

- 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 | 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 | - 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: www.tracopower.com/overview/tpi125a-j 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

REACH SVHC list compliant

REACH Annex XVII compliant

www.tracopower.com/info/rohs-declaration.pdf

Exemptions: 7a, 7c-I

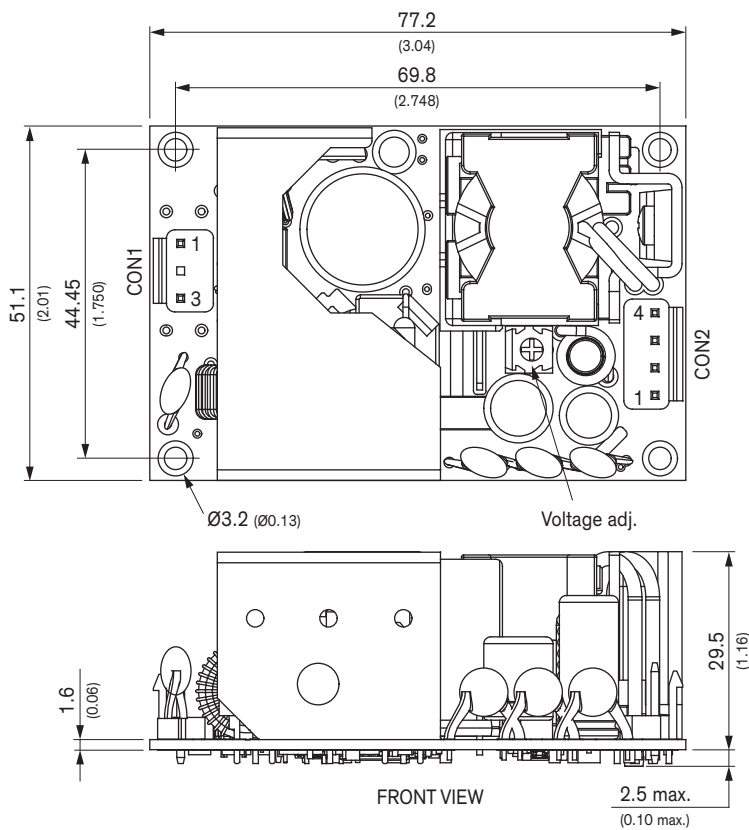
(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule). The SCIP number is provided on request.)

Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tpi125a-j

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

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