

Features

- ◆ Wide 2:1 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 10N 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 10-1210N	9 – 18 VDC (12 VDC nominal)	3.3 VDC	2700 mA	86 %
THD 10-1211N		5.1 VDC	2000 mA	85 %
THD 10-1212N		12 VDC	833 mA	88 %
THD 10-1213N		15 VDC	666 mA	89 %
THD 10-1222N		±12 VDC	±416 mA	88 %
THD 10-1223N		±15 VDC	±333 mA	89 %
THD 10-2410N	18 – 36 VDC (24 VDC nominal)	3.3 VDC	2700 mA	86 %
THD 10-2411N		5.1 VDC	2000 mA	85 %
THD 10-2412N		12 VDC	833 mA	89 %
THD 10-2413N		15 VDC	666 mA	89 %
THD 10-2422N		±12 VDC	±416 mA	88 %
THD 10-2423N		±15 VDC	±333 mA	89 %
THD 10-4810N	36 – 75 VDC (48 VDC nominal)	3.3 VDC	2700 mA	86 %
THD 10-4811N		5.1 VDC	2000 mA	85 %
THD 10-4812N		12 VDC	833 mA	87 %
THD 10-4813N		15 VDC	666 mA	88 %
THD 10-4822N		±12 VDC	±416 mA	87 %
THD 10-4823N		±15 VDC	±333 mA	88 %

Input Specifications

Input current at no load	12 Vin models: 20 mA typ. 24 Vin models: 15 mA typ. 48 Vin models: 10 mA typ.
Start-up voltage / under voltage shut down	12 Vin models: 9 VDC / 8.5 VDC (or lower) 24 Vin models: 18 VDC / 17 VDC (or lower) 48 Vin models: 36 VDC / 34 VDC (or lower)
Surge voltage (1 sec. max.)	12 Vin models: 25 V max. 24 Vin models: 50 V max. 48 Vin models: 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 μ F, 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. 1.0 % max. – Load variation 0 – 100 % single output models: 1.2 % max. dual output models balanced load: 2.0 % max.
Minimum load	not required
Temperature coefficient	± 0.02 %/K
Ripple and noise (20 MHz Bandwidth)	100 mVp-p typ.
Transient recovery time (25% load step change)	300 μ s response time typ.
Transient response deviation (25% load step change)	± 5 % max.
Short circuit protection	hiccup, automatic recovery
Over load protection	150 % of lout max. typ.
Capacitive load	3.3 & 5.1 VDC models: 1000 μ F max. 12 VDC models: 470 μ F max. 15 VDC models: 330 μ F max. ± 12 VDC models: 220 μ F max. (each output) ± 15 VDC models: 150 μ F max. (each output)

General Specifications

Temperature ranges	– Operating (natural convection 20 LFM) –40°C to +85°C – Case temperature +105°C max. – Storage –50°C to +125°C
Derating	2.9 %/K above +70°C
Humidity (non condensing)	95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)	> 1 Mio h
Isolation voltage (input/output 60 sec., rated)	1'500 VDC
Isolation capacitance (input/output, 100 KHz, 1 V)	1'500 pF max.
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.

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 according UL 60950-1	pending www.tracopower.com/products/thd10n-csa.pdf
Environmental compliance	– Reach – RoHS	www.tracopower.com/overview/thd10n RoHS directive 2011/65/EU

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

Application note: www.tracopower.com/products/ind10n-application.pdf

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 $\varnothing 0.5 \pm 0.05$ (0.02 ± 0.002)
Tolerances ± 0.5 (± 0.02)
Pin pitch tolerances ± 0.25 (± 0.01)