

#### 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: 30 mA typ. 48 Vin models: 20 mA typ.
Recommended input fuse (slow blow)	24 Vin models: 2000 mA 48 Vin models: 1000 mA
Start-up voltage / under voltage shut down	24 Vin models: 9 VDC / 8.5 VDC (or lower) 48 Vin models: 18 VDC / 17 VDC (or lower)
Surge voltage (1 sec. 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 $\pm 8$ kV, contact $\pm 6$ kV, perf. criteria A
Radiated immunity	EN 61000-4-3, 10 V/m, perf. criteria A
Fast transient / surge	EN 61000-4-4, $\pm 2$ kV, perf. criteria A EN 61000-4-5, $\pm 1$ kV perf. criteria A with external capacitor chemi-con KY 220 $\mu$ F, 100 V
Conducted immunity	EN 61000-4-6, 10 Vrms, perf. criteria A

### Output Specifications

Voltage set accuracy	$\pm 2$ % 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	$\pm 0.02$ %/K
Ripple and noise (20 MHz Bandwidth)	100 mVp-p max.
Transient recovery time (25% load step change)	300 $\mu$ S response time typ.
Transient response deviation (25% load step change)	$\pm 5$ % max.
Current limitation	110–150 % of Iout foldback, automatic recovery
Short circuit protection	hiccup, automatic recovery
Over load protection	150 % of Iout max. typ.
Capacitive load	3.3 & 5.1 VDC models: 1000 $\mu$ F max. 12 VDC models: 470 $\mu$ F max. 15 VDC models: 330 $\mu$ F max. 24 VDC models: 150 $\mu$ F max. $\pm 12$ VDC models: 220 $\mu$ F max. (each output) $\pm 15$ VDC models: 150 $\mu$ F max. (each output)

### General Specifications

Temperature ranges	– Operating (natural convection 20 LFM) –40°C to +85°C – Case temperature +100°C max. – Storage –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**

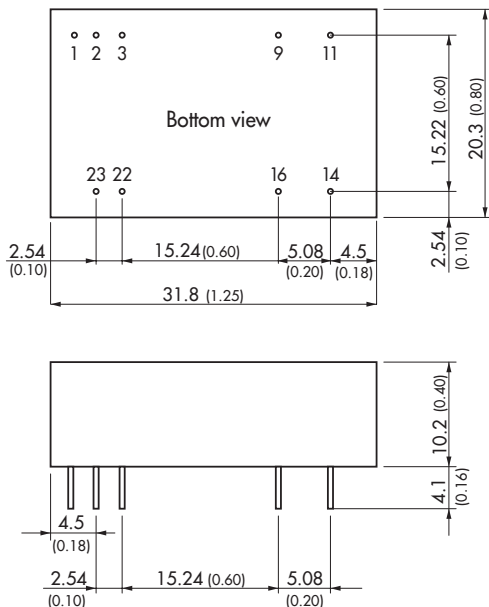
Remote On/Off	- On: - Off: - Off idle current:	3.5 ... 12 VDC or open circuit 0 ... +1.2 VDC or short circuit pin 1 and pin 2 10 mA max.
Switching frequency		330 kHz typ.
Safety standards		UL/cUL 60950-1, IEC/EN 60950-1
Safety approvals	- CSA certificate according UL 60950-1	<i>pending</i> <a href="http://www.tracopower.com/products/thd10win-csa.pdf">www.tracopower.com/products/thd10win-csa.pdf</a>
Environmental compliance	- Reach - RoHS	<a href="http://www.tracopower.com/products/thd10win-reach.pdf">www.tracopower.com/products/thd10win-reach.pdf</a> 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

**Application note:** *pending* [www.tracopower.com/products/thd10win-application.pdf](http://www.tracopower.com/products/thd10win-application.pdf)

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

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at [www.tracopower.com](http://www.tracopower.com)