

Features

- Wide 2 : 1 Input Range
- High Efficiency up to 81%
- Full SMD-Design
- Indefinite Short-Circuit Protection
- 24-pin DIP Plastic Package
- Pin-compatible with TEM-3 / TED
- 2 Year Product Warranty



The TEL 3 series is a range of isolated 3 W converter in DIL-24 package offering wide 2:1 input voltage range. Further features are high efficiency which allows operation temperature up to 75°C without derating and low output noise.

This product series 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 3-0511 TEL 3-0512 TEL 3-0513 TEL 3-0522 TEL 3-0523 | 4.5 – 9.0 VDC | 5 VDC 12 VDC 15 VDC ±12 VDC ±15 VDC | 600 mA 250 mA 200 mA ± 125 mA ± 100 mA | 70 % 74 % 74 % 74 % 74 % |
| TEL 3-1211 TEL 3-1212 TEL 3-1213 TEL 3-1222 TEL 3-1223 | 9 – 18 VDC | 5 VDC 12 VDC 15 VDC ±12 VDC ±15 VDC | 600 mA 250 mA 200 mA ± 125 mA ± 100 mA | 76 % 80 % 80 % 80 % 80 % |
| TEL 3-2411 TEL 3-2412 TEL 3-2413 TEL 3-2422 TEL 3-2423 | 18 – 36 VDC | 5 VDC 12 VDC 15 VDC ±12 VDC ±15 VDC | 600 mA 250 mA 200 mA ± 125 mA ± 100 mA | 77 % 81 % 81 % 81 % 81 % |
| TEL 3-4811 TEL 3-4812 TEL 3-4813 TEL 3-4822 TEL 3-4823 | 36 – 75 VDC | 5 VDC 12 VDC 15 VDC ±12 VDC ±15 VDC | 600 mA 250 mA 200 mA ± 125 mA ± 100 mA | 77 % 81 % 81 % 81 % 81 % |

Input Specifications

| | | |
|-----------------------------|---------------|-------------|
| Input current (no load) | 5 Vin models | 40 mA typ. |
| | 12 Vin models | 20 mA typ. |
| | 24 Vin models | 5 mA typ. |
| | 48 Vin models | 3 mA typ. |
| Input current (full load) | 5 Vin models | 820 mA typ. |
| | 12 Vin models | 320 mA typ. |
| | 24 Vin models | 155 mA typ. |
| | 48 Vin models | 80 mA typ. |
| Surge voltage (1 sec. max.) | 5 Vin models | 11 VDC |
| | 12 Vin models | 25 VDC |
| | 24 Vin models | 50 VDC |
| | 48 Vin models | 100 VDC |
| Reverse voltage protection | | 1.0 A max. |

Output Specifications

| | | |
|-------------------------------------|--|--|
| Voltage set accuracy | | ± 1 % |
| Regulation | – Input variation Vin min. to Vin max. | ± 0.5 % max. |
| | – Load variation 5 – 100 % | |
| | – single output models | ± 0.5 % max. |
| | – dual output models balanced load | ± 1.0 % max. |
| | – dual output models unbalanced load | ± 2.0 % max. |
| Ripple and noise (20 MHz Bandwidth) | | 60 mVpk-pk typ. |
| Temperature coefficient | | ± 0.02 % / °C |
| Output current limitation | | > 110% Iout max., constant current |
| Short circuit protection | | Hiccup mode, indefinite (automatic recovery) |
| Capacitive load | single output models | 2000 µF max. |
| | dual output models | 1000 µF max. |

General Specifications

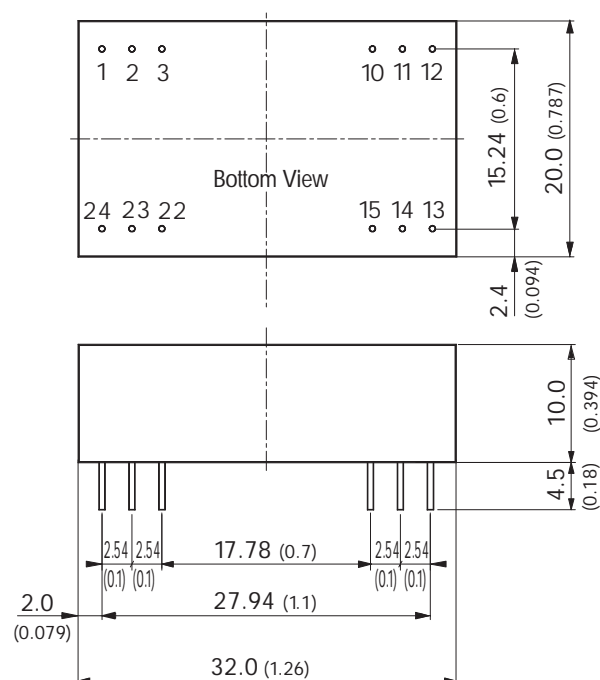
| | | |
|---|------------------------|--|
| Temperature ranges | – Operating | – 25 °C ... + 75 °C |
| | – Case | + 95 °C max. |
| | – Storage | – 40 °C ... + 125 °C |
| Humidity (non condensing) | | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217 E) | | >1 Mio. h @ + 25 °C |
| Isolation voltage | Input/Output/Case | 1000 VDC |
| Isolation capacity | Input/Output | 500 pF typ |
| Isolation resistance | Input/Output (500 VDC) | > 1'000 M Ohm |
| Switching frequency | | 300 kHz typ. (Pulse frequency modulation PFM) |
| Safety standards | | UL 1950, EN 60950, IEC 60950 Compliance up to 60 VDC input voltage (SELV limit) |
| Safety approvals | | 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 | non conductive black plastic (flammability to UL 94V-0) |
| Weight | 12 g (0.42 oz) |
| Soldering temperature | max. 250 °C / 10 sec. |

Outline Dimensions mm (inches)



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

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) |

Specifications can be changed without notice