



Features

- RoHS lead free and lead-solder-exempt products are available
- High power density in an industry-standard 3" x 5" footprint
- Power Factor Correction (PFC) meets EN61000-3-2
- CE marked to Low Voltage Directive (Pending)
- Input transient & ESD compliance to EN61000-4-2/-3/-4/-5
- MTBF In excess of 1M hours based upon field data
- Output adjustment potentiometer

Description

The MPB125 Series incorporates patented high efficiency circuitry, high power density and active Power Factor Correction (PFC) to meet the requirements of networking and data communications systems, as well as commercial and industrial configurations.

MPB125 single-output models deliver a fully-regulated output. The MPB125 is rated for convection as well as forced-air cooling. Full output power is available with as few as 5 Cubic Feet per Minute (CFM) forced-air cooling.

The MPB125 product line is approved to the latest international regulatory standards and displays the CE Mark.

Single Output Model Selection

| MODEL | OUTPUT VOLTAGE (VOLTS) | MAXIMUM OUTPUT CURRENT (AMPS), 130 LFM | TOTAL REGULATION % | RIPPLE & NOISE ¹ % pk-pk | ADJUSTMENT RANGE |
|------------------------------------|------------------------|--|--------------------|-------------------------------------|------------------|
| MPB125-1012 ^{2, 3} | 12V | 10.5A | ±1% | 1% | 11.76 to 12.24V |

Input Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------|--|---------|-----|-----|-------|
| Input Voltage- AC | Continuous input range. | 90 | | 264 | VAC |
| Input Frequency | AC Input. | 47 | | 63 | Hz |
| Brownout Protection | Lowest AC input voltage that regulation is maintained with full rated loads. | 90 | | | VAC |
| Hold-up Time | Over full AC input voltage range at full rated load. | 17 | | | ms |
| Input Current | 90 VAC at full rated load. | | | 1.8 | ARMS |
| Input Protection | Non-user serviceable internally located AC input line fuse, 3.15A. | | | | |
| Inrush Surge Current | Internally limited by thermistor, one cycle, 25° C. | 110VAC: | | 23 | APK |
| | | 220VAC: | | 46 | |
| Power Factor Circuitry | Active PFC meets requirements of EN61000-3-2. | | | | |
| Operating Frequency | Switching frequency of main transformer. | | 45 | | kHz |

NOTES:

- ¹ Maximum peak-to-peak noise expressed as a percentage of output voltage, 20 MHz bandwidth.
- ² Maximum forced-air output power is 125 watts with 5 CFM airflow.
- ³ Maximum convection output power is 70 watts.

Ordering Information:

| OPTIONS | SUFFIXES TO ADD TO PART NUMBER |
|--------------------------------------|---|
| RoHS lead solder exempt ¹ | No RoHS suffix character required. |
| RoHS compliant for all 6 substances | Add "G" as the last character of the part number. |

¹ The solder exemption refers to all the restricted materials except lead in solder.

Output Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-----------------------|---|---------------------------|-----|-----------|-------|
| Efficiency | Full Load, 230VAC. | | 80 | | % |
| Minimum Loads | No Minimum Load is Required | | | | Amps |
| Ripple and Noise | Full load, 20 MHz bandwidth. | See Model Selection Chart | | | |
| Output Power (Note 1) | At 5 CFM forced-air cooling. See Application Note #M3 for details. Convection: | | | 125 70 | Watts |
| Overshoot /Undershoot | Output voltage overshoot/undershoot at turn-on. | | | 10 | % |
| Regulation | Varies by output. Total regulation includes: line changes from 85-132 VAC or 170-264 VAC, changes in load starting at 20% load and changing to 100% load. | See Model Selection Chart | | | |
| Transient Response | Maximum deviation due to a 25% load change with unit at 75% load. | | 3 | | % |
| Turn-on Delay | Time required for initial output voltage stabilization. | 0.2 | | 1.5 | Sec |
| Turn-on Rise Time | Time required for output voltage to rise from 10% to 90%. | 0.2 | | 20 | ms |

Interface Signals and Internal Protection

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------|--|------|-----|------|-------|
| Overvoltage Protection | MPB125-1012 | 13.5 | | 16.5 | VDC |
| Overload Protection | Fully protected against output short circuit or overload. Automatic recovery upon removal of overload condition. | | | | |
| Thermal Shutdown | Protected against overtemperature conditions. Unit recovers when overtemperature condition is removed. | | | | |

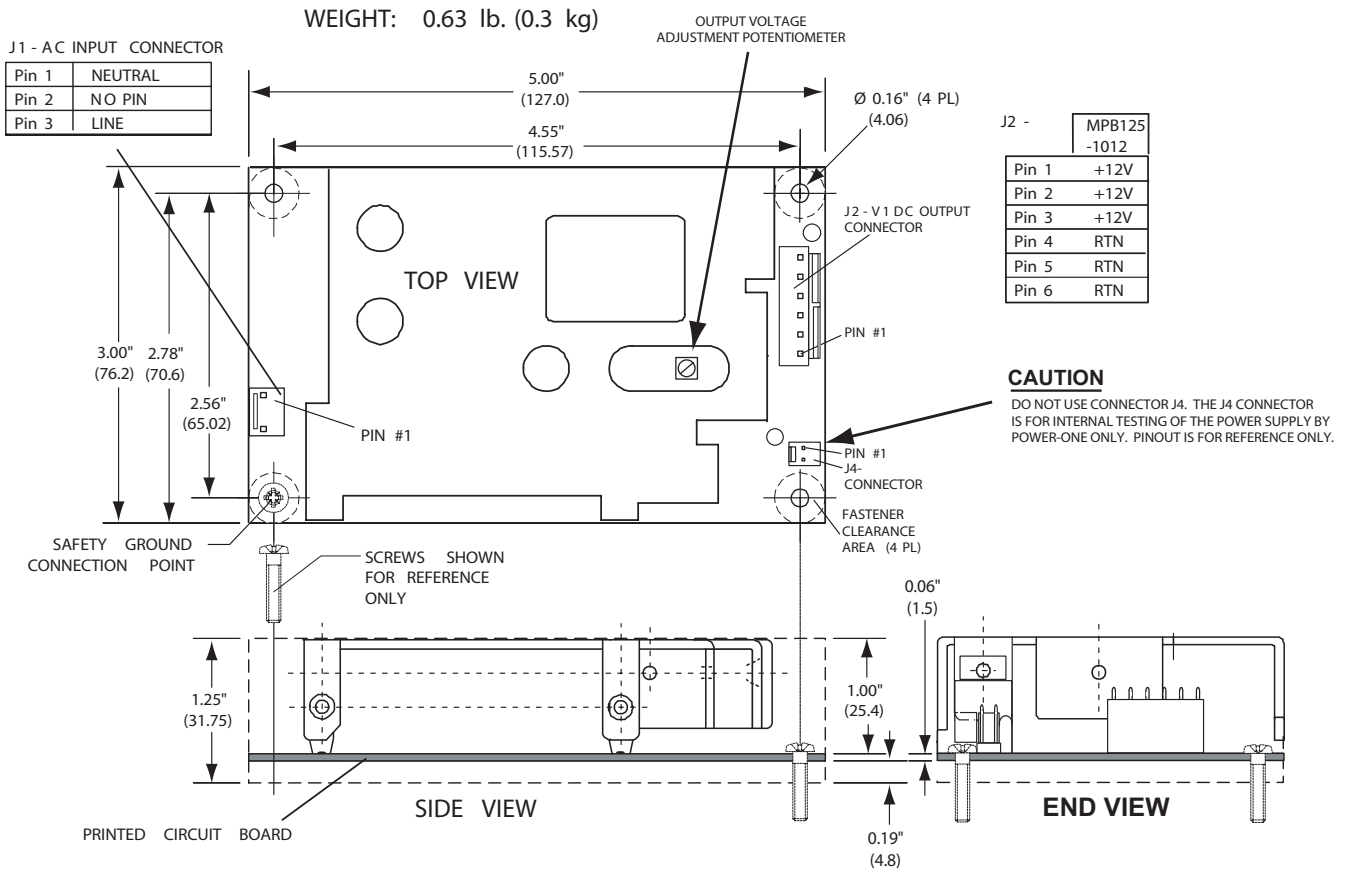
Safety, Regulatory, and EMI Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------------|--|--------------|----------|-----|------------|
| Agency Approvals | UL60950-1. CSA 22.2 No. 60950-1. EN60950 (TÜV). IEC60950-1 | | APPROVED | | |
| Dielectric Withstand Voltage | AC to chassis. Input to output. | 1500 3000 | | | VAC VDC |
| Electromagnetic Interference | EN55022 Conducted. | B | | | Class |
| ESD Susceptibility | Per EN61000-4-2, Level 4 | 8 | | | kV |
| Flicker | Per EN61000-3-3. | | | | |
| Radiated Susceptibility | Per EN61000-4-3. | | 3 | | V/m |
| EFT/Burst | Per EN61000-4-4. | 1 | | | kV |
| Input Transient Protection | Per EN61000-4-5, Level 3, 2 kV (Line-to-Gnd) minimum, 1 kV (Line-to-Line) minimum. | | | | |
| RF Immunity | Per EN61000-4-6. 0.15 to 80 MHz (1 kHz sinewave) | | 3 | | V/m |
| Magnetic Fields | Per EN61000-4-8. | | 1 | | A/m |
| Voltage Dips | Per EN61000-4-11. | | | | |
| Insulation Resistance | Input to output. | | 10 | | MΩ |
| Leakage Current | Per EN60950 (264 VAC) | | | 1.0 | mA |

Environmental Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|-------------------------|---|-----------------|-----|-----|-----------------|
| Altitude | Operating | | | 10K | ASL Feet |
| | Non-Operating | | | 50K | |
| Operating Temperature | Derate linearly from 50 to 70°C to 50% power at 70°C | At 100% load: 0 | | 50 | °C |
| Storage Temperature | | -40 | | 85 | °C |
| Forced-Air Cooling | Forced-air cooling of 5 CFM is required for full output power. Air velocity is measured with power supply mounted on 0.375" (9.5mm) standoffs. Airflow direction is from the input section to the output section. See Application Note for details. | | | | |
| Temperature Coefficient | Included in total regulation of outputs. | | | | |
| Relative Humidity | Non-Condensing. | 5 | | 95 | %RH |
| Shock | Operating: 11 ±3ms, 3 axes, Half Sine. | | | 15 | G _{pk} |
| | Non-operating: 11 ±3ms, 3 axes, Half Sine. | | | 40 | |
| Vibration | Operating: Random vibration, 5-500 Hz, 10 minutes each axis. | | | 2.4 | GRMS |
| | Non-Operating: Random vibration, 5-500 Hz, 10 minutes each axis. | | | 6.0 | GRMS |

Mechanical Drawing (MPB125-1012 Model)



Mating Connectors

NOTE: Part numbers are MOLEX; equivalents are acceptable.

| MPB125-1012 | | |
|-------------|---------|------------|
| J1 | Housing | 09-50-8033 |
| | Pins | 08-52-0113 |
| J2 | Housing | 09-50-8063 |
| | Pins | 08-52-0113 |

NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president of Power-One, Inc.

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