

Features

- RoHS lead-solder-exemption compliant
- Power Factor Correction (PFC) Meets EN61000-3-2
- Low-profile height fits 1U constraints
- High 3.3V and 5V current capabilities available
- CE marked to Low Voltage Directive
- Autoranging AC input, 85-264 VAC
- Overvoltage protection on the main output

Description

The MPB80 combines high density power and other standard features usually found in premium power systems. The low-profile package neatly fits 1U height constraints in an industry-standard 3" X 5" footprint. This Power Factor Corrected (PFC), multiple-output product line features overvoltage and overcurrent protection. In addition to UL, CSA, and TÜV, regulatory agency compliances include the CE Marking and harmonic compliance to EN61000-3-2.

Single Output Model Selection – Up to 72W Convection Cooled, Up to 100W Forced-Air Cooled (300 LFM)

| MODEL | OUTPUT VOLTAGE | ADJUSTMENT RANGE | CONVECTION COOLED OUTPUT CURRENT | FORCED AIR OUTPUT CURRENT | LINE REGULATION | LOAD REGULATION | RIPPLE & NOISE %p-p (NOTE 1) | INITIAL SETTING ACCURACY |
|------------|----------------|------------------|----------------------------------|---------------------------|-----------------|-----------------|------------------------------|--------------------------|
| MPB80-1012 | 12V | 11V to 13V | 6A | 8.4A | 0.5% | 1% | 1% | 11.94V to 12.06V |
| MPB80-1024 | 24V | 22V to 26V | 3A | 4.2A | 0.5% | 1% | 1% | 23.88V to 24.12V |
| MPB80-1048 | 48V | 46V to 50V | 1.5A | 2.1A | 0.5% | 1% | 1% | 47.76V to 48.24V |

NOTES: 1) Maximum peak-to-peak noise, bandwidth limited to 20 MHz.

Dual and Triple Output Model Selection – Up to 63W Convection Cooled, Up to 80W Forced-Air Cooled (300 LFM)

| MODEL | OUTPUT VOLTAGE | ADJUSTMENT RANGE | CONVECTION COOLED CURRENT | FORCED AIR CURRENT | LINE REGULATION | TOTAL REGULATION | RIPPLE & NOISE mV (NOTE 1) | INITIAL SETTING ACCURACY |
|---------------------|----------------|------------------|---------------------------|--------------------|-----------------|------------------|----------------------------|--------------------------|
| MPB80-2000 | +5V | 4.7V to 5.8V | 11A/15A PK | 15A | 0.8% | -4%, +2% | 1% | 4.9V to 5.1V |
| | +12V | Fixed | 0.5A/1A PK | 1A | 0.5% | ±5% | 1% | 11.5V to 12.5V |
| MPB80-3000 | +5V | 4.7V to 5.8V | 7A/8.5A PK | 8.5A | 0.5% | -4%, +6% | 1% | 4.9V to 5.1V |
| | +12V | Fixed | 2.5A/3A PK | 3A | 1.5% | -7%, +13% | 1% | 11.5V to 12.5V |
| | -12V | Fixed | 0.3A/0.7A PK | 0.7A | 0.5% | ±4% | 1% | -11.5V to -12.5V |
| MPB80-3300 (Note 2) | +3.3V | 3.1V to 3.9V | 7A/8.5A PK | 8.5A | 0.7% | ±2% | 1% | 3.27V to 3.33V |
| | +5V | 4.7V to 5.8V | 3A/5A PK | 5A | 0.5% | ±2% | 1% | 4.95V to 5.05V |
| | +12V | Fixed | 0.4A/0.65A PK | 0.65A | 1.5% | -15%, +17% | 1% | 10.2V to 14.0V |

NOTES: 1) Maximum peak-to-peak noise, bandwidth limited to 20 MHz.
2) MPB80-3300 has overvoltage protection on +3.3V and +5V outputs.

Model numbers highlighted in yellow or shaded are not recommended for new designs.

Input Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|----------------------|--|---------------------|-----|------|-------|
| Input Voltage - AC | Autoranging AC input automatically adjusts, no manual strapping required. | 85 | | 264 | VAC |
| Input Frequency | AC input. | 47 | | 63 | Hz |
| Brown Out Protection | Lowest AC input voltage that regulation is maintained with full rated loads. | 85 | | | VAC |
| Hold-Up Time | After last AC line peak. | Full load @ 120 VAC | 16 | | ms |
| | | Full load @ 220 VAC | 20 | | |
| Input Current | Single Output Models, 120 VAC | | | 1.5 | ARMS |
| | Single Output Models, 230 VAC | | | 0.75 | |
| | Dual and Triple Output Models, 120 VAC | | | 1.1 | |
| | Dual and Triple Output Models, 230 VAC | | | 0.55 | |
| Input Protection | Non-user serviceable internally located AC input line fuse. | | | | |
| Inrush Surge Current | Internally limited by thermistor. Vin = 230 VAC (one cycle). | | | 32 | APK |
| Operating Frequency | Switching frequency of main transformer. | 60 | | 68 | kHz |

Output Specifications

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------|---|---------------------------|-----|-----|-------|
| Efficiency | Full rated load, 230 VAC. Varies with distribution of loads among outputs. | | 73 | | % |
| Minimum Loads | Single Output Models | 0.0 | | | Amps |
| | MPB80-2000 | 1.5 | | | |
| | All other Multiple Output Models | 0.7 | | | |
| Ripple and Noise | Full load, 20 MHz bandwidth | See Model Selection Chart | | | |
| Output Power | Convection cooled, continuous output power. | MPB80-10XX | | 72 | Watts |
| | | MPB80-2000 | | 61 | |
| | | MPB80-3000 | | 63 | |
| | | MPB80-3300 | | 43 | |
| | Forced air cooled, 300 LFM, or convection cooled, peak output power 10% duty cycle, 30 seconds maximum. | MPB80-10XX | | 100 | Watts |
| | | MPB80-2000 | | 80 | |
| | MPB80-3000 | | 80 | | |
| | MPB80-3300 | | 61 | | |
| Overshoot / Undershoot | Output voltage overshoot/undershoot at turn-on. | | | 2 | % |
| 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 | Recovery time, to within 1% of initial set point due to a 50-100% load change, 5% max. deviation. | | 500 | | µs |
| Turn-On Delay | Time required for initial output voltage stabilization. | | 2 | | Sec |
| Turn-On Rise Time | Time required for output voltage to rise from 10% to 90%. | | 20 | | ms |

Interface Signals and Internal Protection

| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|------------------------|---|--------------|------|------|-------|
| Overvoltage Protection | | +3.3V | 3.9 | 4.7 | V |
| | | +5V, V1 & V2 | 5.8 | 6.8 | |
| | | 12V | 17.3 | 20.2 | |
| | | 24V | 32.2 | 37.8 | |
| | | 48V | 55.2 | 64.8 | |
| Overload Protection | Fully protected against output overload and short circuit. Automatic recovery upon removal of overload condition. | | | | |

Safety, Regulatory, and EMI Specifications

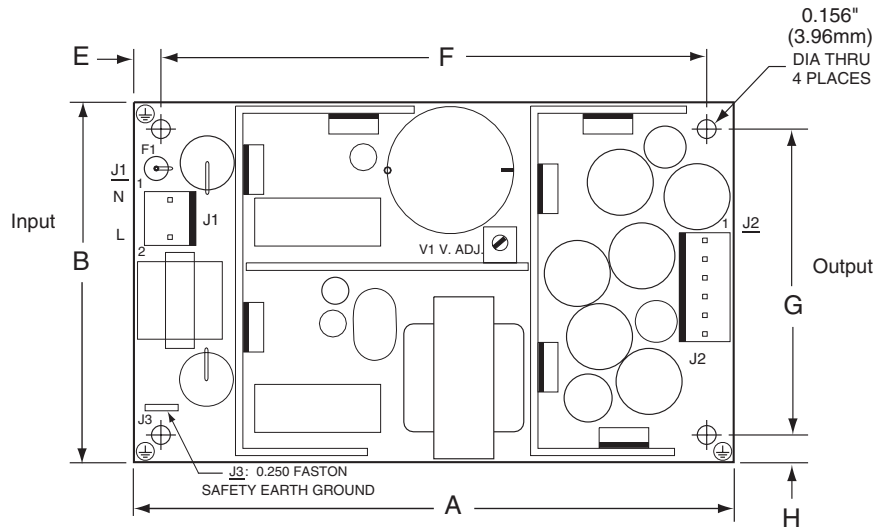
| PARAMETER | CONDITIONS/DESCRIPTION | MIN | NOM | MAX | UNITS |
|---|---|--------|----------|-----|-------|
| AC Input Harmonic Distortion | In compliance per EN61000-3-2. | | | | |
| Agency Approvals | UL60950. CSA 22.2 No. 60950. EN60950 (TÜV). | | Approved | | |
| Dielectric Withstand Voltage | Input to output, 1 second. | 2600 | | | VDC |
| Electromagnetic Interference, Conducted | FCC CFR title 47 Part 15. EN55022 / CISPR 22 | B B | | | Class |
| Input Transient Protection | EN61000-4-5 class 3. | 2 | | | kV |
| 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. Non-Operating. | | | 10k 30k | ASL Ft. |
| Cooling | See model selection table for individual convection/forced air rating. | | | | |
| Operating Temperature | At 100% load. Derate linearly above 50°C by 2% per °C. | 0 0 | | 50 70 | °C |
| Storage Temperature | | -40 | | 85 | °C |
| Relative Humidity | Non-condensing. | | | 95 | % |
| Shock | Peak acceleration. | | | 20 | GPK |
| Vibration | Random vibration, 10 Hz to 2 kHz, 3 axis. | | | 6 | GRMS |

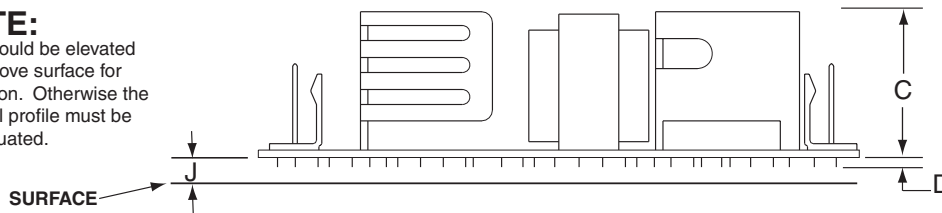
NUCLEAR AND MEDICAL APPLICATIONS - Power-One products are not designed, intended for use in, or authorized for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems without the express written consent of the respective divisional president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

TECHNICAL REVISIONS - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.



NOTE:

Unit should be elevated 1/4" above surface for operation. Otherwise the thermal profile must be re-evaluated.



J2

| MPB80-2000 | | | MPB80-3000 | | | MPB80-3300 | | | MPB80-10XX | | |
|------------|--------------------------|-----|------------|--------------------------|-----|------------|--------------------------|-----|------------|--------------------------|-----|
| PIN 1 | <input type="checkbox"/> | V1 | PIN 1 | <input type="checkbox"/> | V2 | PIN 1 | <input type="checkbox"/> | V2 | PIN 1 | <input type="checkbox"/> | V1 |
| 2 | <input type="checkbox"/> | V1 | 2 | <input type="checkbox"/> | V1 | 2 | <input type="checkbox"/> | RTN | 2 | <input type="checkbox"/> | V1 |
| 3 | <input type="checkbox"/> | V1 | 3 | <input type="checkbox"/> | V1 | 3 | <input type="checkbox"/> | RTN | 3 | <input type="checkbox"/> | V1 |
| 4 | <input type="checkbox"/> | RTN | 4 | <input type="checkbox"/> | RTN | 4 | <input type="checkbox"/> | RTN | 4 | <input type="checkbox"/> | RTN |
| 5 | <input type="checkbox"/> | RTN | 5 | <input type="checkbox"/> | RTN | 5 | <input type="checkbox"/> | V1 | 5 | <input type="checkbox"/> | RTN |
| 6 | <input type="checkbox"/> | RTN | 6 | <input type="checkbox"/> | V3 | 6 | <input type="checkbox"/> | V1 | 6 | <input type="checkbox"/> | RTN |
| 7 | <input type="checkbox"/> | V2 | | | | 7 | <input type="checkbox"/> | V3 | 7 | <input type="checkbox"/> | NC |

OVERALL SIZE: 5.00" (127.0mm) x 3.00" (76.2mm) x 1.40" (35.6mm)

WEIGHT: 0.8 lb (0.36 kg)

TOLERANCES: .XX = 0.03" (0.8mm)
.XXX = 0.010" (0.3mm)

INPUT CONNECTIONS: Molex 26-60-4030 or equivalent Header mates with Molex Housing 09-50-3031 or equivalent and Pins 08-50-0106 (18-20 AWG) or 80-50-0108 (22-26 AWG) or equivalent.

OUTPUT CONNECTIONS:
6-Connector J2: Molex 26-60-4060 Header mates with Molex 90-50-3061 or equivalent and pins 80-50-0106 (18-20 AWG) or 80-50-0108 (22-26 AWG) or equivalent.

7-Connector J2: Molex 26-60-4070 Header mates with Molex 90-50-3071 or equivalent and pins 80-50-0106 (18-20 AWG) or 80-50-0108 (22-26 AWG) or equivalent.

| Callout | Inches | Millimeters |
|---------|-----------|-------------|
| A | 5.00 | 127.0 |
| B | 3.00 | 76.2 |
| C | 1.30 | 33.0 |
| D | 0.10 Max. | 2.54 Max. |
| E | 0.225 | 5.72 |
| F | 4.55 | 115.57 |
| G | 2.55 | 64.77 |
| H | 0.225 | 5.72 |
| J | 0.25 | 6.35 |