

MBC75 Series

Low Profile

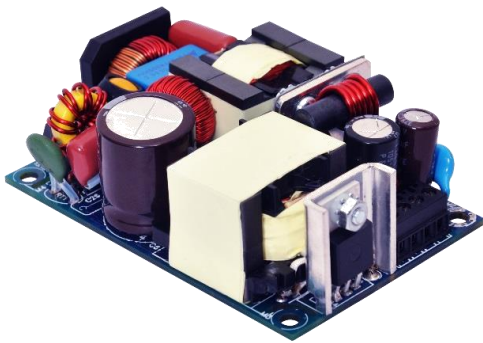
Open Frame Power Supplies

Medical

The MBC75 Series of open frame medical power supplies feature a wide universal AC input range of 85 V – 264 VAC, offering 75 W of output power in a compact footprint, with a variety of isolated single output voltages.

The MBC series is designed and approved to the latest Medical standards (EN/IEC 60601-1), providing 2 x MOPP isolation for Class I & Class II applications.

These power supplies are ideal for medical, telecom, datacom, industrial equipment and other applications.



Key Features & Benefits

- 3 x 2 x 1 Inch Form Factor
- 75 Watts with Convection Cooling
- Approved to EN/IEC 60601-1
- Efficiencies up to 93%
- -40 To 70°C Operating Temperature
- Dual Fusing
- Thermal Shut-Down Feature
- 2 Million Hours, Telcordia -SR332-Issue 3
- Standby Power < 0.3 W
- Suitable for BF Applications
- Class II Option Available
- RoHS Compliant
- CE Marked

Applications

- Diagnostic
- Drug Pump
- Dialysis
- Home Health Care
- Monitoring
- Portable Equipment



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1. MODEL SELECTION

| MODEL NUMBER ¹ | DESCRIPTION | VOLTAGE | MAX. LOAD (CONVECTION) | MIN. LOAD | RIPPLE & NOISE ² |
|----------------------------|---------------------------|---------|------------------------|-----------|-----------------------------|
| MBC75-1T12L | Screw Terminal | 12 V | 6.25 A | 0.0 A | 1% |
| MBC75-1012L | Molex Header | | | | |
| MBC75-1T15L | Screw Terminal | 15 V | 5.00 A | 0.0 A | 1% |
| MBC75-1015L | Molex Header | | | | |
| MBC75-1T24L | Screw Terminal | 24 V | 3.12 A | 0.0 A | 1% |
| MBC75-1024L | Molex Header | | | | |
| MBC75-1T30L | Screw Terminal | 30 V | 2.50 A | 0.0 A | 1% |
| MBC75-1030L | Molex Header | | | | |
| MBC75-1T48L | Screw Terminal | 48 V | 1.56 A | 0.0 A | 1% |
| MBC75-1048L | Molex Header | | | | |
| MBC75-1T58L | Screw Terminal | 58 V | 1.29 A | 0.0 A | 1% |
| MBC75-1058L | Molex Header | | | | |
| COVER-120-XBC ³ | metal cover kit accessory | | | | |

2. INPUT SPECIFICATIONS

Specifications are for nominal input voltage, 25°C unless otherwise stated.

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|---------------------|--|-----------------------------------|
| Input Voltage | Universal (Derate from 75 W @ 100 VAC to 65 W @ 85 VAC) | 85-264 VAC / 390 VDC ⁴ |
| Input Frequency | | 47-63 Hz |
| Input Current | 115 VAC: 230 VAC: | 1 A max. 0.5 A max. |
| No Load Power | Typical | < 0.3 W |
| Inrush Current | 115 VAC: 230 VAC: 264 VAC: | 25 A 45 A 75 A |
| Leakage Current | Typical (N.A. For Class II Option) Touch current | 300 μ A <100 μ A |
| Power Factor | @ Full Load, Active PFC | > 0.95 |
| Switching Frequency | Typical | 60 kHz |

¹ For Class II Option (without input Earth pin) add suffix: -2 (e.g.: MBC75-1012L-2).

² Ripple is peak to peak with 20 MHz bandwidth and 10 μ F (Tantalum capacitor) in parallel with a 0.1 μ F capacitor at rated line voltage and load ranges.

³ When used in Cover Kit, de-rate output power to 70 % under all operating conditions

⁴ Functional, not approved.

3. OUTPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|--------------------------|---|----------------------|
| Output Power | Convection: | 75 W |
| Efficiency | 48 V, 58 V: | 93% |
| | 24 V, 30 V: | 91% |
| | 12 V, 15 V: | 90% |
| Hold-up Time | Typical | >16 ms |
| Line Regulation | | +/-0.5% |
| Load Regulation | | +/-1% |
| Transient Response | 25% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50 Hz = 4% | recovery time < 5 ms |
| Voltage Adjustment | | +/-3% |
| Rise Time | Typical | 55 ms |
| Set Point Tolerance | | +/-1% |
| Over Current Protection | | > 110% |
| Over Voltage Protection | Latch type (AC recycling required) | 110 to 140% |
| Short Circuit Protection | Hiccup mode | |

4. ENVIRONMENTAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|------------------------------------|---|--------------------|
| Operating Temperature ⁵ | Startup is guaranteed with spec deviation, see Fig 1. | -40 to +70°C |
| Storage Temperature | | -40 to 0°C |
| | | -40 to +85°C |
| Cooling | With natural convection cooling at 100 to 264 VAC | 75 W |
| Relative Humidity | Noncondensing | 5% to 95% |
| Altitude | Operating: | 16,000 ft |
| | Nonoperating: | 40,000 ft. |
| Reliability | MTBF according to Telcordia -SR332-Issue 3 | 2.00 million hours |

5. EMC SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|------------------------------------|---|----------------------|
| Conducted Emissions | EN 55011-B, CISPR22-B, FCC PART15-B | Pass |
| Radiated Emissions | EN 55011 A; | Pass |
| | with external core (King core K5B RC 25x12x15-M in input cable) | Level B |
| Input Current Harmonics | EN 61000-3-2 | Class D |
| Voltage Fluctuation and Flicker | EN 61000-3-3 | Pass |
| ESD Immunity | EN 61000-4-2 | Level 4, Criterion A |
| Radiated Field Immunity | EN 61000-4-3 | Level 3, Criterion A |
| Electrical Fast Transient Immunity | EN 61000-4-4 | Level 3, Criterion A |
| Surge Immunity | EN 61000-4-5 | Level 3, Criterion A |
| Conducted Immunity | EN 61000-4-6 | Level 3, Criterion A |
| Magnetic Field Immunity | EN 61000-4-8 | Level 4, Criterion A |
| Voltage Dips, Interruptions | EN 61000-4-11 | Criterion B |

⁵ Output ripple can be more than 10% of the output voltage.

6. SAFETY SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|--------------------|--|---------------------|
| Isolation Voltage | Input to Output: (For medical applications) | 4000 VAC |
| | Input to GND: (Not Applicable For Class II Option) | 1500 VAC |
| | Output to GND: for type BF for type B (N/A For Class II Option) | 1500 VAC 500 VAC |
| Protection Level | Primary to Secondary: | 2 MOPP |
| | Primary to Earth: | 1 MOPP |
| | Secondary to Earth: | 1 MOPP |
| Safety Standard(s) | Approved to the latest edition of the following standards: CSA/UL60601-1, EN60601-1 and IEC60601-1. | |
| Agency Approvals | Nemko, cULus, CB | |
| CE mark | Complies with LVD Directive | |

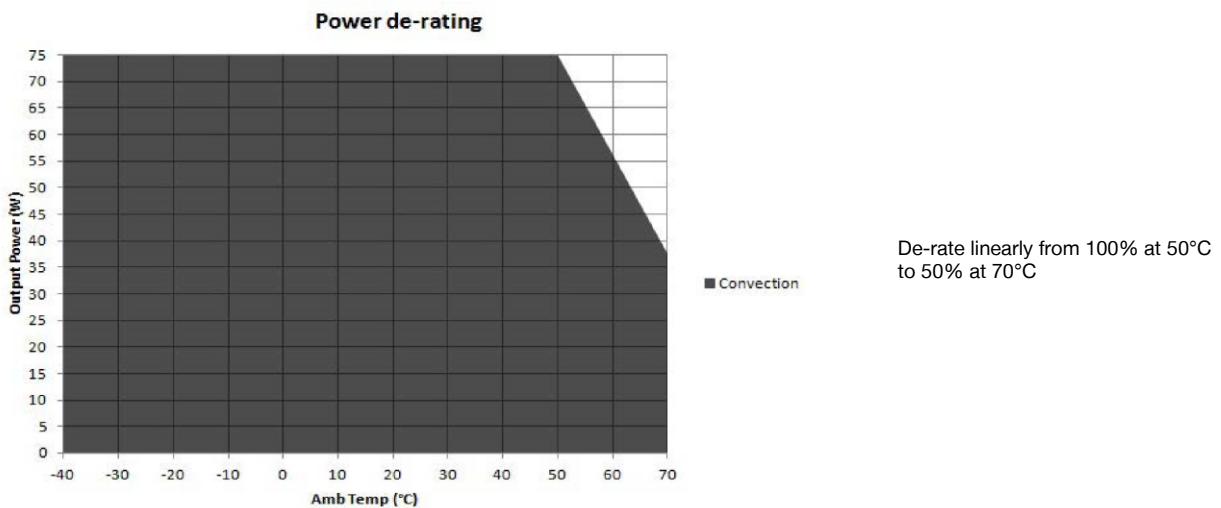


Figure 1. Derating Curve

7. CONNECTOR & PIN DESCRIPTION

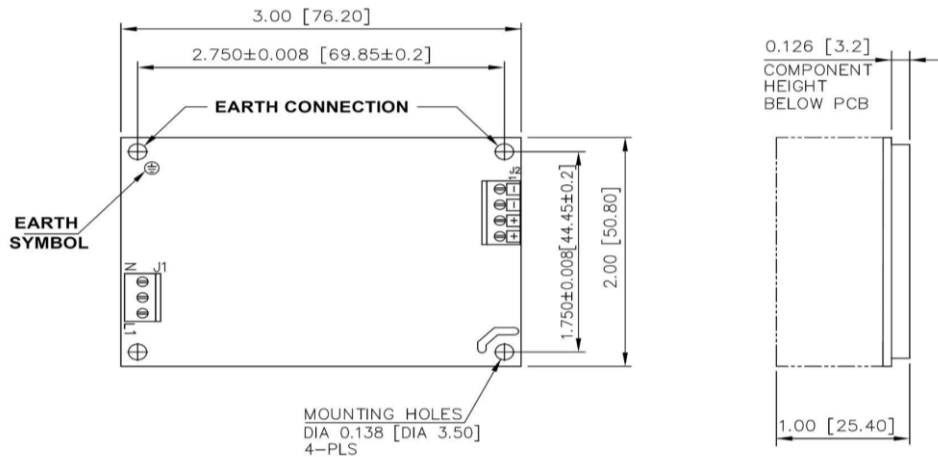
| CONNECTOR | PIN | DESCRIPTION / CONDITION | MANUFACTURER / PN |
|---------------------|-----|-------------------------|-------------------|
| AC Input Connector | J1 | Pin 1 | AC Line |
| | | Pin 2 | Not Fitted |
| | | Pin 3 | AC Neutral |
| DC Output Connector | J2 | Pin 1, 2 | V1 -VE |
| | | Pin 3, 4 | V1 +VE |
| | | | |

Options for AC Input Connector:
 Screw Terminal (Option 1) Molex: 39357-0003, Tyco-2-1776112-3
 Molex Header (Option 2) Molex: 1722861103 (Mating conn: Molex 1722561003)

Options for DC Output Connector:
 Screw Terminal (Option 1) Molex: 39357-0004, Tyco-2-1776112-4
 Molex Header (Option 2) Molex: 1722861104 (Mating conn: Molex 1722561004)

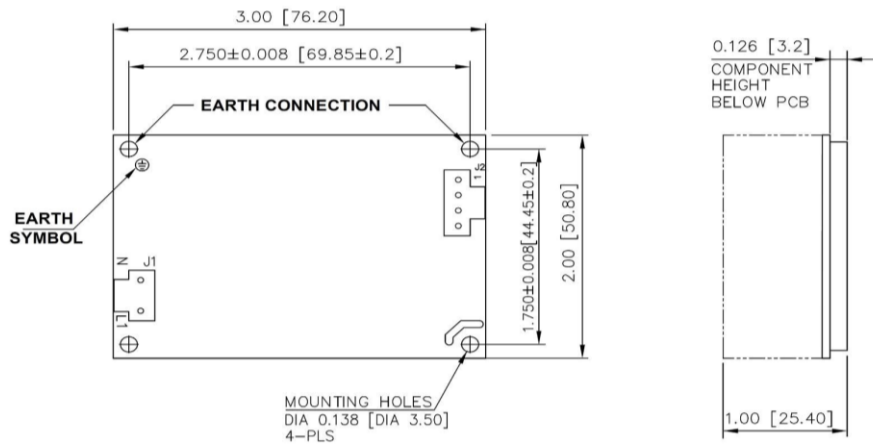
8. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION |
|------------|--|
| Weight | 150 g |
| Dimensions | 76.2 x 50.8 x 25.4 mm (3 x 2 x 1 inch) |



MECHANICAL OUTLINE DIMENSIONS
 ALL DIMENSIONS ARE IN INCHES[MM]
 GEN TOLERANCE: ±0.06

Figure 2. Mechanical Drawing - Screw Terminal (Option 1)



MECHANICAL OUTLINE DIMENSIONS
 ALL DIMENSIONS ARE IN INCHES[MM]
 GEN TOLERANCE: ±0.06

Figure 3. Mechanical Drawing - Molex Header (Option 2)

NOTES: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following:

- 1 Stand off, used to mount PCB has OD of 5.4 mm max.
- 2 Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
- 3 Washer, if used, to have dia of 6.5 mm max.

For more information on these products consult: tech.support@psbel.com

NUCLEAR AND MEDICAL APPLICATIONS - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

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.



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