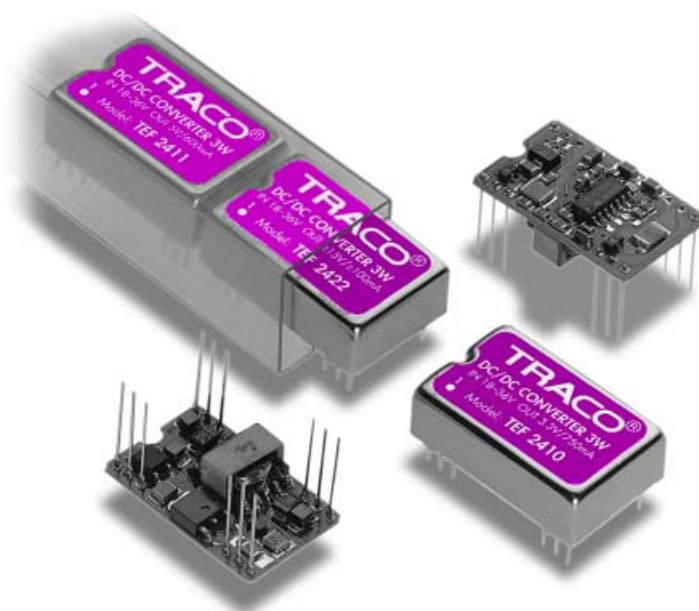


Features

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

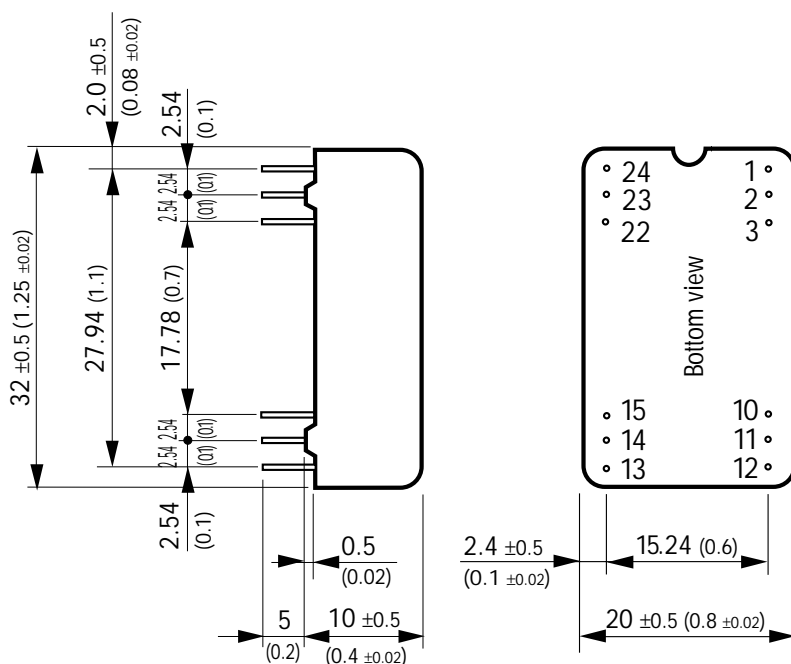
Temperature ranges	– Operating	– 25 °C ... +75 °C
	– Case	+ 95 °C
	– Storage	– 40 °C ... +115 °C
Humidity (non condensing)	95 % rel H max.	
Reliability, calculated MTBF (MIL-HDBK-217 E)	> 1'000'000 h @ 25 °C	
Isolation voltage	– Input/Output	1'000 VDC
	– Input/Case	1'000 VDC
	– Output/Case	500 VDC
Isolation 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