TRACO POWER

AC/DC Power Supply

TMPW 50-J Series, 50 Watt

- **Compact chassis mount power module in 3.82" x 1.90" 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-J 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	Output Voltage	Output Current	Efficiency
JST connectors	Screw terminals *	max.	nom.	max.	typ.
TMPW 50-112-J	**TMPW 50-112-T**	50 W	12 VDC	4'167 mA	89 %
TMPW 50-115-J	**TMPW 50-115-T**		15 VDC	3'333 mA	88 %
TMPW 50-124-J	**TMPW 50-124-T**		24 VDC	2'083 mA	88 %

Options

TMPW-MK3	- Optional DIN-Rail Mounting Kit: www.tracopower.com/products/tmpw-mk3.pdf

Note - * Technically identical series with screw terminals available. See: www.tracopower.com/overview/tmpw50-t

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-j
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.

EMC Specifications

EMI Emissions	- Conducted Emissions		EN 55032 class B (internal filter)
	- Radiated Emissions		EN 55032 class B (internal filter)
	- Harmonic Current Emissions		EN 61000-3-2, class A
	- Voltage Fluctuations & Flicker		EN 61000-3-3
EMS Immunity			EN 55024 (IT Equipment)
			EN 55035 (Multimedia)
			EN 61000-6-2 (Generic Industrial)
	- 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
			60%, 10 periods, perf. criteria A
			>95%, 0.5 periods, perf. criteria A
			>95%, 250 periods, perf. criteria B
			100%, 0.5 periods, perf. criteria A
			100%, 1 period, perf. criteria A
			100%, 250 periods, perf. criteria B
		115 VAC / 60 Hz:	EN 61000-4-11
			30%, 25 periods, perf. criteria A
			60%, 10 periods, perf. criteria A
			>95%, 0.5 periods, perf. criteria A
			>95%, 250 periods, perf. criteria B
			100%, 0.5 periods, perf. criteria A
			100%, 1 period, perf. criteria A
			100%, 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-j
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)
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)
Housing Type			Plastic Case
Mounting Type			Chassis Mount
Connection Type			Pin Connector

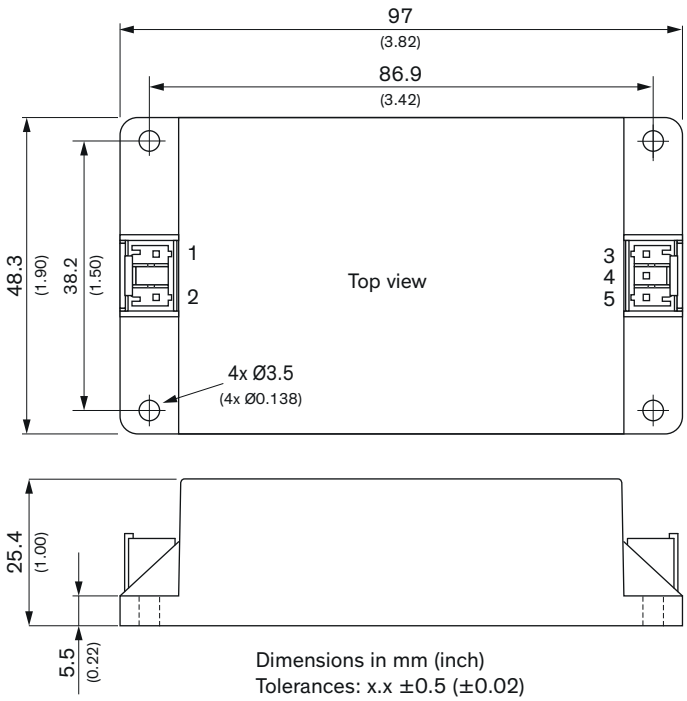
All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

Weight		180 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: 7c-I
		(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)
	- SCIP Reference Number	c5e58874-2d98-41b4-b77a-7ce7bda59b41

Supporting Documents

Overview Link (for additional Documents)	www.tracopower.com/overview/tmpw50-j

Outline Dimensions



Dimensions in mm (inch)
Tolerances: x.x ±0.5 (±0.02)
Mounting screw locked torque: 0.29 Nm (3 kgfcm)

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

NC: Not connected

Mating Connector:
JST housing: PSIP-03V-LE-A
JST crimp terminals: SPSI-41T-M1.1
SPSI-001T-M1.1