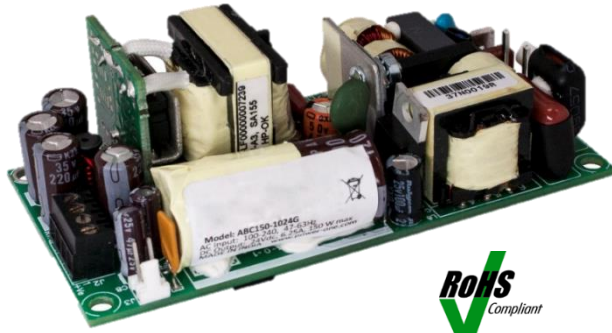


# MBC150 Series AC-DC Open Frame Medical Power Supplies



## Key Features & Benefits

- 150 W with Forced-Air Cooling
- 90-264 VAC Input
- -20 to 50°C Full Load Operation
- 2x MOPP Isolation
- 4.0 x 2.0 x 1.3 inch (101.6 x 50.8 x 33.6 mm)
- No Minimum Load Required
- Fan output, 12 VDC @ 0.5 A standard
- IEC Protection Class Options:
  - Class I: Earthing Tab J4 (no suffix)
  - Class II: No Earthing Tab (-2 suffix)
- Conducted EMI EN 55022-B, FCC Part 15 Level B
- Medical Safety Agency Approvals
- RoHS Compliant
- CE Marked

The **MBC150 Series** of open-frame medical power supplies, with its wide universal 90-264 VAC input range, is available at 150 W of output power and a variety of single output voltages. The MBC series was designed to 3rd edition medical approvals and provides 2x MOPP (Means of Patient Protection) isolation for class 1 and class 2 installations.

These medical power supplies are ideal for monitoring, home health equipment as well as surgical devices.

## Applications

- Dialysis
- Monitoring
- Pumps
- Surgical Devices
- Home Health
- Portable Devices

### North America

+1-866.513.2839

### Asia-Pacific

+86.755.29885888

### Europe, Middle East

+353 61 225 977

tech.support@psbel.com  
[belpowersolutions.com](http://belpowersolutions.com)

# MBC150 Series

## Model Selection

| MODEL                    | OUTPUT VOLTAGE (VDC) | MAX LOAD CONVECTION <sup>1</sup> | MAX LOAD 300 LFM <sup>1,2</sup> | MINIMUM LOAD (A) | RIPPLE & NOISE <sup>4</sup> | CONNECTOR      | TOTAL REGULATION |
|--------------------------|----------------------|----------------------------------|---------------------------------|------------------|-----------------------------|----------------|------------------|
| MBC150-1005G             | 5.0                  | 16.0 A                           | 16.0 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1005G-2           | 5.0                  | 16.0 A                           | 16.0 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1T05G             | 5.0                  | 16.0 A                           | 20.0 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1T05G-2           | 5.0                  | 16.0 A                           | 20.0 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1012G             | 12                   | 8.33 A                           | 12.5 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1012G-2           | 12                   | 8.33 A                           | 12.5 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1T12G             | 12                   | 8.33 A                           | 12.5 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1T12G-2           | 12                   | 8.33 A                           | 12.5 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1015G             | 15                   | 6.67 A                           | 10.0 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1015G-2           | 15                   | 6.67 A                           | 10.0 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1T15G             | 15                   | 6.67 A                           | 10.0 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1T15G-2           | 15                   | 6.67 A                           | 10.0 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1024G             | 24                   | 4.17 A                           | 6.25 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1024G-2           | 24                   | 4.17 A                           | 6.25 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1T24G             | 24                   | 4.17 A                           | 6.25 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1T24G-2           | 24                   | 4.17 A                           | 6.25 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1048G             | 48                   | 2.08 A                           | 3.13 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1048G-2           | 48                   | 2.08 A                           | 3.13 A                          | 0                | 1%                          | JST            | ± 2.5%           |
| MBC150-1T48G             | 48                   | 2.08 A                           | 3.13 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| MBC150-1T48G-2           | 48                   | 2.08 A                           | 3.13 A                          | 0                | 1%                          | Screw Terminal | ± 2.5%           |
| <b>Vfan (all models)</b> | <b>12</b>            | <b>0.5 A <sup>3</sup></b>        | <b>0.5 A <sup>3</sup></b>       |                  |                             |                | <b>20%</b>       |

Warranty 2 years.

### NOTES:

- <sup>1</sup> Combined power from main output and Vfan should not exceed total power rating.
- <sup>2</sup> Fan output tolerance is ± 20%.
- <sup>3</sup> Peak current for fan output is 1A.
- <sup>4</sup> Ripple is 2% up to 20% load and less than 1% above 20% load. Output noise measurement is made with a 20 MHz bandwidth using a 6" twisted pair, terminated with a 10 uF tantalum capacitor in parallel with a 0.1 uF ceramic capacitor.

# MBC150 Series

## TECHNICAL PARAMETERS

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

### Input Specifications

| PARAMETER           | DESCRIPTION / CONDITION                                   | SPECIFICATION                                                |
|---------------------|-----------------------------------------------------------|--------------------------------------------------------------|
| Input Voltage       | Universal                                                 | 90-264 VAC / 120-390 VDC                                     |
| Input Frequency     |                                                           | 47 to 63 Hz                                                  |
| Input Current       | 120 VAC:<br>230 VAC:                                      | 1.7 A max.<br>0.85 A max.                                    |
| Inrush Current      | 120 VAC:<br>230 VAC:                                      | 35 A max.<br>65 A max.                                       |
| Leakage Current     | 120 VAC:<br>230 VAC:                                      | < 140 $\mu$ A<br>< 250 $\mu$ A                               |
| Power Factor        | 120 VAC:<br>230 VAC:                                      | 0.99<br>0.95                                                 |
| Switching Frequency | PFC converter (variable)<br>Resonant converter (variable) | 35 - 250 kHz, 90 kHz typical<br>35 - 250 kHz, 90 kHz typical |

### Output Specifications

| PARAMETER                | DESCRIPTION / CONDITION                                                        | SPECIFICATION                  |
|--------------------------|--------------------------------------------------------------------------------|--------------------------------|
| Output Power             | Peak Power 170 W for 0.2 s                                                     | 150 W                          |
| Efficiency               | 120 VAC:<br>230 VAC:                                                           | 84% typical<br>86% typical     |
| Hold Up Time             | 120 VAC:<br>230 VAC:                                                           | 6 ms<br>10 ms                  |
| Line Regulation          |                                                                                | +/-0.5%                        |
| Load Regulation          |                                                                                | +/-2.0%                        |
| Transient Response       | Main output 50 to 100% load change,<br>50 Hz, 50% duty cycle, 0.1A / $\mu$ Sec | < 10%,<br>recovery time < 5 ms |
| Rise Time                |                                                                                | < 100 ms                       |
| Set Point Accuracy       | Main output                                                                    | $\pm$ 1%                       |
| Voltage Adjustment       | V1                                                                             | $\pm$ 3 %                      |
| Over Current Protection  |                                                                                | 110% typical above rating      |
| Over Voltage Protection  | V1                                                                             | 110 to 150%                    |
| Short Circuit Protection | Short term, Automatic recovery                                                 |                                |

### Environmental Specifications

| PARAMETER             | DESCRIPTION / CONDITION                           | SPECIFICATION                                                                         |
|-----------------------|---------------------------------------------------|---------------------------------------------------------------------------------------|
| Operating Temperature | Refer to derating curve<br>Start-up is guaranteed | -20 to 70°C<br>-20 to 0°C                                                             |
| Storage Temperature   |                                                   | -40 to 70° C                                                                          |
| Cooling               | 5 V model<br>Other models                         | Convection:<br>300 LFM:<br>Convection:<br>300 LFM:<br>80 W<br>100 W<br>100 W<br>150 W |
| Humidity              | Non Condensing                                    | 95%                                                                                   |
| Altitude              | Operating:<br>Non-Operating:                      | 10,000 ft.<br>40,000 ft.                                                              |
| Reliability           | MTBF according to Telcordia -SR332-Issue 3        | 2.4 million hours                                                                     |

# MBC150 Series

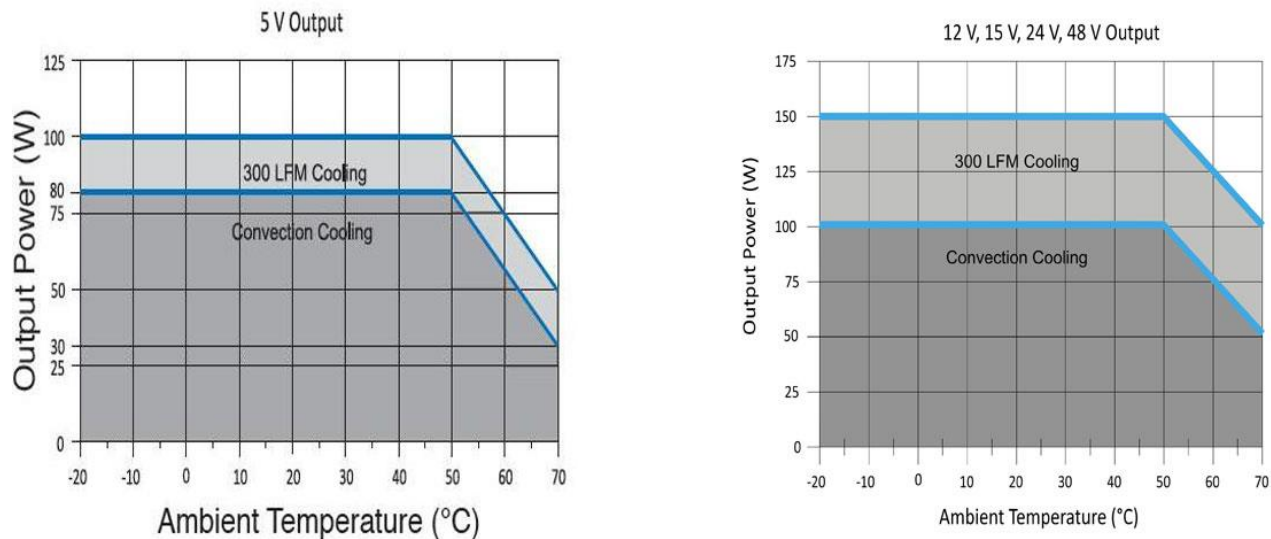
## EMC Specifications

| PARAMETER               | DESCRIPTION / CONDITION                     | SPECIFICATION                  |
|-------------------------|---------------------------------------------|--------------------------------|
| Conducted Emissions     | EN55022-B, CISPR22-B, FCC PART15, EN50082-1 | Class B                        |
| Radiated Emissions      | EN55022-B, CISPR22-B, FCC PART15-B          | To be controlled in end system |
| Harmonic Current        | EN61000-3-2                                 | Class D                        |
| Static Discharge        | EN61000-4-2                                 | Level 3                        |
| RF Field Susceptibility | EN61000-4-3                                 | Level-3                        |
| Fast Transients/Bursts  | EN61000-4-4                                 | Level-3                        |
| Surge Susceptibility    | EN61000-4-5                                 | Level-3                        |

## Safety Specifications

| PARAMETER         | DESCRIPTION/CONDITION                                                                                 | SPECIFICATION             |
|-------------------|-------------------------------------------------------------------------------------------------------|---------------------------|
| Isolation Voltage | Input to Output:<br>Input to Ground:                                                                  | Min. 5900 VDC<br>2120 VDC |
| Agency Approvals  | Approved to the latest edition of the following standards:<br>CSA/UL60601-1, EN60601-1 and IEC60601-1 |                           |
| CE mark           | Complies with LVD Directive                                                                           |                           |

Figure 1 - Output Power Vs. Temperature



## Connector & Pin Description

| CONNECTOR           | PIN | DESCRIPTION / CONDITION | MANUFACTURER / PN   |
|---------------------|-----|-------------------------|---------------------|
| AC Input Connector  | J1  | Pin 1                   | AC Line             |
|                     |     | Pin 2                   | AC Neutral          |
| DC Output Connector | J2  | Pin 1,2                 | V1                  |
|                     |     | Pin 3,4                 | RTN                 |
| Fan                 | J3  | Pin 1                   | VFAN (12 V / 0.5 A) |
|                     |     | Pin 2                   | RTN                 |
| Earthing Tab        | J4  |                         |                     |

Molex: 26-60-4030 or equivalent  
Mating: 09-50-3031; Pins: 08-50-0106  
Option-1: Tyco: 1776112-4 or equivalent  
Mating: 13 AWG wire  
Option-2: JST: B4P-VH-B (LF) (SN) or B4P-VH (LF) (SN) or equivalent  
Mating: VHR-4M; Pins: SVH-41T-P1.1  
Tyco: 640456-2 or equivalent  
Mating: 640440-2  
Molex: 19705-4301 or equivalent  
Mating: 190030001

+1.866.513.2839

tech.support@psbel.com

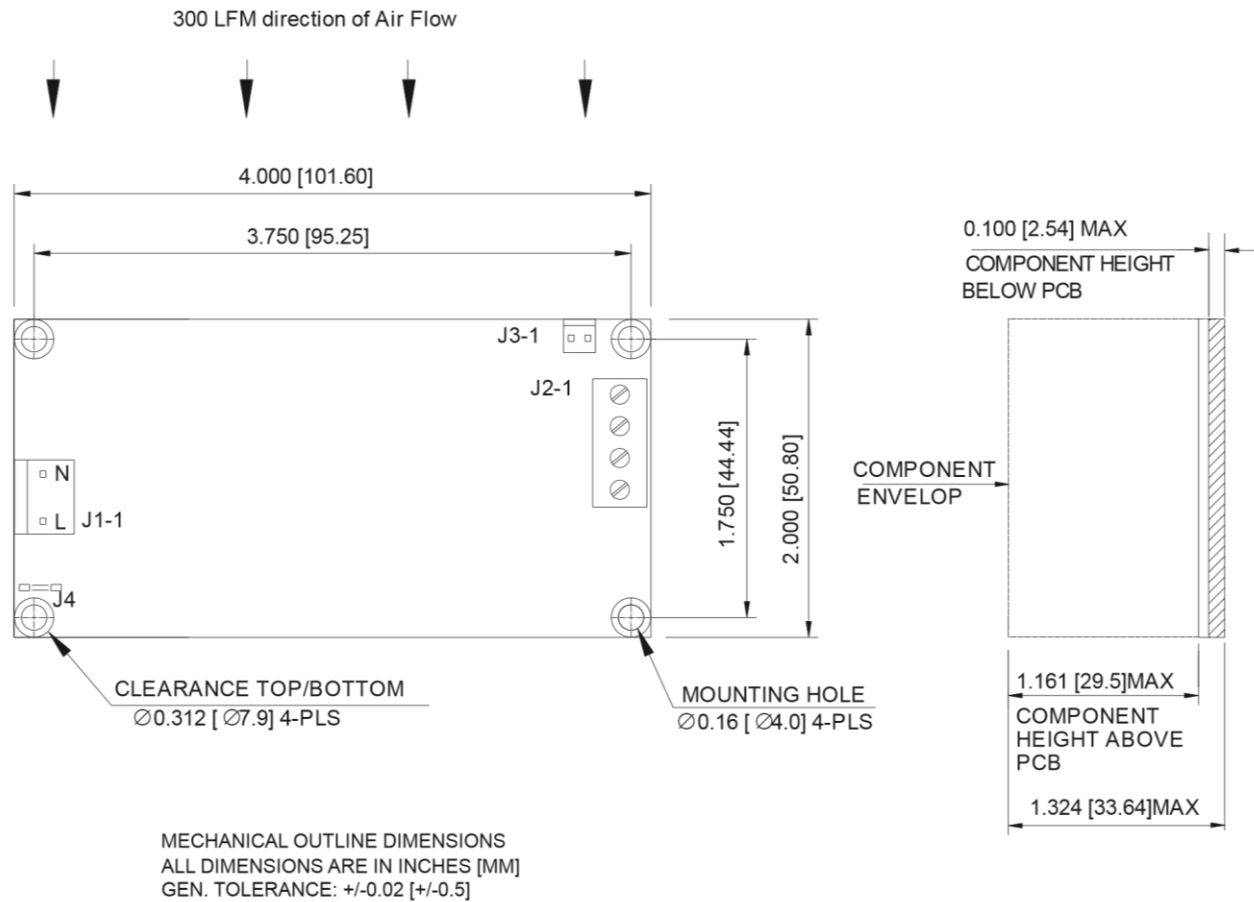
belpowersolutions.com

# MBC150 Series

## Mechanical

| PARAMETER  | DESCRIPTION / CONDITION                       |
|------------|-----------------------------------------------|
| Weight     | 150 g (0.33 lbs.)                             |
| Dimensions | 101.6 x 50.8 x 33.6 mm (4.0 x 2.0 x 1.3 inch) |

Figure 2 - Mechanical Drawing (Top and Side View)



**NOTE:** Air flow over length of supply recommended (either direction) for forced air rating.

**For more information on these products consult:** [tech.support@psbel.com](mailto: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.