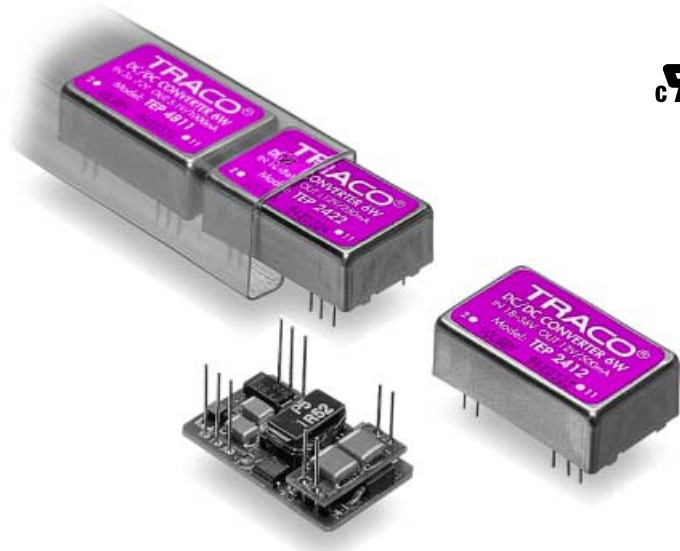


Features

- Wide 2:1 Input Range
- Full SMD-Design
- High Power Density
- High Efficiency up to 84%
- No Derating up to +75°C
- Regulated Outputs
- I/O-Isolation 1'500 VDC
- Indefinite Short-Circuit Protection
- Input Filter meets EN 55022, Class A and FCC, Level A without external Components
- 24-pin DIP with industry Standard Pinout
- High Reliability, MTBF >1 Mio. h
- 2 Year Product Warranty



The TEP series are high performance, isolated DC/DC-converters with a very high power density. They offer the designer a ideal solution in space critical on-board level power distribution applications. SMD-design with exclusive use of ceramic capacitors guarantees very high reliability. An automated production with 100% parameter test ensures the high quality standard of this product.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEP 2411 TEP 2412 TEP 2421 TEP 2422 TEP 2423	18 – 36 VDC	5.1 VDC 12 VDC ± 5 VDC ± 12 VDC ± 15 VDC	1000 mA 500 mA ± 500 mA ± 250 mA ± 200 mA	80 % 83 % 80 % 83 % 83 %
TEP 4811 TEP 4812 TEP 4821 TEP 4822 TEP 4823	36 – 72 VDC	5.1 VDC 12 VDC ± 5 VDC ± 12 VDC ± 15 VDC	1000 mA 500 mA ± 500 mA ± 250 mA ± 200 mA	81 % 84 % 82 % 84 % 84 %

Input Specifications

Input current (no load)	24 Vin single output models 24 Vin dual output models 48 Vin single output models 48 Vin dual output models	16 mA typ. 20 mA typ. 7 mA typ. 10 mA typ.
Input current (full load)	24 Vin; 5.1 Vout models 24 Vin; other output models 48 Vin; 5.1 Vout models 48 Vin; other output models	250mA typ. 290mA typ. 120mA typ. 140mA typ.
Start-up voltage / under voltage shut down	24 Vin models 48 Vin models	16.5 VDC / 16 VDC 32.5 VDC / 32 VDC
Surge voltage (1 sec. max.)	24 Vin models 48 Vin models	t.b.a. t.b.a.
Conducted noise (input)		EN 55022 level A, FCC part 15, level A

Output Specifications

Voltage set accuracy		± 3 %
Regulation	– Input variation Vin min. to Vin max. – Load variation 10 – 100 % – single output models – dual output models balanced load – dual output models unbalanced load	± 0.5 % max. ± 1 % max. ± 2 % max. ± 3 % max.
Ripple and noise (20 MHz Bandwidth)		60 mVpk-pk max.
Temperature coefficient		± 0.05 % / °C
Output current limitation		>110 % of Iout max. constant current
Short circuit protection		constant current, indefinite
Capacitive load	– single output models – dual output models	10'000 µF max. 10'000 µF max.

General Specifications

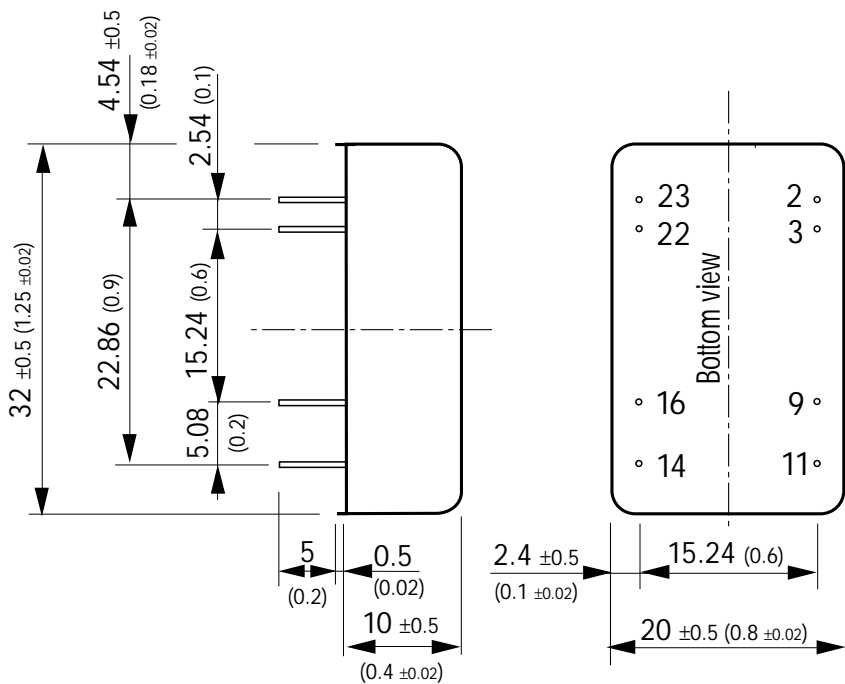
Temperature ranges	– Operating – Case temperature – Storage	– 25 °C ... + 75 °C (no derating) + 95 °C max. – 40 °C ... + 115 °C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217 E)		>1 Mio. h @ + 25 °C
Isolation voltage	Input/Output	1'500 VDC
Isolation capacity	Input/Output	2200 pF typ
Isolation resistance	Input/Output (500 VDC)	> 1'000 M Ohm
Switching frequency		325 kHz typ. (Pulse frequency modulation PFM)
Safety standards		UL 1950 , IEC 60950, EN 60950 Compliance up to 60 VDC input voltage (SELV limit)
Safety approval		UL /cUL File E188913

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

Physical Specifications

Case material	Steel chrome-nickel plated
Potting material	Silicon rubber TSE (flammability to UL 94V-0)
Weight	16 g (0.56 oz)
Soldering temperature	max. 260 °C / 10 sec.

Outline Dimensions mm (inches)



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)

Pin diameter $\varnothing 0.5 \pm 0.05$ (0.02 ±0.002)
Tolerances ± 0.5 (0.02)

Specifications can be changed without notice