



UL 60950-1

### Features

- ◆ Ultra-wide 4:1 Input Range
- ◆ High Efficiency up to 86%
- ◆ Extended Operating Temperature Range  
-40 to +85°C max.
- ◆ Indefinite Short-circuit Protection
- ◆ I/O-Isolation 1500VDC
- ◆ Built-inFilter meets EN 55022, Class A and FCC, Level A without external Components
- ◆ Remote On/Off
- ◆ Industry Standard Pinout
- ◆ Six-Side shielded Case
- ◆ Lead free Design, fully RoHS compliant
- ◆ 3 Year Product Warranty



The TEN 15WI series of DC/DC converters, comprising 10 different models, has been designed for a wide range of applications including communications, industrial systems and battery powered equipments. Full SMD-design with use of ceramic chip capacitors guarantees a high reliability and a long lifetime. Other features of this converters are internal filter to meet EN 55022, class A and FCC, level A and an extended temperature range of -40°C to +85°C.

### Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEN 15-2410WI	9 – 36 VDC (24 VDC nominal)	3,3 VDC	3'000 mA	78 %
TEN 15-2411WI		5,1 VDC	2'950 mA	82 %
TEN 15-2412WI		12 VDC	1'250 mA	85 %
TEN 15-2422WI		± 12 VDC	± 625 mA	85 %
TEN 15-2423WI		± 15 VDC	± 500 mA	86 %
TEN 15-4810WI	18 – 75 VDC (48 VDC nominal)	3,3 VDC	3'000 mA	78 %
TEN 15-4811WI		5,1 VDC	2'950 mA	82 %
TEN 15-4812WI		12 VDC	1'250 mA	85 %
TEN 15-4822WI		± 12 VDC	± 625 mA	85 %
TEN 15-4823WI		± 15 VDC	± 500 mA	86 %

### Input Specifications

Input current at no load		24 Vin models: 25 mA typ. 48 Vin models: 15 mA typ.
Input current at full load	24 Vin; 24 Vin; 48 Vin; 48 Vin;	3.3 Vout models: 528 mA typ. other output models: 740 mA typ. 3.3 Vout models: 264 mA typ. other output models: 370 mA typ.
Surge voltage (100 msec. max.)		24 Vin models: 50 V max. 48 Vin models: 100 V max.
Conducted noise (input)		EN 55022 level A, FCC part 15, level A

### Output Specifications

Voltage set accuracy		± 1 %
Regulation	- Input variation Vin min. to Vin max. - Load variation 10 – 100 %	0.5 % max. 1 % max.
Ripple and noise (20 MHz Bandwidth)		80 mVpk-pk max.
Temperature coefficient		± 0.02 % / K
Output current limitation		> 110% of Iout max., foldback
Short circuit protection		indefinite (automatic recovery)
Capacitive load	single output models: dual output models:	470 µF max. 220 µF max.

### General Specifications

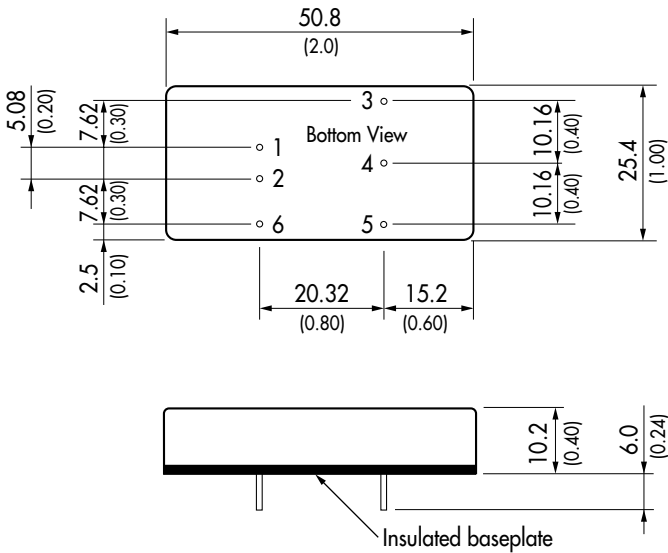
Temperature ranges	- Operating - Case temperature - Storage	- 40 °C ... + 85 °C + 100 °C max. - 55 °C ... + 125 °C
Derating		3.5%/K above 70°C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217E ground benign)		> 700'000 h @ + 25 °C
Isolation voltage (60 sec)	- Input/Output	1'500 VDC
Isolation capacity	- Input/Output	1200 pF typ
Isolation resistance	- Input/Output (500 VDC)	> 1'000 MOhm
Switching frequency (fixed)		330 kHz typ. (pulse width modulation)
Remote On/Off:	- On: - Off: - Off idle current:	2.5 ... 5.5 VDC or open circuit. -0.7 ... 0.8 VDC or short circuit pin 2 and pin 6 10 mA max.
Safety standards		UL 60950-1, EN 60950-1, IEC 60950-1
Safety approvals		CSA File No. 226037 <a href="http://directories.csa-international.org">http://directories.csa-international.org</a>

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

**Physical Specifications**

Case material	copper, nickel plated
Baseplate material	non conductive FR4
Potting material	Silicon TSE-3331A/B (flammability to UL 94V-0)
Weight	32g (1.09oz)
Soldering temperature	max. 265 °C / 10 sec.

**Outline Dimensions**



Pin-Out		
Pin	Single	Dual
1	+Vin (Vcc)	+Vin (Vcc)
2	-Vin (GND)	-Vin (GND)
3	+Vout	+Vout
4	No pin	Common
5	-Vout	-Vout
6	Remote On/Off	

Dimensions in [mm], ( ) = Inch  
 Pin diameter: 1.0 ±0.05 (0.02 ±0.002)  
 Pin pitch tolerances: ±0.25 (±0.01)  
 Case tolerances: ±0.5 (±0.02)

Specifications can be changed any time without notice