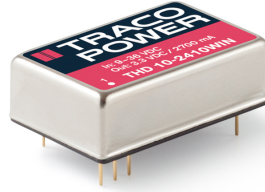


- Ultra wide 4:1 input voltage range
- Internal EMI-filter meets EN 55032, Class A without external components
- High efficiency up to 87%
- Operating temperature range -40°C to +85°C
- I/O isolation 1'500 VDC
- Overload protection
- 3-year product warranty



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.
	- dual output	12 / -12 V _{out} models: 220 / 220 μF max.
		15 / -15 V _{out} models: 150 / 150 μF max.
	Minimum Load	
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

Safety 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 V _{rms} , perf. criteria A

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature - Case Temperature - Storage Temperature	-40°C to +85°C +105°C max. -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 - Off Idle Input Current - Remote Pin Input Current	On: 3.5 to 12 VDC or open circuit Off: 0 to 1.2 VDC or short circuit Refers to 'Remote' and '-Vin' Pin 10 mA max. -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		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: 7a

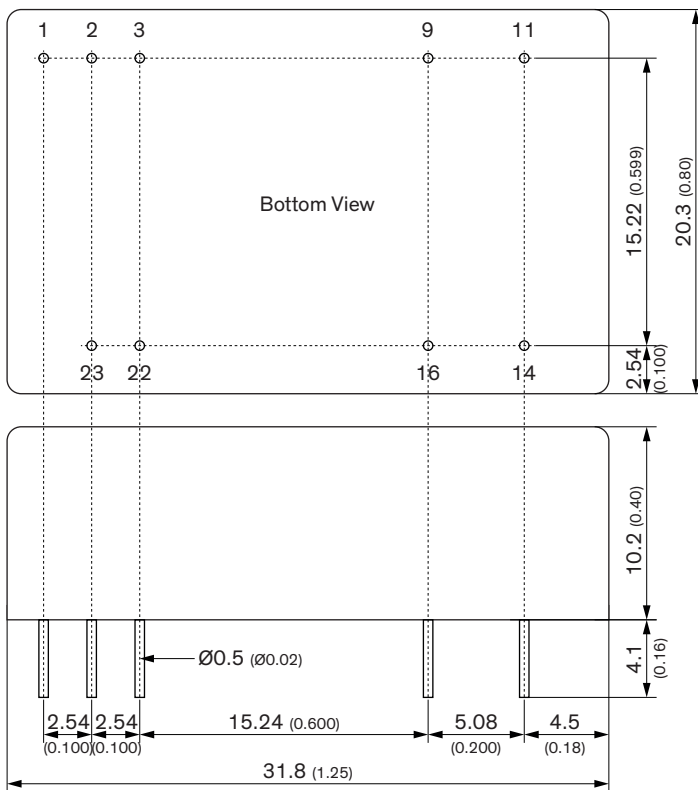
(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).
The SCIP number is provided on request.)

Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/thd10win

Outline Dimensions



Dimensions in mm (inch)

Tolerances: $x.x \pm 0.50$ ($x.xx \pm 0.02$)

Tolerances: $x.xx \pm 0.25$ ($x.xxx \pm 0.01$)

Pin diameter tolerance: $x.x \pm 0.05$ ($x.xx \pm 0.002$)

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