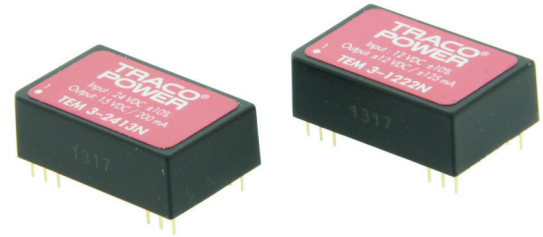


Features

- ◆ Cost optimized design in DIP-24 package
- ◆ Fully regulated output
- ◆ Output ripple & noise 30 mVp-p typ.
- ◆ Short circuit protection
- ◆ Operating temperature range -40°C to $+75^{\circ}\text{C}$ at full load
- ◆ I/O isolation 1'500 VDC
- ◆ Input filter meet EN 55022, class A
- ◆ No minimum load required
- ◆ Industry standard pinout
- ◆ 3-year product warranty



The TEM 3N series is a range of isolated dc/dc converters in a DIP-24 package. They offer tight output regulation and very low output noise. Operating temperature range is -40°C to $+85^{\circ}\text{C}$. 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 3-0511N | 5 VDC $\pm 10\%$ | 5 VDC | 600 mA | 70 % |
| TEM 3-0512N | | 12 VDC | 250 mA | 78 % |
| TEM 3-0513N | | 15 VDC | 200 mA | 78 % |
| TEM 3-0522N | | ± 12 VDC | ± 125 mA | 78 % |
| TEM 3-0523N | | ± 15 VDC | ± 100 mA | 78 % |
| TEM 3-1211N | 12 VDC $\pm 10\%$ | 5 VDC | 600 mA | 74 % |
| TEM 3-1212N | | 12 VDC | 250 mA | 80 % |
| TEM 3-1213N | | 15 VDC | 200 mA | 80 % |
| TEM 3-1222N | | ± 12 VDC | ± 125 mA | 81 % |
| TEM 3-1223N | | ± 15 VDC | ± 100 mA | 82 % |
| TEM 3-2411N | 24 VDC $\pm 10\%$ | 5 VDC | 600 mA | 75 % |
| TEM 3-2412N | | 12 VDC | 250 mA | 80 % |
| TEM 3-2413N | | 15 VDC | 200 mA | 80 % |
| TEM 3-2422N | | ± 12 VDC | ± 125 mA | 81 % |
| TEM 3-2423N | | ± 15 VDC | ± 100 mA | 82 % |

Input Specifications

| | | |
|-----------------------------------|----------------|---------------------|
| Input current no load / full load | 5 Vin models: | 90 mA / 800 mA typ. |
| | 12 Vin models: | 45 mA / 320 mA typ. |
| | 24 Vin models: | 22 mA / 160 mA typ. |
| Surge voltage (1 sec. max.) | 5 Vin models: | 7.5 V max. |
| | 12 Vin models: | 15 V max. |
| | 24 Vin models: | 30 V max. |

Output Specifications

| | | |
|-------------------------------------|--|---------------------------------------|
| Voltage set accuracy | | ±2 % |
| Regulation | – Input variation Vin min. to Vin max. | ±0.5 % max. |
| | – Load variation 10 – 100 % | |
| | single output models: | |
| | dual output models balanced load: | ±3.0 % max. |
| Ripple and noise (20 MHz Bandwidth) | | 60 mVp-p max. (30 mVp-p typ.) |
| Temperature coefficient | | ±0.02 %/K |
| Current limitation | | >120 % of Iout max., constant current |
| Short circuit protection | | continuous |
| Capacitive load | 5 VDC models: | 470 µF max. |
| | other models: | 100 µF max. |

General Specifications

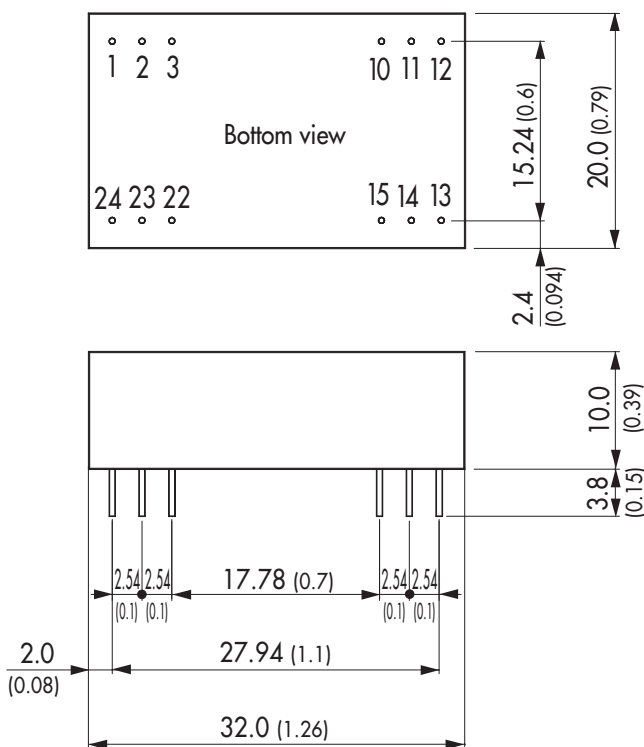
| | | |
|---|--------------------------|--|
| Temperature ranges | – Operating | –40°C to +85°C |
| | – Case | +95°C max. |
| | – Storage | –50°C to +125°C |
| Derating | | 5 %/K above +75°C |
| Humidity (non condensing) | | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) | | >700'000 Mio. h |
| Isolation voltage (60 sec.) | – Input/Output | 1'500 VDC |
| Isolation capacitance | – Input/Output | 300 pF typ. |
| Isolation resistance | – Input/Output (500 VDC) | >1'000 M Ohm |
| Switching frequency | | 300 kHz typ. (Pulse frequency modulation PFM) |
| Safety standards | | cUL/UL 60950-1, IEC/EN 60950-1 |
| Safety approval | | CSA File No. 226037 |
| | | http://directories.csa-international.org |
| Environmental compliance | – Reach | www.tracopower.com/products/reach-declaration.pdf |
| | – RoHS | RoHS directive 2011/65/EU |

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

Physical Specifications

| | |
|-----------------------|---|
| Casing material | non-conductive black plastic (UL 94V-0) |
| Weight | 12.4 g (0.43 oz) |
| Soldering temperature | max. 260°C / 10 sec. |

Outline Dimensions mm (inches)



| Pin-Out | | |
|---------|------------|------------|
| Pin | Single | Dual |
| 1 | +Vin (Vcc) | +Vin (Vcc) |
| 2 | ntc. | -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) ± 0.002
Tolerances ± 0.5 (± 0.02)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com