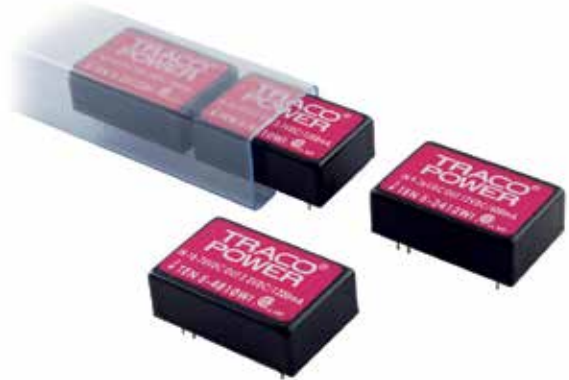


Features

- ◆ Ultra wide 4:1 input range
- ◆ DIP-24 Package with standard pinout
- ◆ Full SMD design
- ◆ Extended operating temperature range
-40°C to +85°C max.
- ◆ High efficiency
- ◆ Excellent load and line regulation
- ◆ Indefinite short circuit protection
- ◆ I/O isolation 1500VDC
- ◆ Built-in Filter to meet EN 55022, Class A
and FCC, level A
- ◆ Lead-free design, fully RoHS compliant
- ◆ 3-year product warranty



The TEN 5WI series is a family of high performance dc-dc converter modules with 5 W output power, featuring ultra wide input voltage ranges of 9 - 36 VDC or 18 - 75 VDC. They come in a shielded DIP-24 metal package with industry-standard footprint.

A high efficiency allows -40°C to +70°C operation ambient temperatures at full load. Typical applications for these converters are battery operated equipment and distributed power architectures in communication, instrumentation and industrial electronics, everywhere where a wide input voltage range is required.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEN 5-2410WI	9 – 36 VDC (24 VDC nominal)	3.3 VDC	1200 mA	75 %
TEN 5-2411WI		5 VDC	1000 mA	78 %
TEN 5-2412WI		12 VDC	500 mA	83 %
TEN 5-2413WI		15 VDC	400 mA	82 %
TEN 5-2421WI		±5 VDC	±500 mA	78 %
TEN 5-2422WI		±12 VDC	±250 mA	83 %
TEN 5-2423WI		±15 VDC	±200 mA	82 %
TEN 5-4810WI	18 – 75 VDC (48 VDC nominal)	3.3 VDC	1200 mA	75 %
TEN 5-4811WI		5 VDC	1000 mA	78 %
TEN 5-4812WI		12 VDC	500 mA	83 %
TEN 5-4813WI		15 VDC	400 mA	82 %
TEN 5-4821WI		±5 VDC	±500 mA	78 %
TEN 5-4822WI		±12 VDC	±250 mA	83 %
TEN 5-4823WI		±15 VDC	±200 mA	82 %

Input Specifications

Input current no load	24 Vin models 48 Vin models	20 mA typ. 10 mA typ.
Start-up voltage / under voltage shut down	24 Vin models 48 Vin models	9 VDC / 8.5 VDC typ. 18 VDC / 16 VDC typ.
Surge voltage (1 sec. max.)	24 Vin models 48 Vin models	50 V max. 100 V max.
Reverse voltage protection		1.0 A max.
Conducted noise (input)		EN 55022 level A, FCC part 15, level A

Output Specifications

Voltage set accuracy		±2.0 % max.
Regulation	– Input variation Vin min. to Vin max. – Load variation 10 – 100 %	±0.5 % max.
	single output models dual output models 25 – 100 %	1.0 % max. 1.0 % max. balanced load 5.0 % max. unbalanced load
Ripple and noise (20 MHz Bandwidth)		80 mVpk-pk max
Temperature coefficient		±0.02 %/K
Current limitation		>110 % of Iout max., constant current
Short circuit protection		indefinite (automatic recovery)
Capacitive load	3.3 / 5 VDC models 12 / 15 VDC models dual output models	470 µF max. 100 µF max. 100 µF max.

General Specifications

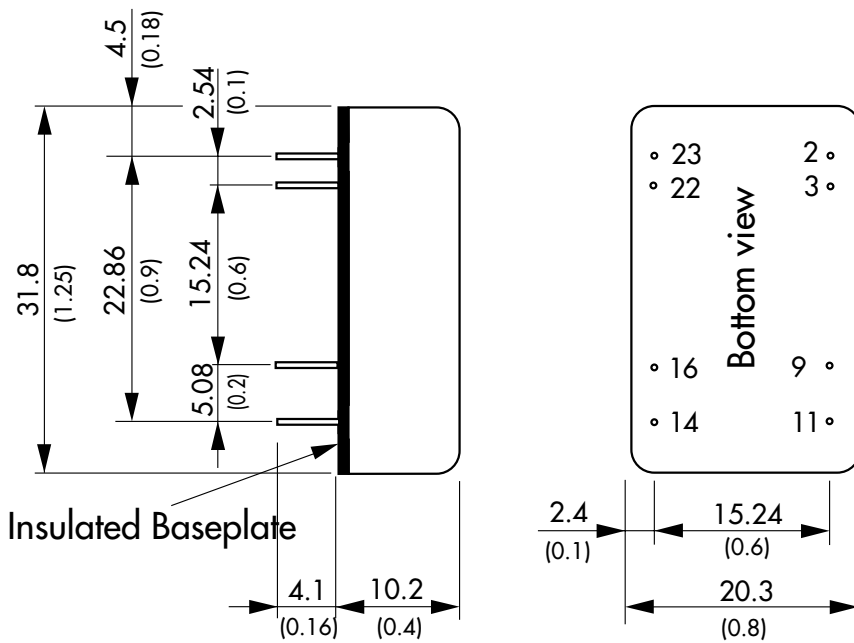
Temperature ranges	– Operating – Case temperature – Storage	–40°C to +85°C +100°C max. –40°C to +125°C
Derating		3.5 %/K above +70°C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		>800'000 h
Isolation voltage (60 sec.) – Input/Output		1'500 VDC
Isolation capacitance – Input/Output		1000 pF typ
Isolation resistance – Input/Output (500 VDC)		>1'000 M Ohm
Switching frequency		450 kHz typ. (Pulse frequency modulation PFM)
Safety standards		cUL/UL 60950-1 , IEC/EN 60950-1
Safety approvals		CSA File No. 226037 http://directories.csa-international.org
Environmental compliance	– Reach – RoHS	directive 2011/65/EU

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

Physical Specifications

Casing material	black anodized aluminium
Baseplate material	non conductive FR4
Potting material	epoxy (UL 94V-0 rated)
Weight	17 g (0.49 oz)
Soldering temperature	max. 260°C / 10 sec.

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 ± 0.5 (± 0.02)
 Pin pitch tolerances ± 0.35 (± 0.014)