DC/DC Converters

TEL 15 Series, 15 Watt

Features

- High Efficiency up to 86%
- Operating Temp. Range – 25°C to +71°C
- Indefinite Short-Circuit Protection
- I/O-Isolation 1500 VDC
- Industry Standard Pinout
- Cost optimized Design
- Lead free Design, RoHS compliant
- 3 Year Product Warranty

The TEL 15 series is a range of DC/DC-converter modules with wide input range of 2:1. State of the art SMD-technology guarantees a product with very high reliability and good cost /performance ratio. High efficiency allows an operating temperature range of -25°C to +71°C without derating. This product serie provides an economical solution for many cost critical applications in industrial and consumer electronics.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency typ.
TEL 15-1210	9 – 18 VDC	3.3 VDC	3'000 mA	78 %
TEL 15-1211		5.1 VDC	3'000 mA	81 %
TEL 15-1212		12 VDC	1'250 mA	86 %
TEL 15-1213		15 VDC	1'000 mA	86 %
TEL 15-1222		± 12 VDC	± 625 mA	86 %
TEL 15-1223		± 15 VDC	± 500 mA	86 %
TEL 15-2410	18 – 36 VDC	3.3 VDC	3'000 mA	78 %
TEL 15-2411		5.1 VDC	3'000 mA	81 %
TEL 15-2412		12 VDC	1'250 mA	86 %
TEL 15-2413		15 VDC	1'000 mA	86 %
TEL 15-2422		± 12 VDC	± 625 mA	86 %
TEL 15-2423		± 15 VDC	± 500 mA	86 %
TEL 15-4810	36 – 75 VDC	3.3 VDC	3'000 mA	78 %
TEL 15-4811		5.1 VDC	3'000 mA	81 %
TEL 15-4812		12 VDC	1'250 mA	86 %
TEL 15-4813		15 VDC	1'000 mA	86 %
TEL 15-4822		± 12 VDC	± 625 mA	86 %
TEL 15-4823		± 15 VDC	± 500 mA	86 %

Input Specifications

Input current no load		12 Vin models:	30 mA typ.
		24 Vin models:	20 mA typ.
		48 Vin models:	10 mA typ.
Input current (full load)	12 Vin;	3.3 Vout models:	1050 mA typ.
	12 Vin;	other output models:	1500 mA typ.
	24 Vin;	3.3 Vout models:	550 mA typ.
	24 Vin;	other output models:	750 mA typ.
	48 Vin;	3.3 Vout models:	250 mA typ.
	48 Vin;	other output models:	350 mA typ.
Start-up voltage / under voltage shut down		12 Vin models:	8.5 VDC / 8.0 VDC typ.
		24 Vin models:	17 VDC / 15 VDC typ.
		48 Vin models:	33 VDC / 29 VDC typ.
Surge voltage (100 msec. max.)		12 Vin models:	25 V max.
		24 Vin models:	50 V max.
		48 Vin models:	100 V max.

Output Specifications

Voltage set accuracy			± 1 %
Regulation	– Input variation	Vin min. to Vin max.	1 % max.
	– Load variation	10 – 100 % single output models:	0.5 % max.
		dual output models balanced load:	1 % max.
		dual output models unbalanced load:	3 % max.
Ripple and noise (20 MHz Bandwidth)		single output models:	50 mVpk-pk max.
		dual output models:	75 mVpk-pk max
Temperature coefficient			± 0.02 % /K
Output current limitation			> 120% of Iout max., constant current
Short circuit protection			indefinite (automatic recovery)
Capacitive load		single output models:	470 µF max.
		dual output models:	220 µF max. (per output)

General Specifications

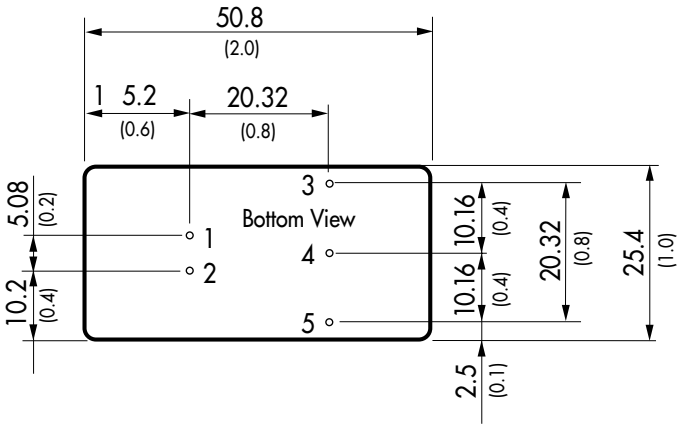
Temperature ranges	– Operating	– 25 °C ... + 71 °C (without load derating)
	– Case temperature	+ 100 °C max.
	– Storage	– 55 °C ... + 125 °C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217E ground benign)		> 700'000 h @ +25 °C
Isolation voltage (60 sec)	– Input/Output	1'500 VDC
Isolation capacity	– Input/Output	1200 pF typ.
Isolation resistance	– Input/Output (500 VDC)	> 1'000 M Ohm
Switching frequency (fixed)		330 kHz typ. (Pulse width modulation PWM)
Safety standards		UL 60950, EN 60950, IEC 60950 (Compliance up to 60 VDC input voltage (SELV limit)
Safety approval		CSA 60950-1-03 (File no. 226037)

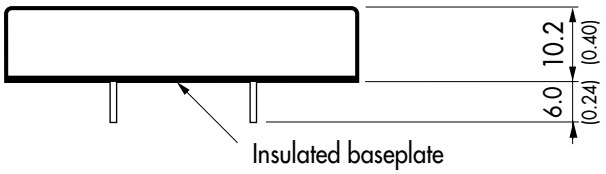
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

Case material	copper nickel plated
Baseplate	non conductive FR4
Potting material	epoxy (UL 94V-0 rated)
Weight	32g (1.13 oz)
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

Dimensions in [mm], () = Inch
Pin diameter: 1.0 ±0.05 (0.02 ±0.002)
Pin pitch tolerances: ±0.13 (±0.005)
Case tolerances: ±0.25 (±0.01)

Specifications can be changed any time without notice.

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