DC/DC Converters

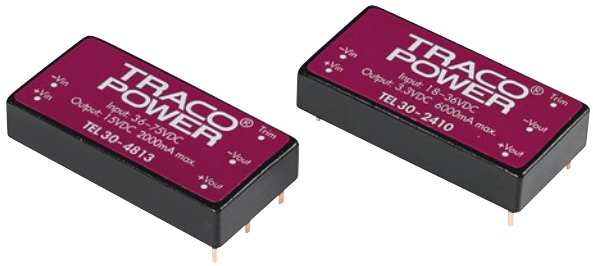
TEL 30 Series, 30 Watt

RoHS compliant

UL 60950-1

Features

- Highest Power Density: 30W in 51x25x9.6mm Package
- Industry Standard Footprint
- Very high Efficiency
- Models with low Output Voltages: 2.5 & 3.3VDC
- Output Voltage adjustable
- Optional Remote On/Off
- Under Voltage Lockout
- Operating Temperature Range –25°C to +71°C
- Six-side shielded Metal Case
- Lead free Design, RoHS compliant
- 3 Year Product Warranty



The TEL 30 Series is a new range of cost efficient, isolated 30W converters in a shielded metal case with excellent specification. The 10 models in this series feature 2:1 input range with 18-36 or 36-75 VDC. Overload and over voltage protection, under voltage shutdown as well as remote On/Off are features of this converter. Typical applications for the TEL 30 Series converter are communication and networking systems, industrial electronics and distributed power architectures.

Models

Ordercode	Input voltage range	Output voltage	Output current max.	Efficiency
TEL 30-2409	18 – 36 VDC	2.5 VDC	6'000 mA	84 %
TEL 30-2410		3.3 VDC	6'000 mA	86 %
TEL 30-2411		5.1 VDC	5'000 mA	84 %
TEL 30-2412		12 VDC	2'500 mA	88 %
TEL 30-2413		15 VDC	2'000 mA	88 %
TEL 30-4809	36 – 75 VDC	2.5 VDC	6'000 mA	84 %
TEL 30-4810		3.3 VDC	6'000 mA	86 %
TEL 30-4811		5.1 VDC	5'000 mA	88 %
TEL 30-4812		12 VDC	2'500 mA	88 %
TEL 30-4813		15 VDC	2'000 mA	88 %

Input Specifications

Input current (no load)		24 Vin models:	40 mA typ.
		48 Vin models:	20 mA typ.
Input current (full load)	24 Vin;	2.5 Vout models:	744 mA typ.
	24 Vin;	3.3 Vout models:	959 mA typ.
	24 Vin;	5.0 Vout models:	1183 mA typ.
	24 Vin;	other output models:	1420 mA typ.
	48 Vin;	2.5 Vout models:	372 mA typ.
	48 Vin;	3.3 Vout models:	480 mA typ.
	48 Vin;	5.0 Vout models:	592 mA typ.
	48 Vin;	other output models:	710 mA typ.
Start-up voltage / under voltage shut down		24 Vin models:	17.8 VDC / 15.8 VDC
		48 Vin models:	36 VDC / 33 VDC
Surge voltage (100 msec. max.)		24 Vin models:	50 V max.
		48 Vin models:	100 V max.

Output Specifications

Voltage set accuracy			±1.0 % max.
Output voltage adjustment			±10 %
Regulation	– Input variation Vin min. to Vin max.		0.3 % max.
	– Load variation 10 – 100 %		1.0 % max.
Ripple and noise (20 MHz Bandwidth)			100 mVpk-pk max.
Temperature coefficient			±0.02 % / K
Output current limitation			110% – 140% Iout max., foldback
Short circuit protection			hiccup mode, indefinite (automatic recovery)
Capacitive load		1.8 / 2.5 / 5 Vout models:	6'800 µF max.
		12 / 15 Vout models:	680 µF max.

General Specifications

Temperature ranges	– Operating	–25 °C ... +71 °C (with derating)
	– Case temperature	+105 °C max.
	– Storage	–50 °C ... +125 °C
Derating		2 %/K above 50°C
Humidity (non condensing)		95 % rel H max.
Reliability, calculated MTBF (MIL-HDBK-217E ground benign)		> 600'000 h @ +25 °C
Isolation voltage (60 sec)	– Input/Output	1'500 VDC
Isolation capacity	– Input/Output	1200 pF typ
Isolation resistance	– Input/Output	>1'000 Mohm
Remote On/Off (optional)	– On:	2.5 ... 100 VDC or open circuit.
	– Off:	–1.0 ... +1.0 VDC or short circuit pin 3 and pin 2
	– Off idle current:	5 mA max.
Switching frequency (fixed)		350 kHz typ. (pulse width modulation PWM)
Safety standards		UL 60950-1, EN 60950-1, IEC 60950-1
Safety approvals		CSA File No. 226037 http://directories.csa-international.org

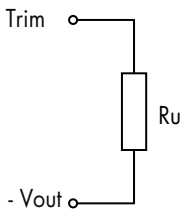
All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Physical Specifications

Case material	aluminum
Potting material	epoxy (flammability to UL 94V-0)
Weight	32 g (1.13 oz)
Soldering temperature	max. 265 °C / 10 sec.

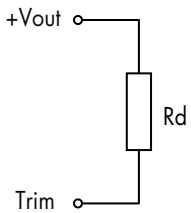
Output Voltage Adjustment

Trim up



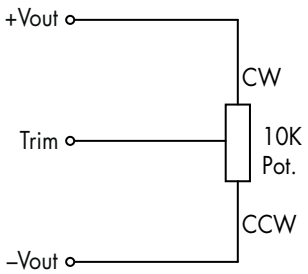
$$Ru\ [kOhm] = \frac{(33 \times Vout) - (30 \times Vadj)}{Vadj - Vout}$$

Trim down

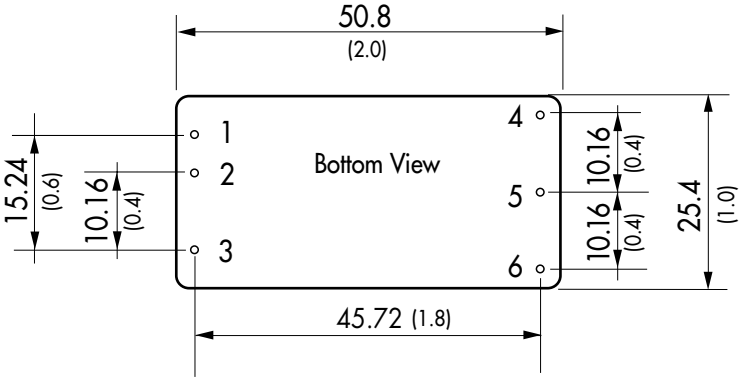


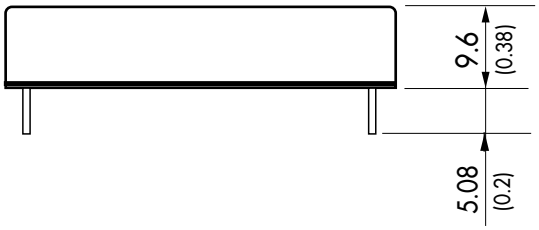
$$Rd\ [kOhm] = \frac{(36.667 \times Vadj) - (33 \times Vout)}{Vout - Vadj}$$

Trim up/down



Outline Dimensions mm (inches)





Pin-Out	
Pin	
1	+Vin (Vcc)
2	–Vin (GND)
3	Remote On/Off (optional)
4	+Vout
5	–Vout
6	Trim

Dimensions in [mm], () = Inch
Pin diameter: 1.0 ±0.05 (0.039 ±0.002)
Pin pitch tolerance: ±0.25 (±0.01)
Case tolerances: ±0.5 (±0.02)

Specifications can be changed any time without notice