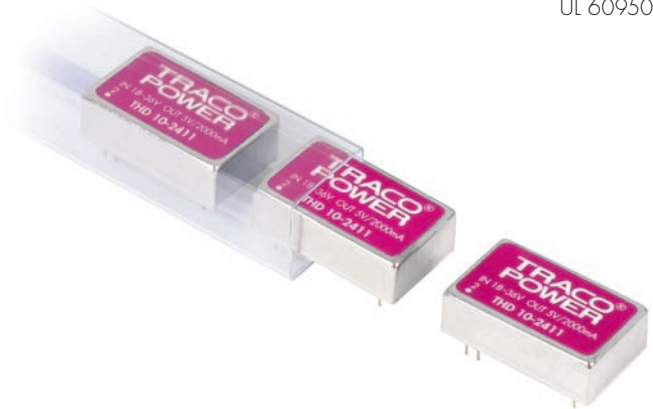


Features

- ◆ Very high power density in DIP-24 package
- ◆ Wide 2:1 input range
- ◆ Very high efficiency up to 87%
- ◆ I/O isolation 1500V
- ◆ Input filter to meet EN 55022, class A without ext. components
- ◆ Low ripple and noise
- ◆ Continuous short circuit protection
- ◆ Operating temp. range -40°C to +71°C
- ◆ 3-year product warranty



The THD-10 series is a range of isolated high performance 10W DC/DC converters in a low profile DIL-24 package with standard industry pin-out. Other features of this product are built-in overvoltage protection and internal EMI-filter to meet EN 55022, class A. Full SMD-design with exclusive use of ceramic capacitors guarantees a high reliability and long product lifetime. Typical applications for these converters are industrial electronics, instrumentation, data communication systems and battery operated equipment with limited space available on the PCB.

| Models | | | | |
|-------------|--|----------------|---------------------|-----------------|
| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
| THD 10-1210 | 9 – 18 VDC (12 VDC nominal) | 3.3 VDC | 3'000 mA | 82 % |
| THD 10-1211 | | 5.1 VDC | 2'000 mA | 83 % |
| THD 10-1212 | | 12 VDC | 830 mA | 87 % |
| THD 10-1222 | | ± 12 VDC | ± 415 mA | 87 % |
| THD 10-1223 | | ± 15 VDC | ± 330 mA | 86 % |
| THD 10-2409 | 18 – 36 VDC (24 VDC nominal) | 2.5 VDC | 3'000 mA | 83 % |
| THD 10-2410 | | 3.3 VDC | 3'000 mA | 85 % |
| THD 10-2411 | | 5.1 VDC | 2'000 mA | 87 % |
| THD 10-2412 | | 12 VDC | 830 mA | 87 % |
| THD 10-2422 | | ± 12 VDC | ± 415 mA | 88 % |
| THD 10-2423 | | ± 15 VDC | ± 330 mA | 87 % |
| THD 10-4809 | 36 – 75 VDC (48 VDC nominal) | 2.5 VDC | 3'000 mA | 83 % |
| THD 10-4810 | | 3.3 VDC | 3'000 mA | 85 % |
| THD 10-4811 | | 5.1 VDC | 2'000 mA | 87 % |
| THD 10-4812 | | 12 VDC | 830 mA | 87 % |
| THD 10-4822 | | ± 12 VDC | ± 415 mA | 88 % |
| THD 10-4823 | | ± 15 VDC | ± 330 mA | 87 % |

Input Specifications

| | | |
|---|-----------------------------|--|
| Input current (no load) | 12 Vin models | 40 mA typ. |
| | 24 Vin models | 20 mA typ. |
| | 48 Vin models | 10 mA typ. |
| Input current (full load) | 12 Vin models | 1000 mA typ. |
| | 24 Vin; 2.5.Vout models | 380 mA typ. |
| | 24 Vin; other output models | 480 mA typ. |
| | 48 Vin; 2.5.Vout models | 190 mA typ. |
| | 48 Vin; other output models | 240 mA typ. |
| Start-up voltage / under voltage shut down | 12 Vin models | 9 VDC / 8.5 VDC |
| | 24 Vin models | 18 VDC / 17 VDC |
| | 48 Vin models | 36 VDC / 34 VDC |
| Surge voltage (1 sec. max.) | 12 Vin models | 25 V max. |
| | 24 Vin models | 50 V max. |
| | 48 Vin models | 100 V max. |
| Reverse voltage protection | | 0.5 A max. |
| Conducted noise (input) | | EN 55022 level A, FCC part 15, level A |

Output Specifications

| | | |
|-------------------------------------|--|--|
| Voltage set accuracy | | ±1.2 % |
| Regulation | – Input variation Vin min. to Vin max. | 1.0 % max. |
| | – Load variation 10 – 100 % | 1.2 % max. (±1.5 % max. for 2.5 Vout models) |
| Ripple and noise (20 MHz bandwidth) | | 85 mVpk-pk max. |
| Temperature coefficient | | ±0.02 %/K |
| Output current limitation | | >110 % of Iout max., constant current |
| Short circuit protection | | indefinite (automatic recovery) |
| Capacitive load | 2.5, 3.3, 5, 5.1 Vout models: | 2'000 µF max. |
| | 12 / ±12 Vout models: | 820 µF max. / ±220 µF max. (each output) |
| | 15 / ±15 Vout models: | 470 µF max. / ±150 µF max. (each output) |

General Specifications

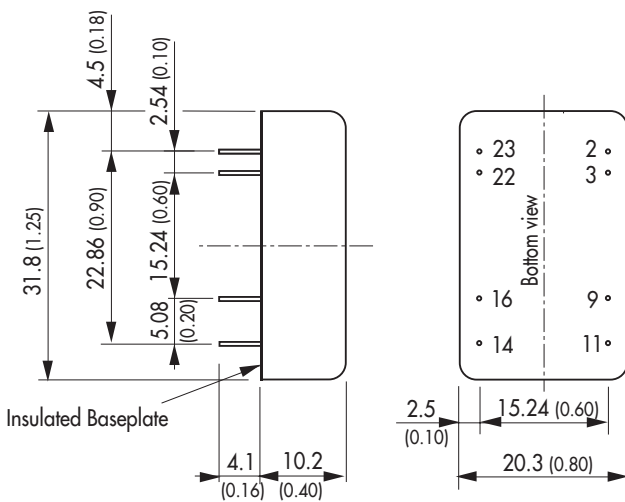
| | | |
|--|--------------------|---|
| Temperature ranges | – Operating | –40°C to +71°C |
| | – Case temperature | +95°C max. |
| | – Storage | –55°C to +125°C |
| Derating (convection cooling) | | 3.0 %/K above 60°C |
| Humidity (non condensing) | | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK:217F @ 25°C, ground benign) | | >1 Mio. h |
| Isolation voltage (60 sec.) Input/Output | | 1'500 VDC |
| Isolation capacity Input/Output | | 1'200 pF typ |
| Isolation resistance Input/Output (500 VDC) | | >1'000 M Ohm |
| Switching frequency (fixed) | | 400 kHz typ. (pulse width modulation PWM) |
| Safety standards | | UL/cUL 60950-1, EN 60950-1, IEC 60950-1 |
| Safety approvals | | www.tracopower.com/products/thd10_csa.pdf CSA File No. 226037 |

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

Physical Specifications

| | |
|-----------------------|------------------------------------|
| Casing material | steel, nickel plated |
| Baseplate material | non conductive FR4 |
| Potting material | silicon rubber TES (UL94V-0 rated) |
| Weight | 17.3 g (0.61 oz) |
| Soldering temperature | max. 265°C / 10 sec. |

Outline Dimensions



| Pin-Out | | |
|---------|------------|------------|
| Pin | Single | Dual |
| 2 | -Vin (GND) | -Vin (GND) |
| 3 | -Vin (GND) | -Vin (GND) |
| 9 | No pin. | Common |
| 11 | No con. | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin (Vcc) | +Vin (Vcc) |
| 23 | +Vin (Vcc) | +Vin (Vcc) |

Dimensions in [mm], () = Inch
 Pin diameter $\varnothing 0.5 \pm 0.05$ (0.02 \pm 0.002)
 Tolerances ± 0.5 (± 0.02)
 Pin pitch tolerances ± 0.35 (± 0.014)

Specifications can be changed any time without notice.