

AC/DC Power Supply

TMPS 03 Series, 3 Watt

- 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

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/overview/tmps03

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
Pollution Degree	PD 2
Over Voltage Category	OVC II

EMC Specifications

EMI (Emissions)		EN 61204-3 (Low Voltage Power Supplies)
- Conducted Emissions		EN 55014-1 (internal filter)
		EN 55032 class B (internal filter)
		FCC 47 Part 15 class B (internal filter)
- Radiated Emissions		EN 55014-1 (internal filter)
		EN 55032 class B (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)		EN 61204-3 (Low Voltage Power Supplies)
		EN 55024 (IT Equipment)
		EN 55035 (Multimedia)
		EN 55014-2 (Household Appliances Tools)
- Electrostatic Discharge	Air:	EN 61000-4-2, ± 8 kV, perf. criteria A
	Contact:	EN 61000-4-2, ± 4 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
	L to L:	EN 61000-4-5, ± 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
		30%, 25 periods, perf. criteria A
		>95%, 0.5 periods, perf. criteria A
		>95%, 250 periods, perf. criteria B
EMC / Environmental	- Certification Documents	www.tracopower.com/overview/tmps03

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	-25°C to +70°C
	- Approved Ambient Temp.	+60°C max. (for compliance to 62368-1 and 60335-1)
	- Storage Temperature	-40°C to +85°C
Power Derating	- High Temperature	5 %/K above 60°C
	See application note:	www.tracopower.com/overview/tmps03
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
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 μ m)
Pin Surface Plating		Tin (3 - 5 μ m), matte
Housing Type		Plastic Case
Mounting Type		PCB Mount

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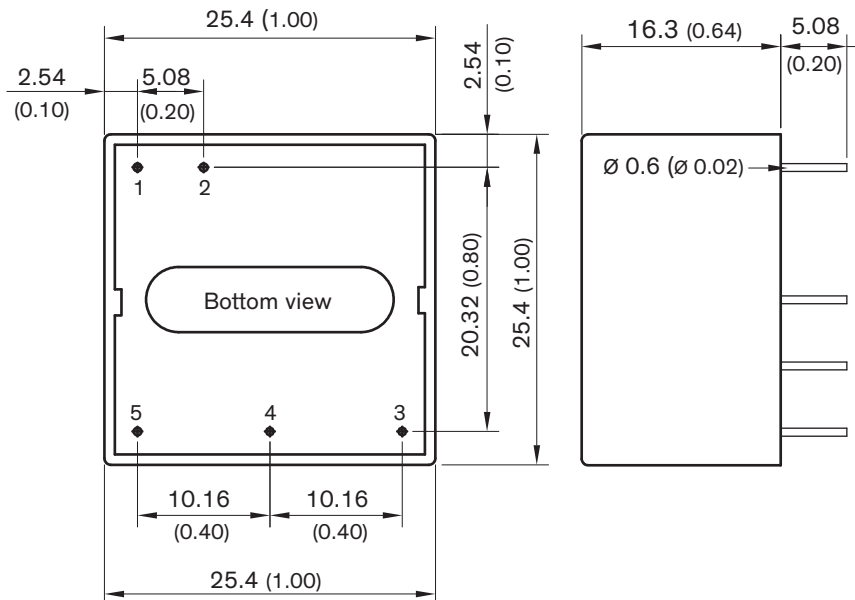
Connection Type	THD (Through-Hole Device)
Soldering Profile	Lead-Free Wave Soldering 260°C / 6 s max.
Weight	17.4 g
Environmental Compliance	- REACH Declaration www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7a (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).) - RoHS Declaration - SCIP Reference Number

Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tmps03

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)

