

- Fully encapsulated 1.07" x 2.06" x 0.93" package
- ErP-ready (<100 mW 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 30 s)
- Integrated class B EMI filter
- 3000 VAC I/O isolation (reinforced)
- Protection class II prepared
- 3-year product warranty



UL 62368-1 IEC 60335-1  
IEC 62368-1

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 <100 mW, 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 make the TMPS 15 a first choice for demanding applications.

### Models

| Order Code  | Output Power<br>max. | Output Voltage<br>nom. | Output Current<br>max. | Output Current<br>peak | Efficiency<br>typ. |
|-------------|----------------------|------------------------|------------------------|------------------------|--------------------|
| TMPS 15-105 | 15 W                 | 5 VDC                  | 3'000 mA               | 3'900 mA               | 79 %               |
| TMPS 15-112 |                      | 12 VDC                 | 1'250 mA               | 1'625 mA               | 82 %               |
| TMPS 15-115 |                      | 15 VDC                 | 1'000 mA               | 1'300 mA               | 82 %               |
| TMPS 15-124 |                      | 24 VDC                 | 625 mA                 | 813 mA                 | 84 %               |
| TMPS 15-148 |                      | 48 VDC                 | 313 mA                 | 407 mA                 | 82 %               |

### Options

|                                                        |                                                                                                                                                |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| on demand<br>(backorder with MOQ<br>non stocking item) | <ul style="list-style-type: none"> <li>- Optional model with 3.3 VDC and 3'500 mA</li> <li>- Optional model with 9 VDC and 1'667 mA</li> </ul> |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|

## Input Specifications

|                        |                             |                                                                                                         |
|------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------|
| Input Voltage          | - AC Range                  | Operational Range: <b>85 - 264 VAC</b> (Full Range)<br>Rated Range: <b>100 - 240 VAC</b> (Full Range)   |
|                        | - DC Range                  | Operational Range: <b>120 - 370 VDC</b> (Designed for, no certification)<br>Polarity: <b>irrelevant</b> |
| Input Frequency        |                             | Operational Range: <b>47 - 440 Hz</b><br>Certified: <b>50/60 Hz</b>                                     |
|                        |                             |                                                                                                         |
| Power Consumption      | - No load & Vin = 230 VAC   | <b>300 mW max.</b> (Ready to meet ErP directive)                                                        |
|                        | - No load & Vin = 115 VAC   | <b>100 mW max.</b>                                                                                      |
| Input Current          | - Full load & Vin = 230 VAC | <b>200 mA max.</b>                                                                                      |
|                        | - Full load & Vin = 115 VAC | <b>300 mA max.</b>                                                                                      |
| Input Inrush Current   | - At 230 VAC                | <b>45 A max.</b>                                                                                        |
|                        | - At 115 VAC                | <b>25 A max.</b>                                                                                        |
| Recommended Input Fuse |                             | (The need of an external fuse has to be assessed in the final application.)                             |

## Output Specifications

|                                        |                                 |                                                                                                                                             |
|----------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage Set Accuracy                   |                                 | <b>±2% max.</b>                                                                                                                             |
| Regulation                             | - Input Variation (Vmin - Vmax) | <b>0.5% max.</b>                                                                                                                            |
|                                        | - Load Variation (0 - 100%)     | <b>1% max.</b>                                                                                                                              |
| Boost Power                            |                                 | Output Current peak: See model table<br>Peak power time: 30 s max.<br>Peak power duty cycle: 10% max.<br>Average operation power: 15 W max. |
| Ripple and Noise<br>(20 MHz Bandwidth) | 3.3 VDC model:                  | <b>80 mVp-p max.</b>                                                                                                                        |
|                                        | 5 VDC model:                    | <b>80 mVp-p max.</b>                                                                                                                        |
|                                        | 9 VDC model:                    | <b>90 mVp-p max.</b>                                                                                                                        |
|                                        | 12 VDC model:                   | <b>120 mVp-p max.</b>                                                                                                                       |
|                                        | 15 VDC model:                   | <b>150 mVp-p max.</b>                                                                                                                       |
|                                        | 24 VDC model:                   | <b>240 mVp-p max.</b>                                                                                                                       |
|                                        | 48 VDC model:                   | <b>480 mVp-p max.</b>                                                                                                                       |
| Capacitive Load                        | 3.3 VDC model:                  | <b>5'600 µF max.</b>                                                                                                                        |
|                                        | 5 VDC model:                    | <b>3'300 µF max.</b>                                                                                                                        |
|                                        | 9 VDC model:                    | <b>1'000 µF max.</b>                                                                                                                        |
|                                        | 12 VDC model:                   | <b>560 µF max.</b>                                                                                                                          |
|                                        | 15 VDC model:                   | <b>330 µF max.</b>                                                                                                                          |
|                                        | 24 VDC model:                   | <b>150 µF max.</b>                                                                                                                          |
| Minimum Load                           | 48 VDC model:                   | <b>33 µF max.</b>                                                                                                                           |
|                                        |                                 |                                                                                                                                             |
| Temperature Coefficient                |                                 | <b>±0.02 %/K max.</b>                                                                                                                       |
| Hold-up Time                           | - At 230 VAC                    | <b>40 ms min.</b>                                                                                                                           |
|                                        | - At 115 VAC                    | <b>8 ms min.</b>                                                                                                                            |
| Start-up Time                          | - At 230 VAC                    | <b>1'000 ms max.</b>                                                                                                                        |
| Short Circuit Protection               |                                 | <b>Continuous, Automatic recovery</b>                                                                                                       |
| Output Current Limitation              |                                 | <b>150% typ. of Iout max.</b> (Long term overload may cause damage)                                                                         |
| Overvoltage Protection                 |                                 | <b>125% typ. of Vout nom.</b> (By Zener diode)                                                                                              |

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

## Safety Specifications

|                       |                             |                                                                                                                |
|-----------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------|
| Standards             | - IT / Multimedia Equipment | EN 62368-1<br>IEC 62368-1<br>UL 62368-1                                                                        |
|                       | - Household                 | EN 60335-1<br>IEC 60335-1                                                                                      |
|                       | - Power Transformers        | EN 61558-2-16<br>IEC 61558-2-16                                                                                |
|                       | - Certification Documents   | <a href="http://www.tracopower.com/overview/tmps15">www.tracopower.com/overview/tmps15</a>                     |
|                       | Protection Class            | Class I & II (Prepared): Reinforced Insulation                                                                 |
| See application note: |                             | <a href="http://www.tracopower.com/info/protection-class.pdf">www.tracopower.com/info/protection-class.pdf</a> |
| Pollution Degree      |                             | PD 2                                                                                                           |
| Over Voltage Category |                             | OVC II                                                                                                         |

## EMC Specifications

|                 |                                  |                                                                                                                                                    |
|-----------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI (Emissions) | - Conducted Emissions            | EN 55014-1 (internal filter)<br>EN 55032 class A (internal filter)<br>EN 55032 class B (internal filter)                                           |
|                 | - Radiated Emissions             | EN 55014-1 (internal filter)<br>EN 55032 class A (internal filter)<br>EN 55032 class B (internal filter)                                           |
|                 | - Voltage Fluctuations & Flicker | EN 61000-3-3                                                                                                                                       |
| EMS (Immunity)  |                                  | EN 55024 (IT Equipment)<br>EN 55035 (Multimedia)<br>EN 55014-2 (Household Appliances Tools)                                                        |
|                 | - Electrostatic Discharge        | Air: EN 61000-4-2, $\pm 8$ kV, perf. criteria A<br>Contact: EN 61000-4-2, $\pm 6$ kV, perf. criteria A                                             |
|                 | - RF Electromagnetic Field       | EN 61000-4-3, 10 V/m, perf. criteria A                                                                                                             |
|                 | - EFT (Burst) / Surge            | EN 61000-4-4, $\pm 2$ kV, perf. criteria A                                                                                                         |
|                 |                                  | L to L: EN 61000-4-5, $\pm 1$ 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                                                                                                 |
|                 | - Voltage Dips & Interruptions   | 230 VAC / 50 Hz: EN 61000-4-11<br>30%, 0.5 periods, perf. criteria A<br>>95%, 0.5 periods, perf. criteria A<br>>95%, 250 periods, perf. criteria B |
|                 |                                  | 115 VAC / 60 Hz: EN 61000-4-11<br>30%, 25 periods, perf. criteria A<br>>95%, 0.5 periods, perf. criteria A<br>>95%, 250 periods, perf. criteria B  |
|                 | EMC / Environmental              | - Certification Documents<br><a href="http://www.tracopower.com/overview/tmps15">www.tracopower.com/overview/tmps15</a>                            |

## 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                                                                        |
| See application note:     |                         | <a href="http://www.tracopower.com/overview/tmps15">www.tracopower.com/overview/tmps15</a> |
| Cooling System            |                         | Natural convection (20 LFM)                                                                |
| Altitude During Operation |                         | 2'000 m max.                                                                               |
| Regulator Topology        |                         | Flyback Converter                                                                          |
| Switching Frequency       |                         | 94 - 125 kHz (PFM)                                                                         |
|                           |                         | 115 kHz typ. (PFM)                                                                         |
| Insulation System         |                         | Reinforced Insulation                                                                      |
| Working Voltage (rated)   |                         | 250 VAC                                                                                    |
| Isolation Test Voltage    | - Input to Output, 60 s | 3'000 VAC                                                                                  |

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

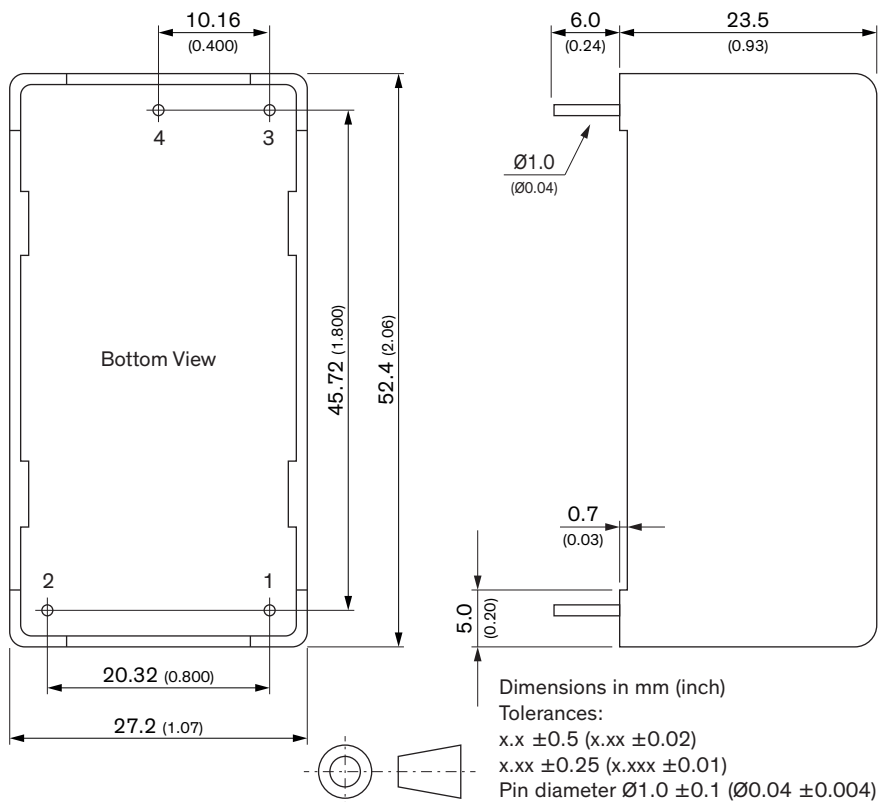
|                          |                            |                                                                                                                                                                                                                                                                |
|--------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Isolation Resistance     | - Input to Output, 500 VDC | 1'000 MΩ min.                                                                                                                                                                                                                                                  |
| Reliability              | - Calculated MTBF          | 430'000 h (MIL-HDBK-217F, ground benign)                                                                                                                                                                                                                       |
| Washing Process          |                            | Not allowed                                                                                                                                                                                                                                                    |
| 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 (3 μm)                                                                                                                                                                                                                                                  |
| Pin Surface Plating      |                            | Tin (3 μm), matte                                                                                                                                                                                                                                              |
| Housing Type             |                            | Plastic Case                                                                                                                                                                                                                                                   |
| Mounting Type            |                            | PCB Mount                                                                                                                                                                                                                                                      |
| Connection Type          |                            | THD (Through-Hole Device)                                                                                                                                                                                                                                      |
| Soldering Profile        |                            | Lead-Free Wave Soldering<br>260°C / 4 s max.                                                                                                                                                                                                                   |
| Weight                   |                            | 60 g                                                                                                                                                                                                                                                           |
| Environmental Compliance | - REACH Declaration        | <a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a><br>REACH SVHC list compliant<br>REACH Annex XVII compliant                                                                                    |
|                          | - RoHS Declaration         | <a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a><br>Exemptions: 7(a)<br>(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).) |
|                          | - SCIP Reference Number    | c7f44eab-2160-4f74-b443-ba35500664d1                                                                                                                                                                                                                           |

### Additional Information

|                            |                                                                                                |
|----------------------------|------------------------------------------------------------------------------------------------|
| Supporting Documents       | <a href="http://www.tracopower.com/overview/tmps15">www.tracopower.com/overview/tmps15</a>     |
| Frequently Asked Questions | <a href="http://www.tracopower.com/glossary-faq">www.tracopower.com/glossary-faq</a>           |
| Glossary                   | <a href="http://www.tracopower.com/info/glossary.pdf">www.tracopower.com/info/glossary.pdf</a> |

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

## Outline Dimensions



| Pinout |          |
|--------|----------|
| Pin    | Function |
| 1      | AC (N)   |
| 2      | AC (L)   |
| 3      | +Vout    |
| 4      | -Vout    |