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TRACO POWER

AC/DC Power Supply

TMPW 50 Series, 50 Watt

- **Compact PCB power module in 2.92" x 1.85" package**
- **Wide input voltage range 90-305 VAC**
- **Certified according to EN 60335-1 an IEC/EN/UL 62368-1**
- **I/O-Isolation 4'000 VAC**
- **Operating temperature range –40°C to +70°C**
- **No load input power <0.1W (acc. ErP directive)**
- **High efficiency up to 89%**
- **Internal EN 55032 class B filter**
- **Protection class II prepared**
- **3 year product warranty**



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

The TMPW 50 is a 50 Watt AC/DC series with an extended input range of 90-305 VAC and is suitable for industrial and household/building technology applications and comes in a compact encapsulated plastic case. The 305 VAC (277 VAC ±10%) threshold is derived from a 480 VAC three-phase supply voltage often used in heavy industrial applications. Through the increased voltage level, the drawn current from the load is effectively reduced, which allows for an overall more compact and lightweight design approach. They offer an I/O-isolation voltage of 4000 VAC, a high temperature range of -40 to +70°C and are prepared for protection class II applications. Additionally, an internal EN 55032 class B filter saves valuable board space for an otherwise often mandatory external filter setup. An energy efficient design (<0.1 Watt standby power consumption) and safety approvals according to IEC/EN/UL 62368-1 and EN 60335-1 make this series suitable for a wide range of industrial and household/building technology applications.

Models

Order Code	Output Power max.	Output Voltage nom.	Output Current max.	Efficiency typ.
TMPW 50-112	50 W	12 VDC	4'167 mA	89 %
TMPW 50-115		15 VDC	3'333 mA	88 %
TMPW 50-124		24 VDC	2'083 mA	88 %

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Input Specifications

Input Voltage	- AC Range	Operational Range:	90 - 305 VAC (Full Range)
		Rated Range:	100 - 277 VAC (Full Range)
	- DC Range	Operational Range:	100 - 430 VDC
		Certified Range:	100 - 250 VDC
		Polarity:	irrelevant
			(The rated range refers to 62368-1. For 60335-1 certification the rated input voltage is 100 - 240 VAC and DC input is not permitted.)
Input Frequency		Operational Range:	47 - 440 Hz
		Certified:	50/60 Hz
Input Current	- Full Load & Vin = 230 VAC		600 mA max.
	- Full Load & Vin = 115 VAC		1'000 mA max.
Power Consumption	- No load & Vin = 230 VAC		100 mW max. (Ready to meet ErP directive)
	- No load & Vin = 115 VAC		100 mW max.
Input Inrush Current	- At 230 VAC		90 A max.
	- At 115 VAC		45 A max.
Recommended Input Fuse			2'500 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)		2% max.
	- Load Variation (0 - 100%)		2.5% max.
Ripple and Noise (20 MHz Bandwidth)		12 VDC model:	120 mVp-p max. (w/ 0.1 µF // 47 µF)
		15 VDC model:	150 mVp-p max. (w/ 0.1 µF // 47 µF)
		24 VDC model:	240 mVp-p max. (w/ 0.1 µF // 47 µF)
Capacitive Load		12 VDC model:	3'500 µF max.
		15 VDC model:	3'000 µF max.
		24 VDC model:	2'200 µF max.
Minimum Load			Not required
Temperature Coefficient			±0.05 %/K max.
Hold-up Time	- At 230 VAC		10 ms min.
Start-up Time	- At 230 VAC		130 ms max.
	- At 115 VAC		130 ms max.
Short Circuit Protection			Continuous, Automatic recovery
Output Current Limitation			130 - 215% of Iout max.
Overvoltage Protection			105 - 145% of Vout nom.
			(By Zener diode)
Transient Response	- Response Deviation		2% typ. / 3% max. (50% to 75% Load Step)
	- Response Time		500 µs max. (50% to 75% Load Step)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1
		IEC 62368-1
		UL 62368-1
	- Household	EN 60335-1
		IEC 60335-1
	- Power Transformers	IEC 61558-1
		IEC 61558-2-16
	- Certification Documents	www.tracopower.com/overview/tmpw50
Protection Class		Class I & II (Prepared): Reinforced Insulation
Pollution Degree		PD 2
Over Voltage Category		OVC II

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

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EMC Specifications

EMI Emissions	- Conducted Emissions		EN 55032 class B (internal filter)
	- Radiated Emissions		EN 55032 class B (internal filter)
	- Voltage Fluctuations & Flicker		EN 61000-3-3
EMS Immunity			EN 55024 (IT Equipment)
			EN 55035 (Multimedia)
	- 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, 3 V/m, perf. criteria A
	- EFT (Burst) / Surge		EN 61000-4-4, ±1 kV, perf. criteria A
		L to L:	EN 61000-4-5, ±1 kV, perf. criteria A
	- Conducted RF Disturbances		EN 61000-4-6, 3 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 1 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz:	EN 61000-4-11
			30%, 25 periods, perf. criteria A
			>95%, 250 periods, perf. criteria B
		115 VAC / 60 Hz:	EN 61000-4-11
			30%, 25 periods, perf. criteria A
			>95%, 250 periods, perf. criteria B

General Specifications

Relative Humidity			95% max. (non condensing)
Temperature Ranges	- Operating Temperature		–40°C to +70°C
	- Storage Temperature		–40°C to +85°C
Power Derating	- High Temperature		2.5 %/K above 50°C
	- Low Input Voltage		2 %/V below 100 VAC
		See application note:	www.tracopower.com/overview/tmpw50
Cooling System			Natural convection (20 LFM)
Altitude During Operation			5'000 m max. (acc. IEC 62368-1)
			2'000 m max. (acc. IEC 60335-1)
Switching Frequency			55 - 90 kHz (PWM, PFM)
Insulation System			Reinforced Insulation
Working Voltage (rated)			342 VAC
Isolation Test Voltage	- Input to Output, 60 s		4'000 VAC
Leakage Current	- Touch Current		250 µA max.
Reliability	- Calculated MTBF		300'000 h (MIL-HDBK-217F, ground benign)
Washing Process			Not allowed
Environment	- Vibration		IEC 60068-2-6
			2 g, 3 axis, 60 min, 10-500 Hz, 10 min/cycle
	- Mechanical Shock		IEC 60068-2-27
Housing Material			Plastic resin (UL 94 V-0 rated)
Potting Material			Silicone (UL 94 V-0 rated) (Hermetical sealed structure, dust-proof only non water-proof)
Pin Material			Brass
Pin Surface Plating			Tin (120 µm min.), matte
Housing Type			Plastic Case
Mounting Type			PCB Mount
Connection Type			THD (Through-Hole Device)
Weight			158 g

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

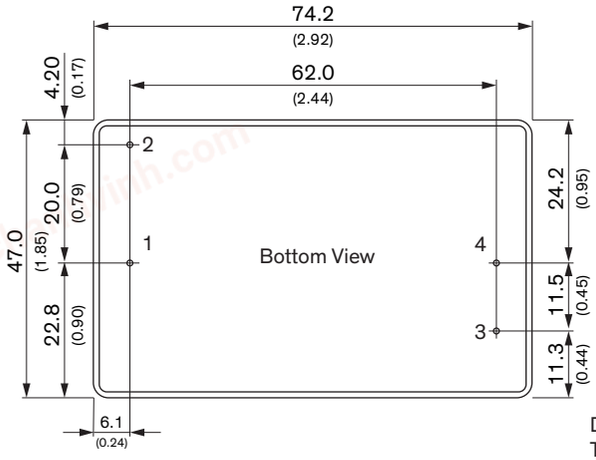
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Environmental Compliance	- REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7c-I (RoHS exemptions refer 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/tmpw50

Outline Dimensions



Dimensions in mm (inch)
Tolerances: x.x ±0.5 (±0.02)

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

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