TRACO POWER

AC/DC Power Supply

TPI 125A-J Series, 125 Watt

- **125 Watt open frame power supplies in a 3" x 2" package**
- **Compact and cost efficient design**
- **Peak power function up to 120%**
- **I/O reinforced isolation 3000 VAC**
- **Operating temperature range –40°C to +85°C**
- **No load input power <0.3W (acc. ErP directive)**
- **High efficiency up to 92%**
- **Internal EN 55032 class B filter**
- **Protection class II prepared**
- **3 year product warranty**



UL 62368-1 IEC 62368-1

The TPI 125A-J is a 125 Watt AC/DC open frame power supplies series with a 3000 VAC reinforced isolation system. Our TPI line specifically focuses on providing cost efficient industrial power supplies in compact designs. This series offers a peak power function which enables the unit to deliver up to 120% of the rated power for up to 10 seconds. Excellent efficiency of up to 92% allows a compact design and an operating temperature range (natural convection) of –40°C to +50°C without derating, while going up to +85°C with either load derating or forced cooling. They are designed to meet the ErP directive (< 0.3 W no load power consumption) and come with an EMC characteristics dedicated for applications in industrial/automation and test & measurement fields. High reliability is provided by use of industrial high-quality grade components and an excellent thermal management. It makes the TPI 125A-J an ideal solution for any demanding industrial devices or space critical applications.

Models

Order Code	Output Power max.	Output Voltage nom. (adjustable)	Output Current max. (Forced air cooling)	Output Current max. (Natural convection)	Output Current peak	Efficiency typ.
TPI 125-112A-J	125 W	12 VDC (9.6 - 13.2 VDC)	10'420 mA	8'340 mA	12'500 mA	91 %
TPI 125-115A-J		15 VDC (12.0 - 16.5 VDC)	8'340 mA	6'670 mA	10'000 mA	92 %
TPI 125-124A-J		24 VDC (19.2 - 26.4 VDC)	5'210 mA	4'170 mA	6'250 mA	92 %
TPI 125-136A-J		36 VDC (28.8 - 39.6 VDC)	3'480 mA	2'780 mA	4'167 mA	91 %
TPI 125-148A-J		48 VDC (38.4 - 52.8 VDC)	2'610 mA	2'090 mA	3'125 mA	91 %

Note - Peak power is limited to 140 W max. when used below 130 VAC input

Input Specifications

Input Voltage	- AC Range	85 - 264 VAC (Full Range)
	- DC Range	120 - 370 VDC
Input Frequency		47 - 63 Hz
Input Current	- Full Load & Vin = 230 VAC	700 mA max.
	- Full Load & Vin = 115 VAC	1'800 mA max.
Power Consumption	- At no load	300 mW max. (Ready to meet ErP directive)
Input Inrush Current	- At 230 VAC	100 A max.
	- At 115 VAC	60 A max.
Power Factor	- At 230 VAC	0.95 min.
	- At 115 VAC	0.95 min.
Input Protection		T 3.15 A / 250 VAC (Internal Fuse in L)
Recommended Input Fuse		(The need of an external fuse has to be assessed in the final application.)

Output Specifications

Output Voltage Adjustment		−20% to +10% (For trim-down lower than -10% a minimum load of 0.25 W is required) (By trim potentiometer) Output power must not exceed rated power!
Voltage Set Accuracy		±1% max.
Regulation	- Input Variation (Vmin - Vmax)	0.2% max.
	- Load Variation (0 - 100%)	0.5% max.
Output Current peak		max. peak duration: 10 s with 20% duty cycle and 55% average operation power (detailed description see application note)
Ripple and Noise (20 MHz Bandwidth)	12 VDC model:	140 mVp-p typ. (w/ 10 µF, 25 V, MLCC)
	15 VDC model:	150 mVp-p typ. (w/ 10 µF, 25 V, MLCC)
	24 VDC model:	160 mVp-p typ. (w/ 1 µF, 50 V, MLCC)
	36 VDC model:	190 mVp-p typ. (w/ 1 µF, 50 V, MLCC)
	48 VDC model:	340 mVp-p typ. (w/ 0.1 µF, 100 V, MLCC)
Capacitive Load	12 VDC model:	8'700 µF max.
	15 VDC model:	5'600 µF max.
	24 VDC model:	2'200 µF max.
	36 VDC model:	1'000 µF max.
	48 VDC model:	550 µF max.
Minimum Load		Not required
Temperature Coefficient		±0.02 %/K max.
Hold-up Time	- At 230 VAC	40 ms min.
	- At 115 VAC	20 ms min.
Start-up Time	- At 230 VAC	730 ms max.
	- At 115 VAC	730 ms max.
Short Circuit Protection		Continuous, Automatic recovery
Output Current Limitation		120 - 160% of Iout max.
Overvoltage Protection		115 - 135% of Vout nom. (latch mode)
Transient Response	- Response Deviation	3% max. (50% to 75% Load Step at 2.5 A/µs)
	- Response Time	500 µs typ. (50% to 75% Load Step at 2.5 A/µs)

Safety Specifications

Safety Standards	- IT / Multimedia Equipment	EN 62368-1 IEC 62368-1 UL 62368-1
	- Certification Documents	www.tracopower.com/overview/tpi125a-j
Protection Class		Class I & II (Prepared): Reinforced Insulation

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

Pollution Degree		PD 2
Over Voltage Category		OVC II

EMC Specifications

EMI Emissions	- Conducted Emissions		EN 55032 class B (internal filter) FCC Part 15 class B (internal filter)
	- Radiated Emissions		EN 55032 class A (internal filter) FCC Part 15 class A (internal filter)
	- Harmonic Current Emissions		EN 61000-3-2, class A EN 61000-3-2, class D
	- Voltage Fluctuations & Flicker		EN 61000-3-3
EMS Immunity			EN 55024 (IT Equipment)
	- 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, 20 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
		L to PE:	EN 61000-4-5, ±2 kV, perf. criteria A
	- Conducted RF Disturbances		EN 61000-4-6, 20 Vrms, perf. criteria A
	- PF Magnetic Field	Continuous:	EN 61000-4-8, 10 A/m, perf. criteria A
	- Voltage Dips & Interruptions	230 VAC / 50 Hz:	EN 61000-4-11
		115 VAC / 60 Hz:	EN 61000-4-11

General Specifications

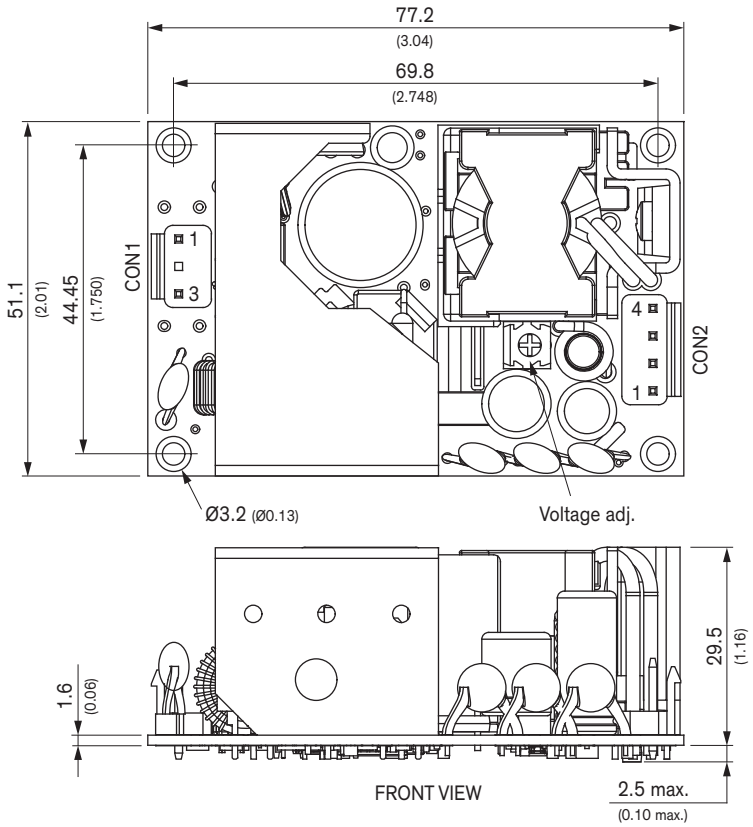
Relative Humidity			95% max. (non condensing)
Temperature Ranges	- Operating Temperature		–40°C to +85°C
	- Storage Temperature		–40°C to +85°C (-40°C start up: 80% load max. at Vin >100 VAC -40°C start up: 100% load max. at Vin >200 VAC)
Power Derating	- High Temperature	See application note:	www.tracopower.com/overview/tpi125a-j
	- Low Input Voltage		1.33 %/V below 100 VAC
Cooling System	- Option 1		Forced air cooling (with external fan, 400 LFM)
	- Option 2		Natural convection (20 LFM)
Altitude During Operation			5'000 m max.
Switching Frequency			60 kHz typ.
Insulation System			Reinforced Insulation
Working Voltage (rated)			527 VAC
Isolation Test Voltage	- Input to Output, 60 s		4'000 VAC
Isolation Resistance	- Input to Output, 500 VDC		100 MΩ min.
Leakage Current (at 264 VAC)	- Touch Current		300 µA max.
Reliability	- Calculated MTBF		790'000 h (MIL-HDBK-217F, ground benign)
Environment	- Vibration		IEC 60068-2-6
	- Mechanical Shock		IEC 60068-2-27
Connection Type			JST
Weight			156 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/tpi125a-j

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

Outline Dimensions



Pin connectors			
Input (CON1)		**Output** (CON2)	
Pin	**Function**	**Pin**	**Function**
1	Line	**1-2***	–Vout
3	Neutral	**3-4***	+Vout

Terminal rated for 10 A max. per pin.

CON1: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-3N

CON2: JST series
mates with JST crimp terminal: SVH-21T-P1.1
and terminal housing: VHR-4N

Dimensions in mm (inch)
Tolerances: x.x ±0.5 (x.xx ±0.02)
Tolerances: x.xx±0.25 (x.xxx ±0.01)
Screw lock torque: Max. 0.49 Nm (5 kgfcm)

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