

- 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



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 (Designed for, no certification)
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	<a href="http://www.tracopower.com/overview/tpi125a-j">www.tracopower.com/overview/tpi125a-j</a>
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	- Electrostatic Discharge	EN 55024 (IT Equipment) 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 startup: 80% load max. at Vin >100 VAC -40°C startup: 100% load max. at Vin >200 VAC)
Power Derating	- High Temperature	See application note: <a href="http://www.tracopower.com/overview/tpi125a-j">www.tracopower.com/overview/tpi125a-j</a> 1.33 %/V below 100 VAC
	- Low Input Voltage	
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
Creepage	- Input to Output	8 mm min.
Clearance	- Input to Output	6.8 mm min.
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	

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

Environmental Compliance - REACH Declaration

- RoHS Declaration

[www.tracopower.com/info/reach-declaration.pdf](http://www.tracopower.com/info/reach-declaration.pdf)

REACH SVHC list compliant

REACH Annex XVII compliant

[www.tracopower.com/info/rohs-declaration.pdf](http://www.tracopower.com/info/rohs-declaration.pdf)

Exemptions: 7a, 7c-I

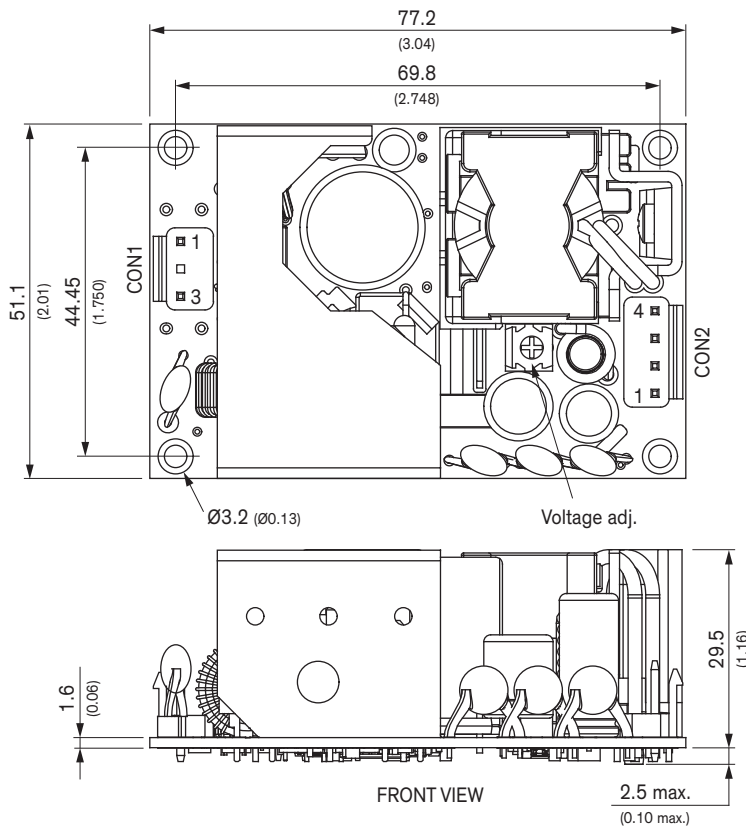
(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

### Supporting Documents

Overview Link (for additional Documents)

[www.tracopower.com/overview/tpi125a-j](http://www.tracopower.com/overview/tpi125a-j)

### Outline Dimensions



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)

### 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