

- PCB Power module in 1" x 1" package
- No load input power <150 mW, to comply with ErP directive
- Operating temperature range -25°C to +70°C
- Certified to IEC/EN 60335-1 for household appliance
- EMI meets EN 55032, class B
- Protection class II prepared
- 3-year product warranty



The TMPS-03 series are ultra compact AC/DC power supplies in a fully encapsulated plastic casing for PCB mount. Their safety approvals and extended operating temp. range from -25°C to +70°C qualify them for worldwide markets. They are certified to IEC/EN 60335-1 for household appliance and offer an interesting solution for space critical applications in commercial, and industrial electronic equipment and if compliance to ErP directive is required.

Models

| Order Code | Output Power max. | Output Voltage nom. | Output Current max. | Output Current peak | Efficiency typ. |
|-------------|-------------------|---------------------|---------------------|---------------------|-----------------|
| TMPS 03-103 | 3 W | 3.3 VDC | 900 mA | 1'170 mA | 70 % |
| TMPS 03-105 | | 5 VDC | 600 mA | 780 mA | 72 % |
| TMPS 03-109 | | 9 VDC | 333 mA | 430 mA | 77 % |
| TMPS 03-112 | | 12 VDC | 250 mA | 320 mA | 78 % |
| TMPS 03-115 | | 15 VDC | 200 mA | 260 mA | 78 % |
| TMPS 03-124 | | 24 VDC | 125 mA | 160 mA | 78 % |

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 | | Operational Range: 47 - 63 Hz Certified: 50/60 Hz |
| Power Consumption | - No load & Vin = 230 VAC | 450 mW max. |
| | - No load & Vin = 115 VAC | 150 mW max. |
| Input Inrush Current | - At 230 VAC | 25 A max. |
| | - At 115 VAC | 15 A max. |
| Input Protection | | T 1.0 A / 250 V |
| Recommended Input Fuse | | (The need of an external fuse has to be assessed in the final application.) |

Output Specifications

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|--|---------------------------------|--|
| Voltage Set Accuracy | | ±2% max. |
| Regulation | - Input Variation (Vmin - Vmax) | 1% 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: 3 W max. |
| Ripple and Noise (20 MHz Bandwidth) | | 70 mVp-p max. |
| Capacitive Load | 3.3 VDC model: | 1'200 µF max. |
| | 5 VDC model: | 820 µF max. |
| | 9 VDC model: | 470 µF max. |
| | 12 VDC model: | 330 µF max. |
| | 15 VDC model: | 270 µF max. |
| | 24 VDC model: | 180 µF max. |
| Minimum Load | | Not required |
| Temperature Coefficient | | ±0.05 %/K max. |
| Hold-up Time | - At 230 VAC | 40 ms min. |
| | - At 115 VAC | 8 ms min. |
| Start-up Time | - At 230 VAC | 200 ms max. |
| | - At 115 VAC | 200 ms max. |
| Start-up Overshoot Voltage | | 5% max. |
| Short Circuit Protection | | Continuous, Automatic recovery |
| Output Current Limitation | | 135% min. of Iout max. |
| | | 150% typ. of Iout max. |
| Overvoltage Protection | | 190% max. of Vout nom. (By Zener diode) |
| | | 125% typ. of Vout nom. (By Zener diode) |

Safety Specifications

| | | |
|-----------|-----------------------------|---|
| Standards | - IT / Multimedia Equipment | CSA-C22.2, No. 60950-1 EN 60950-1 EN 62368-1 IEC 60950-1 IEC 62368-1 UL 60950-1 UL 62368-1 |
| | - Household | EN 60335-1 IEC 60335-1 |
| | - Certification Documents | www.tracopower.com/tmps03-safety-cert |

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

| | | |
|-----------------------|---------------------------|--|
| Protection Class | | Class I & II (Prepared): Reinforced Insulation |
| | See application note: | www.tracopower.com/info/protection-class.pdf |
| Energy Source | - Output, acc. to 62368-1 | ES1 |
| Power Source | - Output, acc. to 62368-1 | PS3 |
| Pollution Degree | | PD 2 |
| Over Voltage Category | | OVC II |

EMC Specifications

| | | | |
|-----------------|----------------------------------|--|--|
| EMI (Emissions) | - Conducted Emissions | EN 61204-3 (Low Voltage Power Supplies) EN 55014-1 (internal filter) EN 55032 class A (internal filter) EN 55032 class B (internal filter) FCC 47 Part 15 class A (internal filter) FCC 47 Part 15 class B (internal filter) | |
| | - Radiated Emissions | EN 55014-1 (internal filter) EN 55032 class A (internal filter) EN 55032 class B (internal filter) FCC 47 Part 15 class A (internal filter) FCC 47 Part 15 class B (internal filter) | |
| | - Harmonic Current Emissions | EN 61000-3-2 | |
| | - Voltage Fluctuations & Flicker | EN 61000-3-3 | |
| EMS (Immunity) | - Electrostatic Discharge | EN 61204-3 (Low Voltage Power Supplies) EN 55024 (IT Equipment) EN 55035 (Multimedia) EN 55014-2 (Household Appliances Tools) Air: EN 61000-4-2, ± 8 kV, perf. criteria A Contact: EN 61000-4-2, ± 4 kV, perf. criteria A EN 61000-4-3, 10 V/m, perf. criteria A EN 61000-4-4, ± 2 kV, perf. criteria A L to L: EN 61000-4-5, ± 1 kV, perf. criteria A EN 61000-4-6, 10 Vrms, perf. criteria A Continuous: EN 61000-4-8, 30 A/m, perf. criteria A 230 VAC / 50 Hz: EN 61000-4-11 30%, 25 periods, perf. criteria A >95%, 0.5 periods, perf. criteria A >95%, 250 periods, perf. criteria B | |
| | - RF Electromagnetic Field | | |
| | - EFT (Burst) / Surge | | |
| | - Conducted RF Disturbances | | |
| | - PF Magnetic Field | | |
| | - Voltage Dips & Interruptions | | |
| | EMC / Environmental | - Certification Documents | www.tracopower.com/tmps03-emc-cert |

General Specifications

| | | |
|---------------------------|----------------------------|--|
| Relative Humidity | | 95% max. (non condensing) |
| Temperature Ranges | - Operating Temperature | -25°C to +70°C |
| | - Approved Ambient Temp. | 62368-1: +60°C max. 60335-1: +60°C max. |
| | - Storage Temperature | -40°C to +85°C |
| Power Derating | - High Temperature | 5.0 %/K above 60°C |
| | See application note: | www.tracopower.com/tmps03-cc |
| Cooling System | | Natural convection (20 LFM) |
| Altitude During Operation | | 5'000 m max. |
| Switching Frequency | | 49 - 81 kHz (PWM) 65 kHz typ. (PWM) |
| Insulation System | | Reinforced Insulation |
| Working Voltage (rated) | | 245 VAC |
| Isolation Test Voltage | - Input to Output, 60 s | 3'000 VAC |
| Isolation Resistance | - Input to Output, 500 VDC | 100 M Ω min. |
| Reliability | - Calculated MTBF | 1'200'000 h (MIL-HDBK-217F, ground benign) |
| Washing Process | | Not allowed |

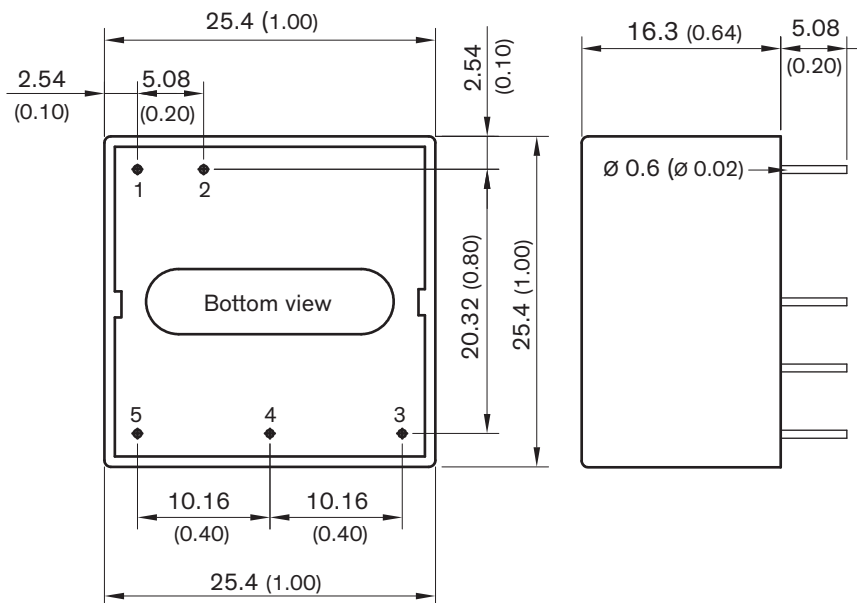
All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

| | |
|--------------------------|---|
| Housing Material | Plastic resin (UL 94 V-0 rated) |
| Potting Material | Silicone (UL 94 V-0 rated) |
| Pin Material | Copper Alloy (C6801) |
| Pin Foundation Plating | Nickel (2 - 4 μm) |
| Pin Surface Plating | Tin (3 - 5 μm), matte |
| Housing Type | Plastic Case |
| Mounting Type | PCB Mount |
| Connection Type | THD (Through-Hole Device) |
| Soldering Profile | Lead-Free Wave Soldering 260°C / 6 s max. |
| Weight | 17.4 g |
| Environmental Compliance | - REACH Declaration www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant |
| | - RoHS Declaration www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7(a) (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule)) |
| | - SCIP Reference Number 1f3782d9-743c-4811-920e-082b4bf47f6f |

Additional Information

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|----------------------------|--|
| Supporting Documents | www.tracopower.com/overview/tmps03 |
| Frequently Asked Questions | www.tracopower.com/glossary-faq |
| Glossary | www.tracopower.com/info/glossary.pdf |

Outline Dimensions



| Pin Connections | |
|-----------------|----------|
| Pin | Function |
| 1 | AC (N) |
| 2 | AC (L) |
| 3 | NC |
| 4 | -Vout |
| 5 | +Vout |

NC: Not connected

Dimensions in mm (inch)
 Outside dimension tolerance: ± 0.5 (± 0.02)
 Pin pitch tolerance: ± 0.25 (± 0.01)
 Pin diameter: $\varnothing 0.6 \pm 0.1$ (± 0.004)

