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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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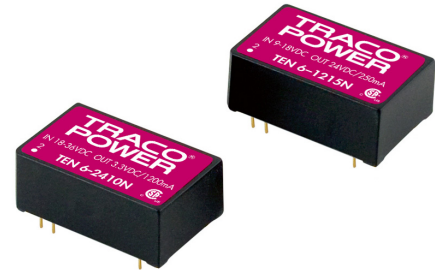
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Features

- ◆ 2:1 input voltage range
- ◆ High efficiency
- ◆ Operating temperature range
-40°C to +85°C
- ◆ No minimum load required
- ◆ Input filter meets EN 55022, class A
- ◆ Overload protection
- ◆ I/O-isolation 1'500 VDC
- ◆ DIP-24 plastic package
- ◆ Industry standard pinout
- ◆ 3-year product warranty



The TEN-6N series is designed for an optimized cost/performance ratio of DC/DC converters with output power of 6 Watt.

General features like no minimum load requirement, overload protection, internal filter for EN55022 class A 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.
TEN 6-1210N	9 – 18 VDC (12 VDC nominal)	3.3 VDC	1200 mA	75 %
TEN 6-1211N		5 VDC	1200 mA	78 %
TEN 6-1212N		12 VDC	500 mA	82 %
TEN 6-1213N		15 VDC	400 mA	82 %
TEN 6-1215N		24 VDC	250 mA	84 %
TEN 6-1221N		±5 VDC	±500 mA	78 %
TEN 6-1222N		±12 VDC	±250 mA	82 %
TEN 6-1223N		±15 VDC	±200 mA	82 %
TEN 6-2410N	18 – 36 VDC (24 VDC nominal)	3.3 VDC	1200 mA	77 %
TEN 6-2411N		5 VDC	1200 mA	80 %
TEN 6-2412N		12 VDC	500 mA	84 %
TEN 6-2413N		15 VDC	400 mA	84 %
TEN 6-2415N		24 VDC	250 mA	84 %
TEN 6-2421N		±5 VDC	±500 mA	80 %
TEN 6-2422N		±12 VDC	±250 mA	84 %
TEN 6-2423N		±15 VDC	±200 mA	84 %
TEN 6-4810N	36 – 75 VDC (48 VDC nominal)	3.3 VDC	1200 mA	77 %
TEN 6-4811N		5 VDC	1200 mA	80 %
TEN 6-4812N		12 VDC	500 mA	84 %
TEN 6-4813N		15 VDC	400 mA	84 %
TEN 6-4815N		24 VDC	250 mA	84 %
TEN 6-4821N		±5 VDC	±500 mA	80 %
TEN 6-4822N		±12 VDC	±250 mA	84 %
TEN 6-4823N		±15 VDC	±200 mA	84 %

Input Specifications

Input current at no load	12 Vin models: 40 mA typ. 24 Vin models: 20 mA typ. 48 Vin models: 10 mA typ.
Input current at full load	12 Vin, 3.3VDC models: 440 mA typ. 12 Vin other models: 610 mA typ. 24 Vin, 3.3VDC models: 220 mA typ. 24 Vin other models: 300 mA typ. 48 Vin, 3.3VDC models: 110 mA typ. 48 Vin other models: 150 mA typ.
Recommended input fuse (slow blow)	12 Vin models: 1500 mA 24 Vin models: 700 mA 48 Vin models: 350 mA
Start-up voltage / under voltage shut down	12 Vin models: 9.0 VDC / 8.5 VDC (or lower) 24 Vin models: 18 VDC / 16 VDC (or lower) 48 Vin models: 36 VDC / 35 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	internal filter to meet EN 55022 class A

Output Specifications

Voltage set accuracy	±2 %
Regulation	– Input variation Vin min. to Vin max. 0.5 % max. – Load variation 0 – 100 % single output models: 1.2 % max. dual output models balanced load: 1.2 % max. dual output models 50%/100% unbalanced load: 3.0 % max.
Minimum load	not required
Temperature coefficient	±0.02 %/K
Ripple and noise (20 MHz Bandwidth)	80 mVp-p max.
Dynamic load response (change from 75 % to 100 % load)	±3 % peak variation typ. 300 µS response time typ.
Current limitation	145 % of lout max. typ., constant power
Short circuit protection	continuous, automatic recovery
Capacitive load	3.3 & 5.0 VDC models: 470 µF max. 12 & 15 VDC models: 100 µF max. 24 VDC models: 47 µF max. dual output models: 100 µF max. (each output)

General Specifications

Temperature ranges	– Operating –40°C to +85°C – Case temperature +100°C max. – Storage –50°C to +125°C
Derating	3.3 & 5.0 VDC models: 2.5 %/K above +60°C other models: 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 Mio. h
Isolation voltage (60 sec.) – Input/Output	1'500 VDC (functional insulation)
Isolation capacitance – Input/Output (100 KHz, 1 V)	1000 pF typ.
Isolation resistance – Input/Output (500 VDC)	>1'000 M Ohm
Switching frequency	330 kHz typ.

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

General Specifications

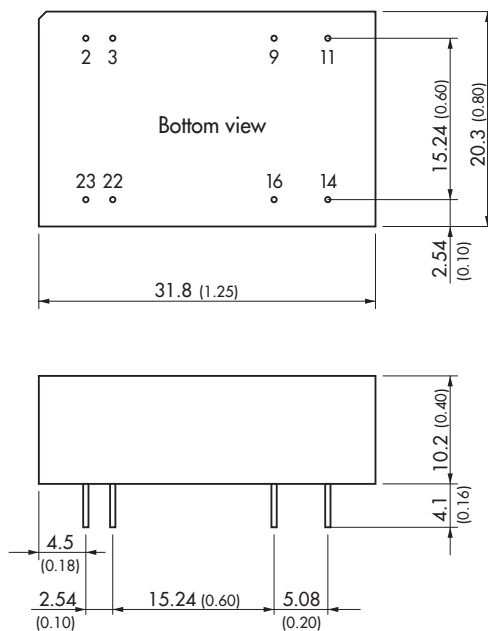
Safety standards	- Certification documents	UL/cUL 60950-1, IEC/EN 60950-1 www.tracopower.com/overview/ten6n
Environmental compliance	- Reach - RoHS	www.tracopower.com/info/reach-declaration.pdf RoHS directive 2011/65/EU

Physical Specifications

Casing material	non conductive plastic (UL 94V-0-rated)
Potting material	epoxy (XM-2109 & XY-2110, UL 94V-0-rated)
Weight	13.0 g (0.46 oz)
Soldering temperature (1.5mm from case for 10 sec.)	max. 260°C

Supporting documents: www.tracopower.com/overview/ten6n

Outline Dimensions



Pin-Out		
Pin	Single	Dual
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 ± 0.25 (± 0.01)
 Pin pitch tolerances ± 0.13 (± 0.0005)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com