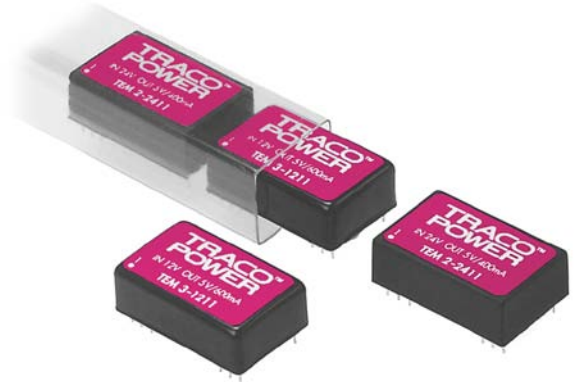


#### Features

- ◆ DIL-24 metal package
- ◆ Tightly regulated output
- ◆ Very low output noise
- ◆ Short circuit protection
- ◆ Operating temperature range  $-25^{\circ}\text{C}$  to  $+71^{\circ}\text{C}$
- ◆ I/O isolation 1'000 VDC
- ◆ Internal filter
- ◆ Industry standard pinout
- ◆ 3-year product warranty

obsolete



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  $+71^{\circ}\text{C}$ . This product series provides a cost effective solution for many industrial or consumer electronics applications.

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

### Input Specifications

|                                   |                                                                                                                |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------|
| Input current no load / full load | 5 Vin models: 100 mA / 980 mA typ.<br>12 Vin models: 50 mA / 410 mA typ.<br>24 Vin models: 25 mA / 205 mA typ. |
| Surge voltage (1 sec. max.)       | 5 Vin models: 7.5 V max.<br>12 Vin models: 15 V max.<br>24 Vin models: 30 V max.                               |

### Output Specifications

|                                     |                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage set accuracy                | ±3 %                                                                                                                                                                                                                                                                                                                                               |
| Regulation                          | <ul style="list-style-type: none"> <li>– Input variation Vin min. to Vin max.      ±0.5 % max.</li> <li>– Load variation 10 – 100 %</li> </ul> <ul style="list-style-type: none"> <li>single output models: ±0.5 % max.</li> <li>dual output models balanced load: ±1.0 % max.</li> <li>dual output models unbalanced load: ±3.0 % max.</li> </ul> |
| Ripple and noise (20 MHz Bandwidth) | 50 mVpk-pk max                                                                                                                                                                                                                                                                                                                                     |
| Temperature coefficient             | ±0.02 %/K                                                                                                                                                                                                                                                                                                                                          |
| Current limitation                  | >120 % of I <sub>out</sub> max., constant current                                                                                                                                                                                                                                                                                                  |
| Short circuit protection            | indefinite                                                                                                                                                                                                                                                                                                                                         |
| Capacitive load                     | <ul style="list-style-type: none"> <li>single output models: 470 µF max.</li> <li>dual output models: 220 µF max.</li> </ul>                                                                                                                                                                                                                       |

### General Specifications

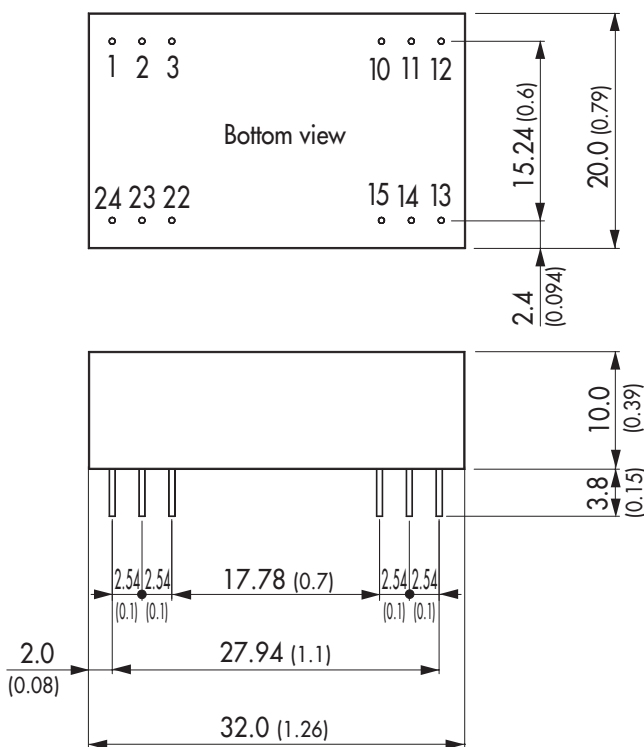
|                                                                     |                                                                                                                                                           |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature ranges                                                  | <ul style="list-style-type: none"> <li>– Operating      –25°C to +71°C</li> <li>– Case      +95°C max.</li> <li>– Storage      –40°C to +125°C</li> </ul> |
| Derating                                                            | 3 %/K above +70°C                                                                                                                                         |
| Humidity (non condensing)                                           | 95 % rel H max.                                                                                                                                           |
| Reliability, calculated MTF (MIL-HDBK-217F, @ +25°C, ground benign) | >600'000 Mio. h                                                                                                                                           |
| Isolation voltage (60 sec.) – Input/Output                          | 1'000 VDC                                                                                                                                                 |
| Isolation capacitance – Input/Output                                | 100 pF typ.                                                                                                                                               |
| Isolation resistance – Input/Output (500 VDC)                       | >1'000 M Ohm                                                                                                                                              |
| Switching frequency                                                 | 80 kHz typ. (Pulse frequency modulation PFM)                                                                                                              |
| Safety standards                                                    | cUL/UL 60950-1, IEC/EN 60950-1                                                                                                                            |
| Safety approval                                                     | CSA File No. 226037<br><a href="http://directories.csa-international.org">http://directories.csa-international.org</a>                                    |

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

**Physical Specifications**

|                       |                      |
|-----------------------|----------------------|
| Casing 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       | ntd.       | -Vout      |
| 3       | ntc.       | Common     |
| 10      | -Vout      | Common     |
| 11      | +Vout      | +Vout      |
| 12      | -Vin (GND) | -Vin (GND) |
| 13      | -Vin (GND) | -Vin (GND) |
| 14      | +Vout      | +Vout      |
| 15      | -Vout      | Common     |
| 22      | ntc.       | Common     |
| 23      | ntc.       | -Vout      |
| 24      | +Vin (Vcc) | +Vin (Vcc) |

ntc. = not to connect

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

Specifications can be changed any time without notice.