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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 60335-1 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 %

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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 - 440 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		40 A max.
	- At 115 VAC		20 A max.
Recommended Input Fuse			1'600 mA (slow blow) (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: 10 W max.
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.
Hold-up Time	- At 230 VAC		40 ms min.
	- At 115 VAC		8 ms min.
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 I & II (Prepared): Reinforced Insulation

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

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Pollution Degree		PD 2
Over Voltage Category		OVC II

EMC Specifications

EMI Emissions	- Conducted Emissions	EN 55014-1 (internal filter) EN 55032 class B (internal filter) FCC Part 15 class B (internal filter)
	- Radiated Emissions	EN 55014-1 (internal filter) EN 55032 class B (internal filter) FCC Part 15 class B (internal filter)
	- Harmonic Current Emissions	EN 61000-3-2
	- Voltage Fluctuations & Flicker	EN 61000-3-3
EMS Immunity		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, ±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
		See application note: www.tracopower.com/overview/tmps10
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)
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 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		Wave Soldering 260°C / 10 s

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

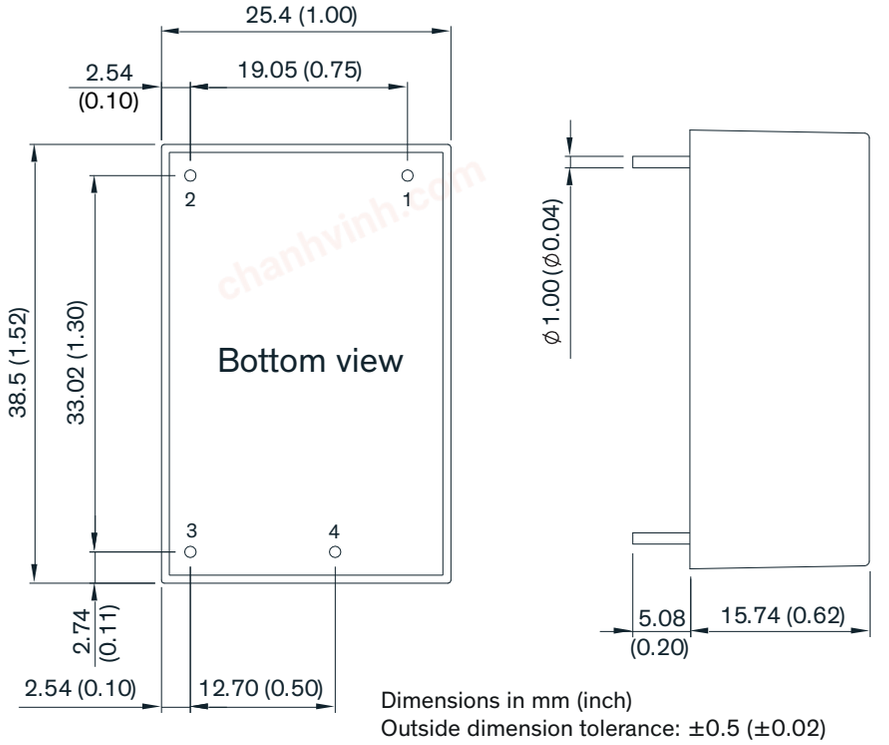
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Weight	29 g
Environmental Compliance - REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7a (RoHS exemptions 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/tmps10

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)

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