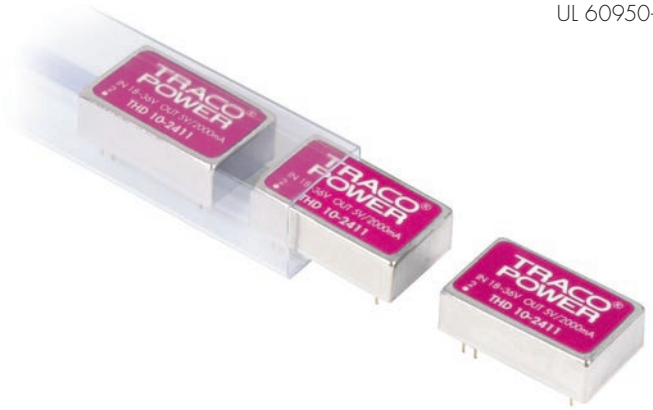
DC/DC Converters

THD 10 Series, 10 Watt

UL 60950-1

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 meets EN 55022, class A without ext. components
- Low ripple and noise
- Continuous short circuit protection
- Extended temp. range
- –40°C to +85°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	single output models	2'200 µF max.
	12 VDC output models	820 µF max.

General Specifications

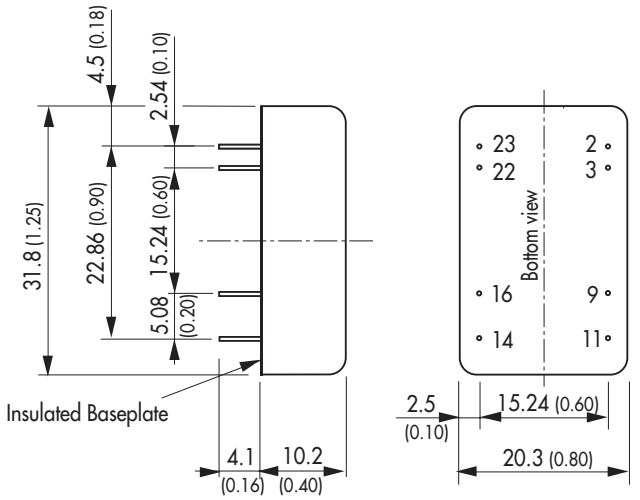
Temperature ranges	– Operating	–40 °C to +85 °C
	– Case temperature	+95 °C max.
	– Storage	–55 °C to +125 °C
Derating		3.0 % / K above 60°C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217 F, ground benign)		>1 Mio. h @ +25 °C
Isolation voltage (60 sec.) Input/Output		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 compliance up to 60 VDC input voltage (SELV limit)
Safety approvals		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

Case 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 ⌀ 0.5 ±0.05 (0.02 ±0.002)
Tolerances ±0.5 (0.02)
Pin pitch tolerances ±0.35 (0.014)

Specifications can be changed any time without notice.

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