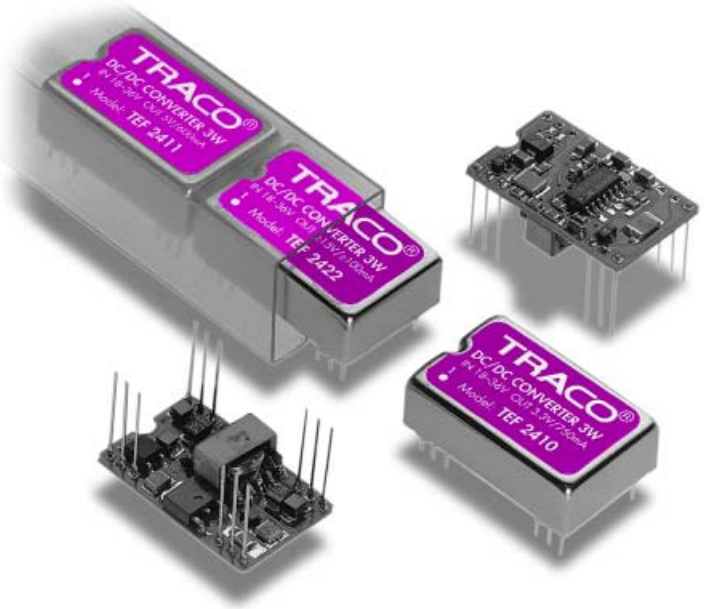
DC / DC Converter

TEF Series **3 Watt**

Features

- Full SMD design with Ceramic Capacitors
- Wide 2:1 Input range
- High Efficiency
- Short Circuit Protection
- Metal Case, 24–Pin DIP
- 2 Year Product Warranty



The TEF-series is a family of isolated dc/dc-converters that offers a cost effective solution for applications requiring miniature size and high performance features. SMT-design with exclusive use of ceramic capacitors guarantees a very high reliability with an MTBF of over 1'000'000 hours. A highly automated production with 100% parameter test ensures a high quality standard of this product.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEF 0510	4.5 – 7 VDC	3.3 VDC	650 mA	69 %
TEF 0511		5 VDC	500 mA	72 %
TEF 0512		12 VDC	240 mA	74 %
TEF 0521		±12 VDC	± 125 mA	74 %
TEF 0522		±15 VDC	± 95 mA	74 %
TEF 1210	9 – 18 VDC	3.3 VDC	700 mA	71 %
TEF 1211		5 VDC	550 mA	73 %
TEF 1212		12 VDC	250 mA	78 %
TEF 1221		±12 VDC	± 125 mA	78 %
TEF 1222		±15 VDC	± 100 mA	78 %
TEF 2010	10 – 30 VDC	3.3 VDC	700 mA	72 %
TEF 2011		5 VDC	550 mA	75 %
TEF 2012		12 VDC	250 mA	80 %
TEF 2021		±12 VDC	± 125 mA	80 %
TEF 2022		±15 VDC	± 100 mA	80 %
TEF 2410	18 – 36 VDC	3.3 VDC	700 mA	76 %
TEF 2411		5 VDC	600 mA	80 %
TEF 2412		12 VDC	250 mA	82 %
TEF 2421		±12 VDC	± 125 mA	82 %
TEF 2422		±15 VDC	± 100 mA	83 %
TEF 4810	36 – 72 VDC	3.3 VDC	700 mA	76 %
TEF 4811		5 VDC	600 mA	80 %
TEF 4812		12 VDC	250 mA	82 %
TEF 4821		±12 VDC	± 125 mA	82 %
TEF 4822		±15 VDC	± 100 mA	83 %

Input Specifications

Input current no load	5 Vin models:	60 mA typ.
	12 Vin models:	15 mA typ.
	20 Vin models:	25 mA typ.
	24 Vin models:	7 mA typ.
	48 Vin models:	6 mA typ.
Input current full load	5 Vin models:	720 mA typ.
	12 Vin models:	310 mA typ.
	20 Vin models:	180 mA typ.
	24 Vin models:	140 mA typ.
	48 Vin models:	70 mA typ.
Surge voltage (1 sec. max.)	5 Vin models:	7.5 V max.
	12 Vin models:	15 V max.
	24 Vin models:	30 V max.
Input filter		Pi-Filter

Output Specifications

Voltage set accuracy		± 3 %
Regulation	– Input variation Vin min. to Vin max.	± 0.5 % max.
	– Load variation 10 – 90 %; single output:	± 1.0 % max.
	dual output:	± 2.0 % max.
Ripple and noise (20 MHz Bandwidth)		80 mVpk-pk max.
Temperature coefficient		± 0.02 % / °C
Short circuit protection		continuous
Capacitive load	– Single output models	2200 µF max.
	– Dual output models	2200 µF max.

General Specifications

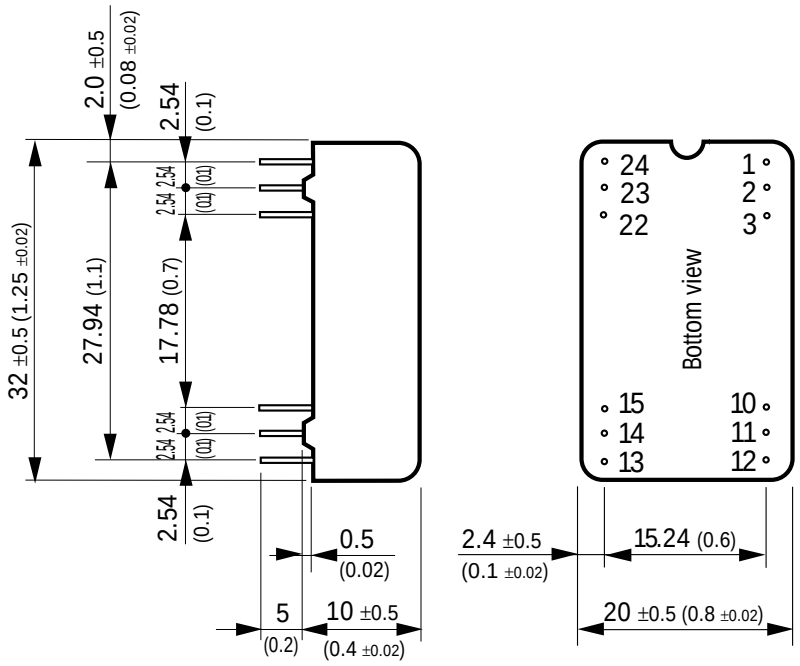
Temperature ranges	– Operating	– 25 °C ... +75 °C
	– Case	+ 95 °C
	– Storage	– 40 °C ... +115 °C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217 E)		>1’000’000 h @ 25 °C
Isolation voltage	– Input / Output	1’000 VDC
	– Input / Case	1’000 VDC
	– Output / Case	500 VDC
Isolation capacity	– Input / Output	500 pF typ.
Isolation resistance	– Input / Output	>1‘000 M Ohm
Switching frequency		25 – 85 KHz (depending on load)

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

Physical Specifications

Case material	Steel nickel-plated
Potting material	Silicon rubber TSE (UL 94V-O)
Weight	14 g (0.49 oz)
Soldering temperature	max. 260°C / 10 sec

Outline Dimensions mm (inches)



Pin-Out		
Pin	**Single**	**Dual**
1	+Vin (Vcc)	+Vin (Vcc)
2	No function	–Vout
3	No function	Common
10	–Vout	Common
11	+Vout	+Vout
12	–Vin (GND)	–Vin (GND)
13	–Vin (GND)	–Vin (GND)
14	+Vout	+Vout
15	–Vout	Common
22	No function	Common
23	No function	–Vout
24	+Vin (Vcc)	+Vin (Vcc)

( ) = inches

Pin ø 0.5 (0.02)

Specifications can be changed without notice

Jenatschstrasse 1 • CH-8002 Zurich • Switzerland
Tel. +41-1284 2911 • Fax +41-1201 1168 • e-mail: sales@traco.ch • internet: http://www.tracopower.com