10%   | 5 VDC          | 400 mA              | 62 %            |
| THI 0512   |                     | 12 VDC         | 165 mA              | 63 %            |
| THI 0513   |                     | 15 VDC         | 130 mA              | 64 %            |
| THI 0520   |                     | $\pm$ 5 VDC    | $\pm$ 100 mA        | 42 %            |
| THI 0521   |                     | $\pm$ 12 VDC   | $\pm$ 80 mA         | 57 %            |
| THI 0522   |                     | $\pm$ 15 VDC   | $\pm$ 65 mA         | 57 %            |
| THI 1211   | 12.0 VDC $\pm$ 10%  | 5 VDC          | 400 mA              | 62 %            |
| THI 1212   |                     | 12 VDC         | 165 mA              | 63 %            |
| THI 1213   |                     | 15 VDC         | 130 mA              | 64 %            |
| THI 1220   |                     | $\pm$ 5 VDC    | $\pm$ 100 mA        | 45 %            |
| THI 1221   |                     | $\pm$ 12 VDC   | $\pm$ 80 mA         | 59 %            |
| THI 1222   |                     | $\pm$ 15 VDC   | $\pm$ 65 mA         | 59 %            |
| THI 2411   | 24 VDC $\pm$ 10%    | 5 VDC          | 400 mA              | 62 %            |
| THI 2412   |                     | 12 VDC         | 165 mA              | 63 %            |
| THI 2413   |                     | 15 VDC         | 130 mA              | 64 %            |
| THI 2420   |                     | $\pm$ 5 VDC    | $\pm$ 100 mA        | 45 %            |
| THI 2421   |                     | $\pm$ 12 VDC   | $\pm$ 80 mA         | 58 %            |
| THI 2422   |                     | $\pm$ 15 VDC   | $\pm$ 65 mA         | 58 %            |

## Input Specifications

|                                   |                                                                                                                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------|
| Input current no load / full load | 5 Vin models: 100 mA / 660 mA typ.<br>12 Vin models: 50 mA / 280 mA typ.<br>24 Vin models: 30 mA / 140 mA typ. |
| Surge voltage (1 sec. max.)       | 5 Vin models: 7.5 V max.<br>12 Vin models: 15 V max.<br>24 Vin models: 30 V max.                               |
| Input filter                      | Pi-Filter                                                                                                      |

## Output Specifications

|                                      |                                                                                    |
|--------------------------------------|------------------------------------------------------------------------------------|
| Voltage set accuracy                 | ±3 %                                                                               |
| Voltage balance (dual output models) | 3 % max.                                                                           |
| Regulation                           | – Input variation 0.5 %<br>– Load variation 10–100% 1.0 % max.                     |
| Ripple and noise (20 MHz Bandwidth)  | 50 mVpk-pk max.                                                                    |
| Temperature coefficient              | ±0.02 %/K                                                                          |
| Current limitation                   | >120 % constant current                                                            |
| Short circuit protection             | continuous (automatic recovery)                                                    |
| Capacitive load                      | single output models: 680 µF max.<br>dual output models: 270 µF max. (each output) |

## General Specifications

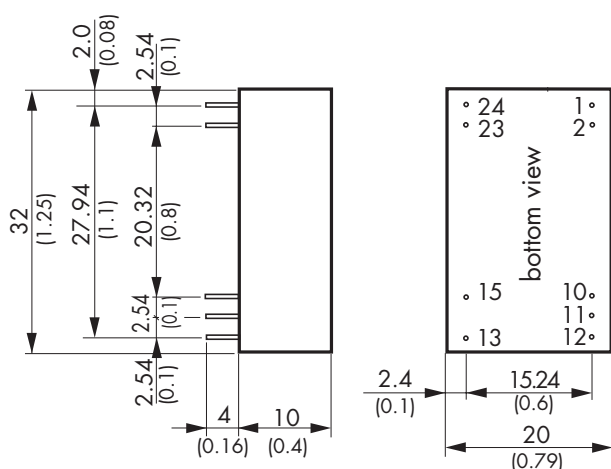
|                                                                      |                                                                                                        |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Temperature ranges                                                   | – Operating –40°C to +85°C<br>– Case +95°C max.<br>– Storage –40°C to +125°C                           |
| Derating                                                             | 3 %/K above 70°C                                                                                       |
| Humidity (non condensing)                                            | 95 % rel. H max.                                                                                       |
| Reliability, calculated MTBF (MIL-HDBK-217F, at 25°C, ground benign) | >600'000 h                                                                                             |
| Isolation voltage                                                    | – I/O Isolation voltage 2'500 VACrms (rated for 250VAC)<br>– Isolation test voltage (1 sec.) 6'000 Vpk |
| Isolation capacitance                                                | – Input/Output 20 pF typ.                                                                              |
| Isolation resistance                                                 | – Input/Output >10 Gohm                                                                                |
| Switching frequency                                                  | 25 – 80 kHz (PFM)                                                                                      |

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

## General Specifications

|                       |                          |
|-----------------------|--------------------------|
| Casing material       | plastic (UL 94V-0 rated) |
| Weight                | 12.4 g (0.44 oz)         |
| Soldering temperature | max. 265°C / 10 sec      |

## Outline Dimensions



| Pin-Out |            |            |
|---------|------------|------------|
| Pin     | Single     | Dual       |
| 1       | +Vin (VCC) | +Vin (VCC) |
| 2       | +Vin (VCC) | +Vin (VCC) |
| 10      | No pin     | Common     |
| 11      | No pin     | Common     |
| 12      | -Vout      | No pin.    |
| 13      | +Vout      | -Vout      |
| 15      | No pin     | +Vout      |
| 23      | -Vin (GND) | -Vin (GND) |
| 24      | -Vin (GND) | -Vin (GND) |

Dimensions in [mm], ( ) = Inch  
Pin diameter: 0.5 ±0.05 (0.024 ±0.002)  
Tolerances: ±0.25 (±0.01)  
Pin pitch tolerances: ±0.05 (±0.002)

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