



Features

- ◆ Smallest encapsulated 15W Converter
Ultra compact Size: 25.4x25.4x10.2mm
- ◆ Single- and Dual Output Models
- ◆ I/O- Isolation Voltage 1500VDC
- ◆ High Efficiency up to 87%
- ◆ Operating Temp. Range: -25°C to +71°C
- ◆ Remote On/Off
- ◆ Industry Standard Pinout
- ◆ Lead free Design, RoHS compliant
- ◆ 3 Year Product Warranty



The THD-15 series is the latest generation of high performance 15W dc-dc converter modules setting new standards concerning power density. This product comes in a encapsulated package with dimensions of only 25.4 x 25.4 x 10mm and therefore occupies 50%(!) less board space than existing 15W converters.

All models have wide 2:1 input voltage range and precisely regulated, isolated output voltages. Built-in filters for both input and output minimizes the need for external filtering. Further features include remote On/Off and short circuit protection. Typical applications for these converters are battery operated equipment, instrumentation, distributed power architectures in communication and industrial electronics and everywhere where space is limited on the PCB.

Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|-------------|---------------------|----------------|---------------------|-----------------|
| THD 15-2410 | 18 – 36 VDC | 3.3 VDC | 3'500 mA | 84 % |
| THD 15-2411 | | 5.1 VDC | 3'000 mA | 85 % |
| THD 15-2412 | | 12 VDC | 1'250 mA | 86 % |
| THD 15-2413 | | 15 VDC | 1'000 mA | 86 % |
| THD 15-2422 | | ± 12 VDC | ± 600 mA | 85 % |
| THD 15-2423 | | ± 15 VDC | ± 500 mA | 85 % |
| THD 15-4810 | 36 – 75 VDC | 3.3 VDC | 3'500 mA | 84 % |
| THD 15-4811 | | 5.1 VDC | 3'000 mA | 86 % |
| THD 15-4812 | | 12 VDC | 1'250 mA | 87 % |
| THD 15-4813 | | 15 VDC | 1'000 mA | 87 % |
| THD 15-4822 | | ± 12 VDC | ± 600 mA | 85 % |
| THD 15-4823 | | ± 15 VDC | ± 500 mA | 85 % |

Input Specifications

| | |
|---|--|
| Input current (no load) | 24 Vin models: 50 mA typ. 48 Vin models: 30 mA typ. |
| Input current (full load) | 24 Vin; 3.3 Vout models: 570 mA typ. 24 Vin; other output models: 730 mA typ. 48 Vin; 3.3 Vout models: 280 mA typ. 48 Vin; other output models: 360 mA typ. |
| Start-up voltage / under voltage shut down | 24 Vin models: 17 VDC /16.5 VDC 48 Vin models: 34.0 VDC /32.5 VDC |
| Surge voltage (100 msec. max.) | 24 Vin models: 50 V max.. 48 Vin models: 100 V max. |
| Conducted noise (input) | EN 55022 level A, FCC part 15, level A (with external input capacitor, see Note 1) |

Output Specifications

| | |
|--|---|
| Voltage set accuracy | ± 1 % |
| Regulation | – Input variation Vin min. to Vin max: 0.5% max. – Load variation 10 – 100 % single output models: 0.5 % max. dual output models balanced: 2.0 % max. dual output models unbalanced: 5.0 % max. |
| Ripple and noise (20 MHz Bandwidth) | 100 mVpk-pk max. (with external output capacitor, see Note 1) |
| Temperature coefficient | ± 0.02 % /K |
| Output current limitation | >105% of Iout max., foldback |
| Short circuit protection | indefinite (automatic recovery) |
| Start-up time | 30ms max. |
| Max. capacitive load | 1200µF |

General Specifications

| | |
|--|---|
| Temperature ranges | – Operating: –25 °C ... +71°C – Derating: 2.5%/K above 50°C – Case temperature: +100 °C max. – Storage: –40 °C ... +110 °C |
| Humidity (non condensing) | 85 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217F ground benign) | > 190'000h @ +25°C |
| Isolation voltage (60sec) | – Input/Output: 1'500 VDC |
| Isolation capacity | – Input/Output: 235 pF typ. |
| Isolation resistance | – Input/Output (500 VDC): >100 M Ohm |
| Switching frequency (fixed) | 330 kHz typ. (Pulse width modulation PWM) |
| Safety standards | UL 60950-1, EN 60950-1, IEC 60950-1 |
| Safety approvals | CSA File No. 226037 http://directories.csa-international.org |
| Remote On/Off | – On: open circuit on pin RC – Off: short circuit between pin RC and pin –Vin |

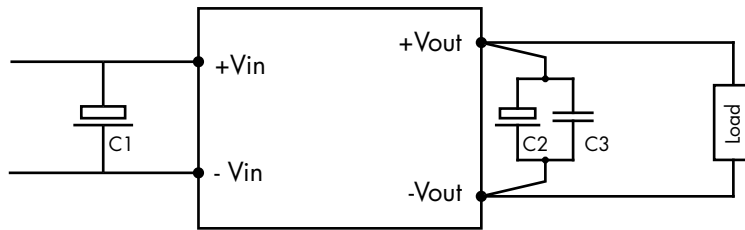
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

| | |
|-----------------------|-----------------------------|
| Case material | plastic PBT (UL94V-0 rated) |
| Baseplate | non conductive FR4 |
| Potting material | silicon (UL94V-0 rated) |
| Weight | 12 g (0.41 oz) |
| Soldering temperature | max. 265 °C / 10sec. |

Note 1

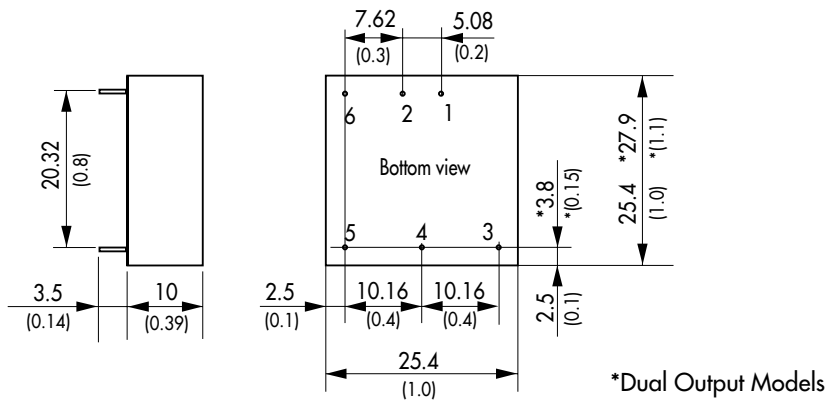
Recommended circuit to reduce conducted noise and output ripple & noise:



- C1: 33µF low ESR electrolytic capacitor
- C2: 10µF low ESR electrolytic capacitor
- C3: 1µ film capacitor

For dual output models use capacitors for each output

Outline Dimensions mm



| Pin-Out | | |
|---------|---------------|---------------|
| Pin | Single | Dual |
| 1 | +Vin (Vcc) | +Vin (Vcc) |
| 2 | -Vin (GND) | -Vin (GND) |
| 3 | +Vout | +Vout |
| 4 | No pin | Common |
| 5 | -Vout | -Vout |
| 6 | Remote On/Off | Remote On/Off |

() = Inch

Pin diameter $\varnothing 0.8 \pm 0.05$ (0.02 \pm 0.002)
Tolerances ± 0.35 (0.014)

Specifications can be changed any time without notice