

- 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 4000 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 4000 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 % |

Input Specifications

| | | |
|------------------------|--|--|
| Input Voltage | - AC Range | Operational Range: 85 - 264 VAC (Full Range) Rated Range: 100 - 240 VAC (Full Range) |
| | - DC Range | Operational Range: 120 - 370 VDC (Designed for, no certification) Polarity: +DC: L / -DC: N |
| Input Frequency | | Operational Range: 47 - 440 Hz Certified: 50/60 Hz |
| Power Consumption | - No load & Vin = 230 VAC - No load & Vin = 115 VAC | 300 mW max. (Ready to meet ErP directive) 300 mW max. |
| Input Current | - Full load & Vin = 230 VAC - Full load & Vin = 115 VAC | 700 mA max. 1'800 mA max. |
| Input Inrush Current | - At 230 VAC - At 115 VAC | 100 A max. 60 A max. |
| Power Factor | - At 230 VAC - At 115 VAC | 0.95 min. (Active Power Factor Correction) 0.95 min. (Active Power Factor Correction) |
| 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) - Load Variation (0 - 100%) | 0.2% max. 0.5% max. |
| Boost Power | | Output Current peak: See model table 150 W max. peak power (≥ 130 VAC input) 140 W max. peak power (< 130 VAC input) Peak power time: 10 s max. Peak power duty cycle: 20% max. Average operation power: 55% of full load (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 - At 115 VAC | 40 ms min. 20 ms min. |
| Start-up Time | - At 230 VAC - At 115 VAC | 730 ms max. 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 off) |
| Transient Response | - Response Deviation - Response Time | 3% max. (50% to 75% Load Step at 2.5 A/µs) 500 µs typ. (50% to 75% Load Step at 2.5 A/µs) |

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

Safety Specifications

| | | |
|-----------------------|-----------------------------|--|
| 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 |
| Pollution Degree | | PD 2 |
| Over Voltage Category | | OVC II |

EMC Specifications

| | | |
|-----------------|----------------------------------|--|
| EMI (Emissions) | - Conducted Emissions | EN 55032 class B (internal filter) |
| | - Radiated Emissions | FCC 47 Part 15 class B (internal filter) EN 55032 class A (internal filter) |
| | - Harmonic Current Emissions | FCC 47 Part 15 class A (internal filter) EN 61000-3-2, class A |
| | - Voltage Fluctuations & Flicker | EN 61000-3-2, class D EN 61000-3-3 |
| EMS (Immunity) | - Electrostatic Discharge | EN 55024 (IT Equipment) EN 55035 (Multimedia) 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 |
| | - Conducted RF Disturbances | L to L: EN 61000-4-5, ±1 kV, perf. criteria A |
| | - PF Magnetic Field | EN 61000-4-6, 20 Vrms, perf. criteria A |
| | - Voltage Dips & Interruptions | Continuous: EN 61000-4-8, 10 A/m, perf. criteria A 230 VAC / 50 Hz: EN 61000-4-11 115 VAC / 60 Hz: EN 61000-4-11 |
| | EMC / Environmental | - Certification Documents |

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 | Depending on model |
| | - Low Input Voltage | 1.33 %/V below 100 VAC |
| | | See application note: www.tracopower.com/overview/tpi125a-j |
| Cooling System | - Option 1 - Option 2 | Forced air cooling (with external fan, 400 LFM) Natural convection (20 LFM) |
| Altitude During Operation | | 5'000 m max. |
| Regulator Topology | | Flyback Converter |
| Switching Frequency | | 60 kHz typ. (PWM QR) |
| 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 | - Touch Current | 300 μA max. |
| | (at 264 VAC) | |
| Distance Through Isolation | | 0.4 mm |
| Reliability | - Calculated MTBF | 790'000 h (MIL-HDBK-217F, ground benign) |
| Environment | - Vibration | IEC 60068-2-6 |
| | - Mechanical Shock | IEC 60068-2-27 |

All specifications valid at 230 VAC, resistive full load and +25°C after warm-up time, unless otherwise stated.

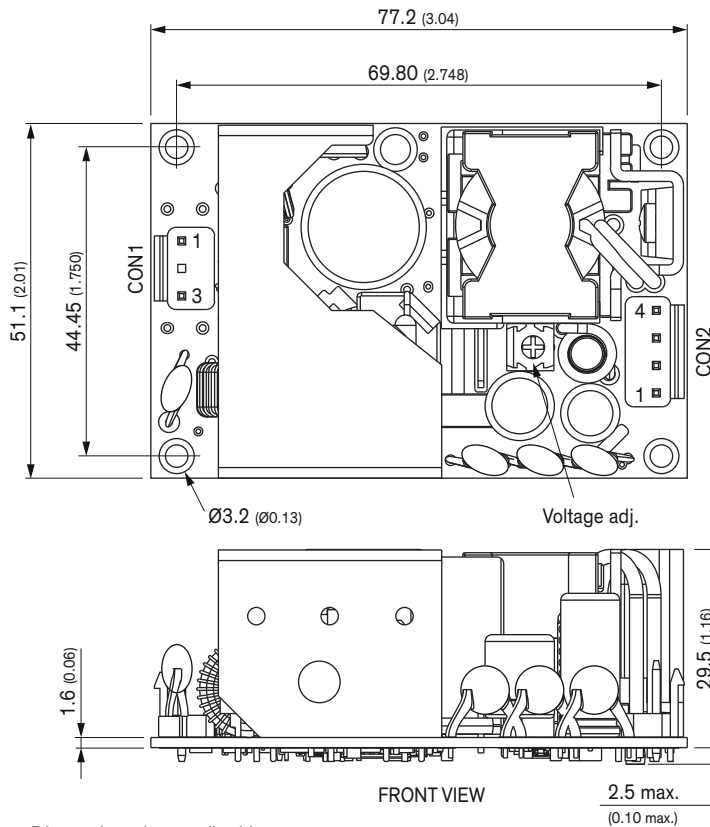
| | |
|--------------------------|--|
| Housing Type | Open Frame |
| Mounting Type | Chassis Mount |
| Connection Type | Pin Connector |
| Weight | 156 g |
| Environmental Compliance | - REACH Declaration www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant www.tracopower.com/info/rohs-declaration.pdf Exemptions: 7a, 7c-l (RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule.)) e4d5a091-95d0-45c6-8dab-009f826a54f8 - RoHS Declaration - SCIP Reference Number |

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)
 Mounting 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