DC/DC Converters

THD 10WIN Series, 10 Watt

CB Scheme IEC 60950-1 UL 60950-1

Features

- Ultra wide 4:1 input voltage range
- Internal EMI-filter meets EN 55022, class A without external components
- High efficiency up to 87%
- Operating temperature range –40°C to +85°C
- No minimum load required
- I/O isolation 1'500 VDC
- Overload protection
- 3-year product warranty

The THD 10WIN series is designed for an optimized cost/performance ratio of DC/DC converters with output power of 10 Watt.
They come with an internal EMI-filter to meet EN55022, class A without external components. General features like no minimum load requirement, overload protection and high efficiency make these converters easy to design in. With the popular DIP-24 standard package they are also a drop in replacement for many cost critical applications.

Models

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THD 10-2410WIN	**9 – 36 VDC** (24 VDC nominal)	3.3 VDC	2700 mA	86 %
THD 10-2411WIN		5.1 VDC	2000 mA	85 %
THD 10-2412WIN		12 VDC	833 mA	87 %
THD 10-2413WIN		15 VDC	666 mA	87 %
THD 10-2415WIN		24 VDC	416 mA	87 %
THD 10-2422WIN		±12 VDC	±416 mA	87 %
THD 10-2423WIN		±15 VDC	±333 mA	87 %
THD 10-4810WIN	**18 – 75 VDC** (48 VDC nominal)	3.3 VDC	2700 mA	86 %
THD 10-4811WIN		5.1 VDC	2000 mA	85 %
THD 10-4812WIN		12 VDC	833 mA	87 %
THD 10-4813WIN		15 VDC	666 mA	87 %
THD 10-4815WIN		24 VDC	416 mA	87 %
THD 10-4822WIN		±12 VDC	±416 mA	87 %
THD 10-4823WIN		±15 VDC	±333 mA	87 %

Input Specifications

Input current at no load	24 Vin models: 48 Vin models:	30 mA typ. 20 mA typ.
Recommended input fuse (slow blow)	24 Vin models: 48 Vin models:	2000 mA 1000 mA
Start-up voltage / under voltage shut down	24 Vin models: 48 Vin models:	9 VDC / 8.5 VDC (or lower) 18 VDC / 17 VDC (or lower)
Surge voltage (1 sec. max.)	24 Vin models: 48 Vin models:	50 V max. 100 V max.
Conducted noise		EN 55022 class A without external components
ESD (electrostatic discharge)		EN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A
Radiated immunity		EN 61000-4-3, 10 V/m, perf. criteria A
Fast transient / surge		EN 61000-4-4, ±2 kV, perf. criteria A EN 61000-4-5, ±1 kV perf. criteria A with external capacitor chemi-con KY 220 µF, 100 V
Conducted immunity		EN 61000-4-6, 10 Vrms, perf. criteria A

Output Specifications

Voltage set accuracy		±2 % max.
Regulation	– Input variation Vin min. to Vin max. – Load variation 0 – 100 % single output models: dual output models balanced load:	1.0 % max. 1.2 % max. 2.0 % max.
Minimum load		not required
Temperature coefficient		±0.02 %/K
Ripple and noise (20 MHz Bandwidth)		100 mVp-p max.
Transient recovery time (25% load step change)		300 µS response time typ.
Transient response deviation (25% load step change)		±5 % max.
Current limitation		110–150 % of Iout hiccup, automatic recovery
Short circuit protection		hiccup, automatic recovery
Over load protection		150 % of Iout max. typ.
Capacitive load	3.3 & 5.1 VDC models: 12 VDC models: 15 VDC models: 24 VDC models: ±12 VDC models: ±15 VDC models:	1000 µF max. 470 µF max. 330 µF max. 150 µF max. 220 µF max. (each output) 150 µF max. (each output)

General Specifications

Temperature ranges	– Operating (natural convection 20 LFM) – Case temperature – Storage	–40°C to +85°C +105°C max. –50°C to +125°C
Derating		3.3 %/K above +70°C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		1'000'000 h
Isolation voltage (input/output 60 sec., rated)		1'500 VDC
Isolation capacitance (input/output, 100 KHz, 1 V)		1'000 pF typ.
Isolation resistance (input/output, 500 VDC)		>1'000 M Ohm

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

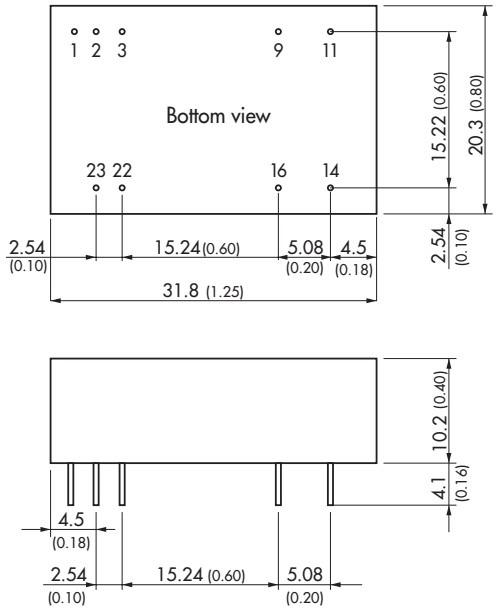
General Specifications

Remote On/Off	– On: – Off: – Off idle current:	3.5 ... 12 VDC or open circuit 0 ... +1.2 VDC or short circuit pin 1 and pin 2 10 mA max.
Switching frequency		330 kHz typ.
Safety standards		UL/cUL 60950-1, IEC/EN 60950-1
Safety approvals	– CSA certificate of compliance – CB test certificate – Certification documents	CAN/CSA-C22.2 No 60950-1-07, Am 1:2011 ANSI/UL Std No 60950-1, 2nd Ed, AM 1:2011 IEC 60950-1:2005 2nd Ed, Am 1:2009 www.tracopower.com/overview/thd10win
Environmental compliance	– Reach – RoHS	www.tracopower.com/products/reach-declaration.pdf RoHS directive 2011/65/EU

Physical Specifications

Casing	metal with non conductive baseplate
Pin	copper alloy with gold plated nickel subplate
Weight	17.3 g (0.61 oz)
Soldering temperature (1.5mm from case for 10 sec.)	max. 260°C

Outline Dimensions



Pin-Out		
Pin	**Single**	**Dual**
1	Remote On/Off	Remote On/Off
2	–Vin (GND)	–Vin (GND)
3	–Vin (GND	–Vin (GND
9	No pin	Common
11	No function	–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 ±0.25 (±0.01)