TRACO POWER

AC/DC Power Supply

TMPS 10 Series, 10 Watt

- **Ultra Compact 10 Watt PCB Power module in 1" x 1.5" package**
- **Certified to IEC/EN 60335-1 and UL 62368-1 for household and industrial appliance**
- **Reinforced I/O isolation 4000 VAC**
- **Operating temperature range –25°C to +70°C**
- **Allows 130% peak current up to 30 s**
- **Ready to meet ErP directive, < 0.15 W no load power consumption**
- **EMI meets EN 55032 class B and EN 55014-1**
- **Protection class II prepared**
- **3-year product warranty**

UL 62368-1 IEC 62368-1

The TMPS 10 series comprises ultra compact AC/DC power supply modules in a lightweight fully encapsulated plastic casing for PCB mount. Beside the latest safety approvals for industrial and IT solutions (IEC/EN/UL 62368-1), they are also certified to IEC/EN 60335-1 for household appliance. These 10 Watt modules are the ideal solution for low power or segregated circuits when space is critical or for an efficient powering of a standby mode when compliance to ErP directive is required. A peak current of 130% facilitates the activation of main circuits.

Models

Order Code	Output Power max.	Output Voltage nom.	Output Current max.	Output Current peak	Efficiency typ.
TMPS 10-103	8.6 W	3.3 VDC	2'600 mA	3'380 mA	77 %
TMPS 10-105	10 W	5 VDC	2'000 mA	2'600 mA	80 %
TMPS 10-109		9 VDC	1'100 mA	1'440 mA	83 %
TMPS 10-112		12 VDC	830 mA	1'080 mA	84 %
TMPS 10-115		15 VDC	660 mA	860 mA	84 %
TMPS 10-124		24 VDC	410 mA	530 mA	86 %
TMPS 10-148		48 VDC	210 mA	270 mA	84 %

Input Specifications

Input Voltage	- AC Range	85 - 264 VAC (Full Range)
	- DC Range	120 - 370 VDC (Designed for, no certification)
Input Frequency		47 - 63 Hz (designed to meet: 47 - 440 Hz)
Power Consumption	- at no load	150 mW max. (Ready to meet ErP directive)
Input Inrush Current	- at 230 VAC	40 A max.
	- at 115 VAC	20 A max.
Recommended Input Fuse		1600 mA (slow blow)

Output Specifications

Voltage Set Accuracy		±2% max.
Regulation	- Input Variation (Vmin - Vmax)	0.5% max.
	- Load Variation (0 - 100%)	1% max.
Output Current peak		<30 s with maximum duty cycle of 10%, average output power must not exceed 10 W
Ripple and Noise (20 MHz Bandwidth)	3.3 VDC model:	60 mVp-p max.
	5 VDC model:	60 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:	4'400 µF max.
	5 VDC model:	2'200 µF max.
	9 VDC model:	680 µF max.
	12 VDC model:	390 µF max.
	15 VDC model:	240 µF max.
	24 VDC model:	100 µF max.
	48 VDC model:	24 µF max.
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Short Circuit Protection		Continuous, Automatic recovery
Overload Protection		Foldback Mode
Output Current Limitation		150% typ. of Iout max.
Overvoltage Protection		125% typ. of Vout nom. (By Zener diode)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Household	EN 60335-1, IEC 60335-1
	- Certification Documents	www.tracopower.com/overview/tmps10
Protection Class		Class II (Prepared): Reinforced Insulation
Pollution Degree		PD 2
Over Voltage Category		OVC II

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

EMC Specifications

EMI Emissions	- Conducted Emissions		EN 55014-1
			EN 55032 class B (internal filter)
			FCC Part 15, class B
	- Radiated Emissions		EN 55014-1
			EN 55032 class B (internal filter)
			FCC Part 15, class B
	- Harmonic Current Emissions		EN 61000-3-2
	- Voltage Fluctuations & Flicker		EN 61000-3-3
EMS Immunity			EN 55024 (IT Equipment)
			EN 55014-2 (Household Appliances Tools)
	- Electrostatic Discharge	Air:	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
		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

General Specifications

Relative Humidity		95% max. (non condensing)
Temperature Ranges	- Operating Temperature	–25°C to +70°C
	- Approved Ambient Temp.	+50°C max.
	- Case Temperature	+95°C max.
	- Storage Temperature	–40°C to +85°C
Power Derating	- High Temperature	2.5 %/K above 50°C
Cooling System		Natural convection (20 LFM)
Altitude During Operation		2'000 m max.
Switching Frequency		30 - 65 kHz (PWM)
		45 kHz typ. (PWM)
Insulation System		Reinforced Insulation
Working Voltage (rated)		244 VAC
Isolation Test Voltage	- Input to Output, 60 s	4'000 VAC
Isolation Resistance	- Input to Output, 500 VDC	1'000 MΩ min.
Leakage Current	- Touch Current	250 µA max.
Reliability	- Calculated MTBF	453'000 h (MIL-HDBK-217F, ground benign)
Housing Material		Plastic resin (UL 94 V-0 rated)
Pin Material		Tinned Copper
Soldering Profile		Wave Soldering (1.5mm from casing)
		260°C / 10 s
Connection Type		THD (Through-Hole Device)
Weight		29 g
Environmental Compliance	- Reach	www.tracopower.com/info/reach-declaration.pdf
	- RoHS	www.tracopower.com/info/rohs-declaration.pdf

Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tmps10

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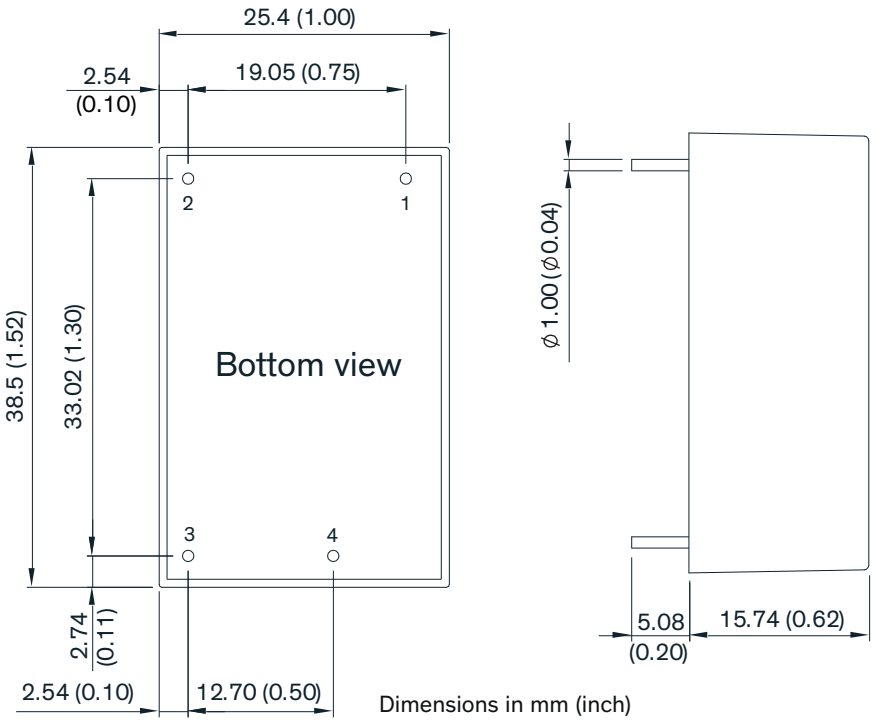
Outline Dimensions



Pin Connections	
Pin	**Function**
1	AC (N)
2	AC (L)
3	–Vout
4	+Vout

Dimensions in mm (inch)
Outside dimension tolerance: ±0.5 (±0.02)
Pin pitch tolerance: ±0.25 (±0.01)
Pin diameter Ø: 1.0 ±0.1 (0.04 ±0.004)