AC/DC Power Supply

• Fully encapsulated 1.07” x 2.06” x 0.93” package
• ErP-ready (<100mW no-load power)
• EN 60335 certified (household)
• UL 62368-1 certified (IT and industrial)
• -25°C up to +70°C operating temperature
• 130% peak power (for up to 30s)
• Integrated class B EMI filter
• 4000 VAC I/O isolation (reinforced)
• Protection class II prepared
• 3-year product warranty

The TMPS 15 is a series of fully encapsulated AC/DC power supplies for household, building automation and industrial applications. Thanks to its very low no-load power consumption of <100mW, the TMPS 15 meets the ErP directive for energy efficient devices of the European Union. All TMPS 15 power supplies are prepared for protection class II applications and come with an integrated EN 55032 class B EMI filter. The reinforced isolation, high power density and excellent peak power capability, makes the TMPS 15 a first choice for demanding applications.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>TMPS 15-105</td>
<td>15 W</td>
<td>5 VDC</td>
<td>3'000 mA</td>
<td>3'900 mA</td>
<td>79 %</td>
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<tr>
<td></td>
<td>TMPS 15-112</td>
<td></td>
<td>12 VDC</td>
<td>1'250 mA</td>
<td>1'625 mA</td>
<td>82 %</td>
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<tr>
<td></td>
<td>TMPS 15-115</td>
<td></td>
<td>15 VDC</td>
<td>1'000 mA</td>
<td>1'300 mA</td>
<td>82 %</td>
</tr>
<tr>
<td></td>
<td>TMPS 15-124</td>
<td></td>
<td>24 VDC</td>
<td>625 mA</td>
<td>813 mA</td>
<td>84 %</td>
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<tr>
<td></td>
<td>TMPS 15-148</td>
<td></td>
<td>48 VDC</td>
<td>313 mA</td>
<td>407 mA</td>
<td>82 %</td>
</tr>
</tbody>
</table>

Options

- Optional model with 3.3 VDC / 3'500 mA
- Optional model with 9 VDC / 1'667 mA

www.tracopower.com November 30, 2021
### Input Specifications

**Input Voltage**
- **AC Range**
  - Operational Range: 85 - 264 VAC (Full Range)
  - Rated Range: 100 - 240 VAC (Full Range)
- **DC Range**
  - Operational Range: 120 - 370 VDC (Designed for, no certification)
  - Polarity: irrelevant

**Input Frequency**
- 47 - 440 Hz

**Input Current**
- Full Load & Vin = 230 VAC: 200 mA max.
- Full Load & Vin = 115 VAC: 300 mA max.

**Power Consumption**
- At no load: 100 mW max. (Ready to meet ErP directive)

**Input Inrush Current**
- At 230 VAC: 45 A max.
- At 115 VAC: 25 A max.

**Recommended Input Fuse**
(The need of an external fuse has to be assessed in the final application.)

### Output Specifications

**Voltage Set Accuracy**
±2% max.

**Regulation**
- Input Variation (Vmin - Vmax)
  - 0.5% max.
- Load Variation (0 - 100%)
  - 1% max.

**Boost Power**
Output Current peak: See model table
Peak power time: 30 s max.
Peak power duty cycle: 10% max.
Average operation power: 15 W max.

**Ripple and Noise**
(20 MHz Bandwidth)
- 3.3 VDC model: 80 mVp-p max.
- 5 VDC model: 80 mVp-p max.
- 9 VDC model: 90 mVp-p max.
- 12 VDC model: 120 mVp-p max.
- 15 VDC model: 150 mVp-p max.
- 24 VDC model: 240 mVp-p max.
- 48 VDC model: 480 mVp-p max.

**Capacitive Load**
- 3.3 VDC model: 5'600 µF max.
- 5 VDC model: 3'300 µF max.
- 9 VDC model: 1'000 µF max.
- 12 VDC model: 560 µF max.
- 15 VDC model: 330 µF max.
- 24 VDC model: 150 µF max.
- 48 VDC model: 33 µF max.

**Minimum Load**
Not required

**Temperature Coefficient**
±0.02 %/K max.

**Hold-up Time**
- At 230 VAC: 40 ms min.
- At 115 VAC: 8 ms min.

**Start-up Time**
- At 230 VAC: 1'000 ms max.

**Short Circuit Protection**
Continuous, Automatic recovery

**Overload Protection**
Foldback Mode

**Output Current Limitation**
150% typ. of Iout max.
(Long term overload may cause damage)

**Overvoltage Protection**
125% typ. of Vout nom.
(By Zener diode)

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

**Safety Standards**
- IT / Multimedia Equipment: EN 62368-1, IEC 62368-1, UL 62368-1
- Household: EN 60335-1, IEC 60335-1
- Power Transformers: EN 61558-2-16, IEC 61558-2-16
- Certification Documents: www.tracopower.com/overview/tmps15

**Protection Class**
Class I & II (Prepared: Reinforced Insulation)

**Pollution Degree**
PD 2

**Over Voltage Category**
OV C II

### EMC Specifications

**EMI Emissions**
- Conducted Emissions: EN 55014-1 (internal filter), EN 55032 class B (internal filter)
- Radiated Emissions: EN 55014-1 (internal filter), EN 55032 class B (internal filter)
- Voltage Fluctuations & Flicker: EN 61000-3-3

**EMS Immunity**
- Electrostatic Discharge: EN 61000-4-2, ±8 kV, perf. criteria A
- Contact: EN 61000-4-2, ±6 kV, perf. criteria A
- RF Electromagnetic Field: EN 61000-4-3, 10 V/m, perf. criteria A
- EFT (Burst) / Surge: EN 61000-4-4, ±2 kV, perf. criteria A
- Conducted RF Disturbances: EN 61000-4-6, 10 Vrms, perf. criteria A
- PF Magnetic Field: Continuous: EN 61000-4-8, 30 A/m, perf. criteria A
  - 230 VAC / 50 Hz: EN 61000-4-11
  - 115 VAC / 60 Hz: EN 61000-4-11

**General Specifications**

**Relative Humidity**
95% max. (non condensing)

**Temperature Ranges**
- Operating Temperature: -25°C to +70°C
- Storage Temperature: -40°C to +85°C

**Power Derating**
- High Temperature: 3.33 %/K above 55°C

**Cooling System**
Natural convection (20 LFM)

**Altitude During Operation**
2000 m max.

**Switching Frequency**
94 - 125 kHz (PFM)
115 kHz typ. (PFM)

**Insulation System**
Reinforced Insulation

**Working Voltage**
250 VAC

**Isolation Test Voltage**
- Input to Output: 60 s
3000 VAC

**Isolation Resistance**
- Input to Output: 500 VDC
1000 MΩ min.

**Reliability**
- Calculated MTBF: 430'000 h (MIL-HDBK-217F, ground benign)

**Housing Material**
Plastic resin (UL 94 V-0 rated)

**Potting Material**
Silicone (UL 94 V-0 rated)

**Pin Material**
Copper Alloy (C2680)

**Pin Foundation Plating**
Nickel (2 - 4 µm)

**Pin Surface Plating**
Tin (3 - 5 µm), matte

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

www.tracopower.com

November 30, 2021
Housing Type: Plastic Case
Mounting Type: PCB Mount
Connection Type: THD (Through-Hole Device)
Soldering Profile: Wave Soldering 260°C / 10 s
Weight: 60 g

Environmental Compliance
- REACH Declaration: www.tracopower.com/info/reach-declaration.pdf
- RoHS Declaration: www.tracopower.com/info/rohs-declaration.pdf

Exemptions: 7a
(Reason: exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

Supporting Documents
Overview Link (for additional Documents): www.tracopower.com/overview/tmps15

Outline Dimensions
Dimensions in mm (inch)
Tolerances: ±0.5 (±0.02)
Pin diameter Ø1.0 ±0.1 (Ø0.04 ±0.004)

Bottom View

Pinout
<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC (N)</td>
</tr>
<tr>
<td>2</td>
<td>AC (L)</td>
</tr>
<tr>
<td>3</td>
<td>+Vout</td>
</tr>
<tr>
<td>4</td>
<td>–Vout</td>
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</table>

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