

#### Features

- 24-Pin DIP Package
- Tightly regulated Output
- Very low Output Noise
- Short-Circuit Protection
- Internal Filter
- Industry Standard Pinout
- 2 Year Product Warranty



The TEM 3 series is a range of isolated dc/dc converters in a DIL-24 package. They offer tight output regulation and very low output noise. Operating temperature range is  $-25^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ . This product series provides a cost effective solution for many industrial or consumer electronics applications.

| Ordercode  | Input voltage    | Output voltage                                  | Output current max.                              | Efficiency typ.              |
|--|------------------|---|--|------------------------------|
| TEM 3-0511<br>TEM 3-0512<br>TEM 3-0521<br>TEM 3-0522 | 5 VDC $\pm$ 10%  | 5 VDC<br>12 VDC<br>$\pm$ 12 VDC<br>$\pm$ 15 VDC | 600 mA<br>250 mA<br>$\pm$ 125 mA<br>$\pm$ 100 mA | 60 %<br>62 %<br>60 %<br>60 % |
| TEM 3-1211<br>TEM 3-1212<br>TEM 3-1221<br>TEM 3-1222 | 12 VDC $\pm$ 10% | 5 VDC<br>12 VDC<br>$\pm$ 12 VDC<br>$\pm$ 15 VDC | 600 mA<br>250 mA<br>$\pm$ 125 mA<br>$\pm$ 100 mA | 60 %<br>62 %<br>60 %<br>60 % |
| TEM 3-2411<br>TEM 3-2412<br>TEM 3-2421<br>TEM 3-2422 | 24 VDC $\pm$ 10% | 5 VDC<br>12 VDC<br>$\pm$ 12 VDC<br>$\pm$ 15 VDC | 600 mA<br>250 mA<br>$\pm$ 125 mA<br>$\pm$ 100 mA | 60 %<br>64 %<br>60 %<br>60 % |

### Input Specifications

|                             |               |             |
|-----------------------------|---------------|-------------|
| Input current (no load)     | 5 Vin models  | 100 mA typ. |
|                             | 12 Vin models | 50 mA typ.  |
|                             | 24 Vin models | 25 mA typ.  |
| Input current (full load)   | 5 Vin models  | 980 mA typ. |
|                             | 12 Vin models | 410 mA typ. |
|                             | 24 Vin models | 205 mA typ. |
| Surge voltage (1 sec. max.) | 5 Vin models  | 7.5 VDC     |
|                             | 12 Vin models | 15.0 VDC    |
|                             | 24 Vin models | 30.0 VDC    |

### Output Specifications

|                                     |  |                                    |
|-------------------------------------|--|------------------------------------|
| Voltage set accuracy                |  | ± 3 %                              |
| Regulation                          | – Input variation Vin min. to Vin max. | ± 0.5 % max.                       |
|                                     | – Load variation 10 – 100 %            |                                    |
|                                     | – single output models                 | ± 0.5 % max.                       |
|                                     | – dual output models balanced load     | ± 1.0 % max.                       |
|                                     | – dual output models unbalanced load   | ± 3.0 % max.                       |
| Ripple and noise (20 MHz Bandwidth) |  | 50 mVpk-pk max.                    |
| Temperature coefficient             |  | ± 0.02 % / °C                      |
| Output current limitation           |  | > 120% Iout max., constant current |
| Short circuit protection            |  | indefinite                         |
| Capacitive load                     | – single output models                 | 470 µF max.                        |
|                                     | – single output models                 | 220 µF max.                        |

### General Specifications

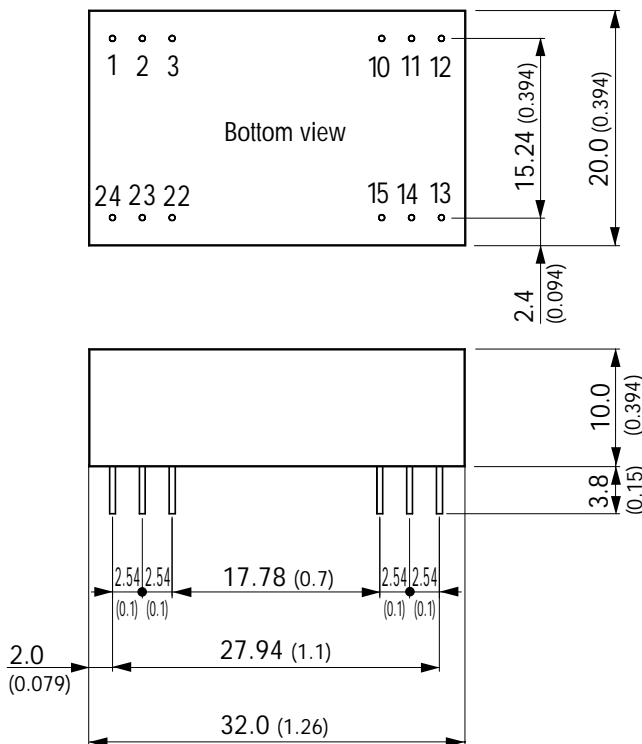
|   |                        |                       |
|---|------------------------|-----------------------|
| Temperature ranges                            | – Operating            | – 25 °C ... + 70 °C   |
|   | – Case                 | + 95 °C max.          |
|   | – Storage              | – 40 °C ... + 125 °C  |
| Humidity (non condensing)                     |                        | 95 % rel H max.       |
| Reliability, calculated MTBF (MIL-HDBK-217 E) |                        | > 600'000 h @ + 25 °C |
| Isolation voltage                             | Input/Output           | 500 VDC               |
| Isolation capacity                            | Input/Output           | 100 pF typ            |
| Isolation resistance                          | Input/Output (500 VDC) | > 1'000 M Ohm         |
| Switching frequency                           |                        | 80 kHz typ.           |

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

**Physical Specifications**

|                       |                       |
|-----------------------|-----------------------|
| Case material         | black coated metal    |
| 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) |

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

Tolerances  $\pm 0.5$  (0.02)

Specifications can be changed without notice