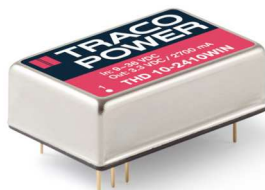


DC/DC Converter

THD 10WIN Series, 10 Watt

- Ultra wide 4:1 input voltage range
- Internal EMI-filter meets EN 55032, Class A without external components
- High efficiency up to 87%
- Operating temperature range
-40°C to +85°C
- I/O isolation 1'500 VDC
- Overload protection
- 3-year product warranty



UL 62368-1 IEC 62368-1

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 EN 55032, 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 1		Output 2		Efficiency typ.
		Vnom	I _{max}	Vnom	I _{max}	
THD 10-2410WIN	9 - 36 VDC (24 VDC nom.)	3.3 VDC	2'700 mA			86 %
THD 10-2411WIN		5.1 VDC	2'000 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	-12 VDC	416 mA	87 %
THD 10-2423WIN		+15 VDC	333 mA	-15 VDC	333 mA	87 %
THD 10-4810WIN	18 - 75 VDC (48 VDC nom.)	3.3 VDC	2'700 mA			86 %
THD 10-4811WIN		5.1 VDC	2'000 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	-12 VDC	416 mA	87 %
THD 10-4823WIN		+15 VDC	333 mA	-15 VDC	333 mA	87 %

Input Specifications

Input Current	- At no load	24 Vin models: 30 mA typ. 48 Vin models: 20 mA typ.
	- At full load	24 Vin models: 470 mA typ. 48 Vin models: 240 mA typ.
Surge Voltage		24 Vin models: 50 VDC max. (1 s max.) 48 Vin models: 100 VDC max. (1 s max.)
Start-up Voltage		24 Vin models: 7 VDC min. / 8 VDC typ. / 9 VDC max. 48 Vin models: 14 VDC min. / 16 VDC typ. / 18 VDC max.
Under Voltage Lockout		24 Vin models: 8.5 VDC max. 48 Vin models: 17 VDC max.
Reflected Ripple Current		24 Vin models: 40 mA _{p-p} typ. 48 Vin models: 30 mA _{p-p} typ.
Recommended Input Fuse		24 Vin models: 2'000 mA (slow blow) 48 Vin models: 1'000 mA (slow blow) (The need of an external fuse has to be assessed in the final application.)
Input Filter		Internal Pi-Type

Output Specifications

Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (V _{min} - V _{max})	single output models: 1% max. dual output models: 1% max.
	- Load Variation (0 - 100%)	single output models: 1.2% max. dual output models: 1.2% max. (Output 1) 1.2% max. (Output 2)
	- Voltage Balance (symmetrical load)	dual output models: 2% max.
Ripple and Noise		- 20 MHz Bandwidth 100 mV _{p-p} max.
Capacitive Load	- single output	3.3 V _{out} models: 1'000 µF max. 5.1 V _{out} models: 1'000 µF max. 12 V _{out} models: 470 µF max. 15 V _{out} models: 330 µF max. 24 V _{out} models: 150 µF max.
		12 / -12 V _{out} models: 220 / 220 µF max.
		15 / -15 V _{out} models: 150 / 150 µF max.
	- dual output	
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		150% typ. of I _{out} max.
Transient Response	- Response Deviation	3% typ. / 5% max. (75% to 100% Load Step)
	- Response Time	300 µs typ. / 600 µs max. (75% to 100% Load Step)

Safety Specifications

Standards	- IT / Multimedia Equipment	CSA-C22.2, No. 60950-1 EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 62368-1
	- Certification Documents	www.tracopower.com/overview/thd10win
Pollution Degree		PD 2

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

EMC Specifications

EMI (Emissions)	- Conducted Emissions	EN 55032 class A (internal filter)
EMS (Immunity)		EN 55024 (IT Equipment)
		EN 55035 (Multimedia)
	- Electrostatic Discharge	Air: EN 61000-4-2, ± 8 kV, perf. criteria A
		Contact: EN 61000-4-2, ± 6 kV, perf. criteria A
	- RF Electromagnetic Field	EN 61000-4-3, 10 V/m, perf. criteria A
	- EFT (Burst) / Surge	EN 61000-4-4, ± 2 kV, perf. criteria A
		EN 61000-4-5, ± 1 kV, perf. criteria A
		Ext. input component: 220 μ F, 100 V
	- Conducted RF Disturbances	EN 61000-4-6, 10 Vrms, perf. criteria A

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-40°C to +85°C
	- Case Temperature	+105°C max.
	- Storage Temperature	-50°C to +125°C
Power Derating	- High Temperature	2.86 %/K above 70°C
		See application note: www.tracopower.com/overview/thd10win
Cooling System		Natural convection (20 LFM)
Remote Control	- Voltage Controlled Remote (passive = on)	On: 3.5 to 12 VDC or open circuit
		Off: 0 to 1.2 VDC or short circuit
		Refers to 'Remote' and '-Vin' Pin
	- Off Idle Input Current	10 mA max.
	- Remote Pin Input Current	-0.5 to 0.5 mA
Altitude During Operation		6'000 m max.
Switching Frequency		300 - 360 kHz (PWM)
		330 kHz typ. (PWM)
Insulation System		Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s	1'500 VDC
Isolation Resistance	- Input to Output, 500 VDC	1'000 M Ω min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V	1'000 pF typ.
		1'500 pF max.
Reliability	- Calculated MTBF	1'000'000 h (MIL-HDBK-217F, ground benign)
Washing Process		According to Cleaning Guideline
		www.tracopower.com/info/cleaning.pdf
Housing Material		Metal
Base Material		Non-conductive Plastic (UL 94 V-0 rated)
Potting Material		Silicone (UL 94 V-0 rated)
Pin Material		Copper Alloy (C6801)
Pin Foundation Plating		Nickel (2.5 μ m min.)
Pin Surface Plating		Gold (75 - 125 nm), glossy
Housing Type		Metal Case
Mounting Type		PCB Mount
Connection Type		THD (Through-Hole Device)
Footprint Type		DIP24
Soldering Profile		Lead-Free Wave Soldering
		260°C / 10 s max.
Weight		17.3 g

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

Environmental Compliance - REACH Declaration

www.tracopower.com/info/reach-declaration.pdf

- RoHS Declaration

REACH SVHC list compliant

REACH Annex XVII compliant

www.tracopower.com/info/rohs-declaration.pdf

Exemptions: 7(a)

(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)

- SCIP Reference Number

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Additional Information

Supporting Documents

www.tracopower.com/overview/thd10win

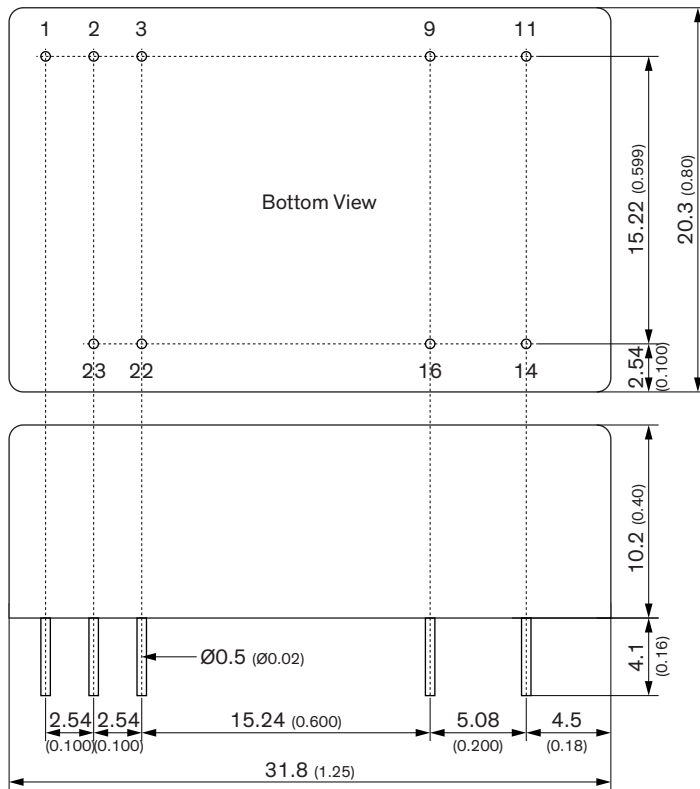
Frequently Asked Questions

www.tracopower.com/glossary-faq

Glossary

www.tracopower.com/info/glossary.pdf

Outline Dimensions

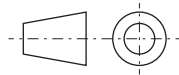


Dimensions in mm (inch)

Tolerances: x.x ±0.50 (x.xx ±0.02)

Tolerances: x.xx ±0.25 (x.xxx ±0.01)

Pin diameter tolerance: x.x ±0.05 (x.xx ±0.002)



Pinout

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	NC	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

NC: Not connected