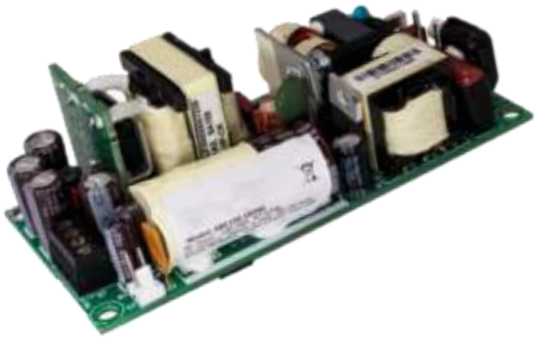
MBC150 Series

Open Frame Power Supplies
Medical

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Please refer to exact equivalent product series
MWLT150

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The MBC150 Series of open-frame medical power supplies, with its wide universal input range 90-264 VAC, is available at 150 W of output power with forced-air cooling and a variety of single output voltages.
The MBC series is designed and approved to the latest Medical standards (EN/IEC 60601-1), providing 2 x MOPP (Means of Patient Protection) isolation for Class I & Class II applications.



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

RoHS Compliant

Key Features & Benefits

- 4 x 2 x 1.3 Inch Form Factor
- 150 W with Forced-Air Cooling
- Approved to EN/IEC 60601-1
- 12 V @ 0.5 A fan voltage auxiliary output
- High Efficiency > 86%
- Low conducted and radiated noise
- Light weight
- IEC Protection Class Options:
  - Class I: Earthing Tab J4 (no suffix)
  - Class II: No Earthing Tab (-2 suffix)
- Medical Safety Agency Approvals
- RoHS Compliant

Applications

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

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Please read our datasheet & drawing disclaimer here.

1. MODEL SELECTION

MODEL [1]	CONNECTOR	OUTPUT VOLTAGE	MAX LOAD [2]		MIN LOAD	POWER
			CONVECTION	300 LFM		
MBC150-1005G	JST (Header)	5 VDC	16.0 A	16.0 A	0.0 A	80 W
MBC150-1T05G	Screw Terminal			20.0 A		100 W
MBC150-1012G	JST (Header)	12 VDC	8.33 A	12.5 A	0.0 A	150 W
MBC150-1T12G	Screw Terminal					
MBC150-1015G	JST (Header)	15 VDC	6.67 A	10.0 A	0.0 A	150 W
MBC150-1T15G	Screw Terminal					
MBC150-1024G	JST (Header)	24 VDC	4.17 A	6.25 A	0.0 A	150 W
MBC150-1T24G	Screw Terminal					
MBC150-1048G	JST (Header)	48 VDC	2.08 A	3.13 A	0.0 A	150 W
MBC150-1T48G	Screw Terminal					
COVER-150-XBC [3]	Metal Cover Kit (accessory)					

1 Class I products have an Earthing tab. For Class II version (without Earthing tab) add suffix -2 (e.g.: MBC150-1012G-2).
2 Combined output power from V1 and VFAN should not exceed the total output power rating.
3 When used in Cover Kit, de-rate output power to 70 % under all operating conditions.

2. INPUT SPECIFICATIONS

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

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input Voltage	Universal	90 – 264 VAC / 120 – 390 VDC
Input Frequency		47 – 63 Hz
Input Current	120 VAC: 230 VAC:	1.70 A max. 0.85 A max.
No Load Power		1.2 W
Inrush Current	120 VAC: 230 VAC:	35 A max. 65 A max.
Leakage Current	120 VAC: 230 VAC:	< 140 µA < 250 µA
No Load Power		1.2 W
Switching Frequency	PFC converter (variable) Resonant converter (variable)	35 – 250 kHz, 90 kHz typical 35 – 250 kHz, 90 kHz typical

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3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Voltage	Refer to Model Selection table	5 V to 48 V
Output Power [4]	Peak Power: 170 W for 2 s	150 W
Fan Output [5]	@ 5 A	12 V
Efficiency	120 VAC: 230 VAC:	84% typical 86% typical
Hold Up Time	120 VAC: 230 VAC:	6 ms 10 ms
Power Factor	120 VAC: 230 VAC:	0.99 0.95
Line Regulation		± 0.5%
Load Regulation		± 2.0%
Transient Response	50 to 100% load change, 50 Hz, 50% duty cycle, 0.1A / µs	< 10%, recovery time < 5 ms
Ripple [6]	All outputs	1.0 % max
Rise Time		< 100 ms
Set Point Accuracy	Main output	± 1%
Output Voltage Adjustment	V1	± 3 %
Over Current Protection		110% typical above rating
Over Voltage Protection	V1	110 to 150%
Short Circuit Protection	Short term, Automatic recovery	
Cooling	Convection	80 W (5 V model), 100 W (other models)
	300 LFM	100 W (5 V model), 150 W (other models)

[4] Derate output power linearly to 80% from 90 VAC to 80 VAC input.
[5] Fan output voltage tolerance is +/-20 %. Peak current for fan output is 1 A.
[6] Ripple is 2 % up to 20 % load and < 1 % above 20 % load. Ripple is peak to peak with 20 MHz bandwidth and 10 µF (Electrolytic capacitor) in parallel with a 0.1 µF capacitor at rated line voltage and load ranges.

4. EMC SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Conducted Emissions	EN 55011-B, CISPR22-B, FCC PART15-B	Pass
Radiated Emissions	EN 55011 B	Pass
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 A & B

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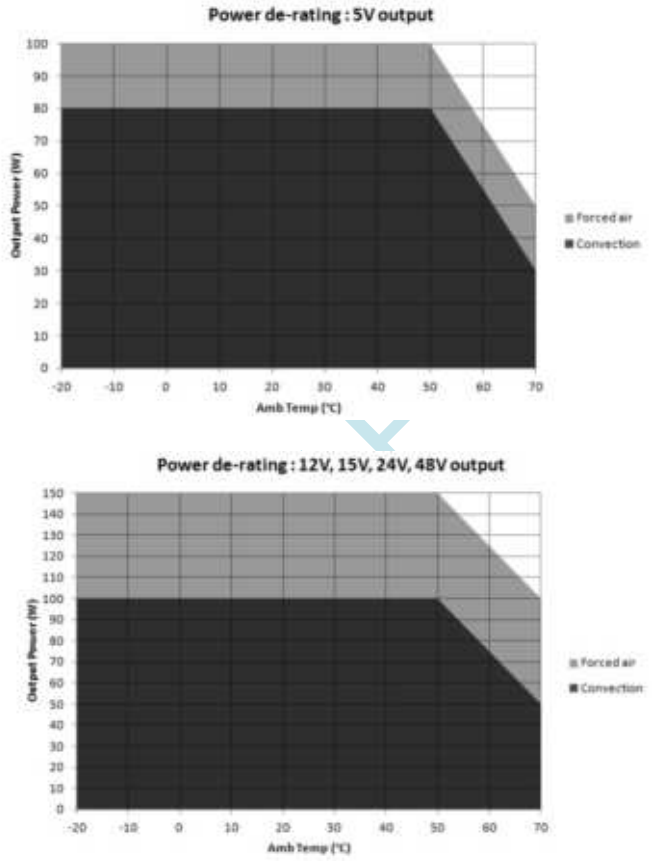
5. SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Isolation Voltage	Input to Output:	Min. 5900 VDC
Safety Standards	EN 60601-1, IEC 60601-1 (ed.3), ANSI / AAMI ES 60601 - 1, CSA C22.2 No. 60601-1	
Agency Approvals	Nemko, UL, C-UL	
CE mark	Complies with LVD Directive	

6. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature [7]	-20 to 0°C start-up is guaranteed	-20 to 70°C
Storage Temperature		-40 to 70° C
Humidity	Non Condensing	95%
Altitude	Operating: Non-Operating:	10,000 ft. 40,000 ft.
Reliability	MTBF according to Telcordia -SR332-Issue 3	2.4 million hours

[7] Refer to derating curves



Convection load: 80 W up to 50 °C
De-rate above 50 °C @ 3.125% per °C

Forced air cooled load: 100W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Convection load: 100 W up to 50 °C
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 150 W up to 50°C
De-rate above 50 °C @ 1.67% per °C

Figure 1. Derating Curves

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7. CONNECTOR & PIN DESCRIPTION

CONNECTOR	PIN	DESCRIPTION / CONDITION		MANUFACTURER / PN
AC Input Connector	J1	Pin 1 Pin 2	AC Line AC Neutral	Molex: 26-60-4030 or equivalent Mating: 09-50-3031; Pins: 08-50-0106
DC Output Connector	J2	Pin 1, 2 Pin 3, 4	V1 RTN	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
Fan (Aux) Connector	J3	Pin 1 Pin 2	VFAN (12 V / 0.5 A) RTN	Tyco: 640456-2 or equivalent Mating: 640440-2
Earth [8] (Spade Connector)	J4			Molex: 19705-4301 or equivalent Mating: 190030001

[8] Class I product only

8. MECHANICAL SPECIFICATIONS

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)

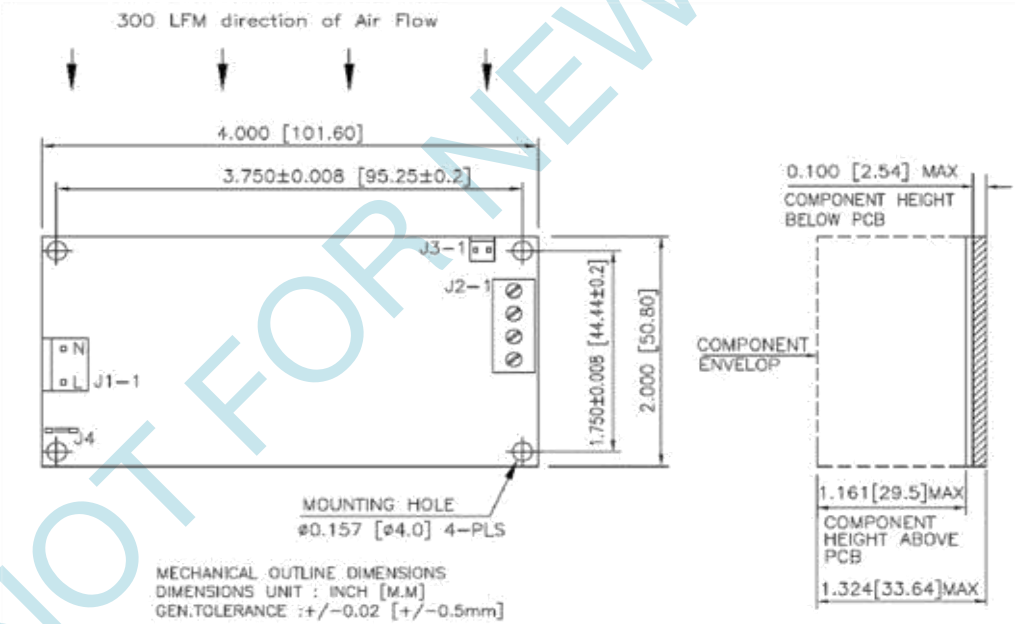


Figure 2. Mechanical Drawing

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.

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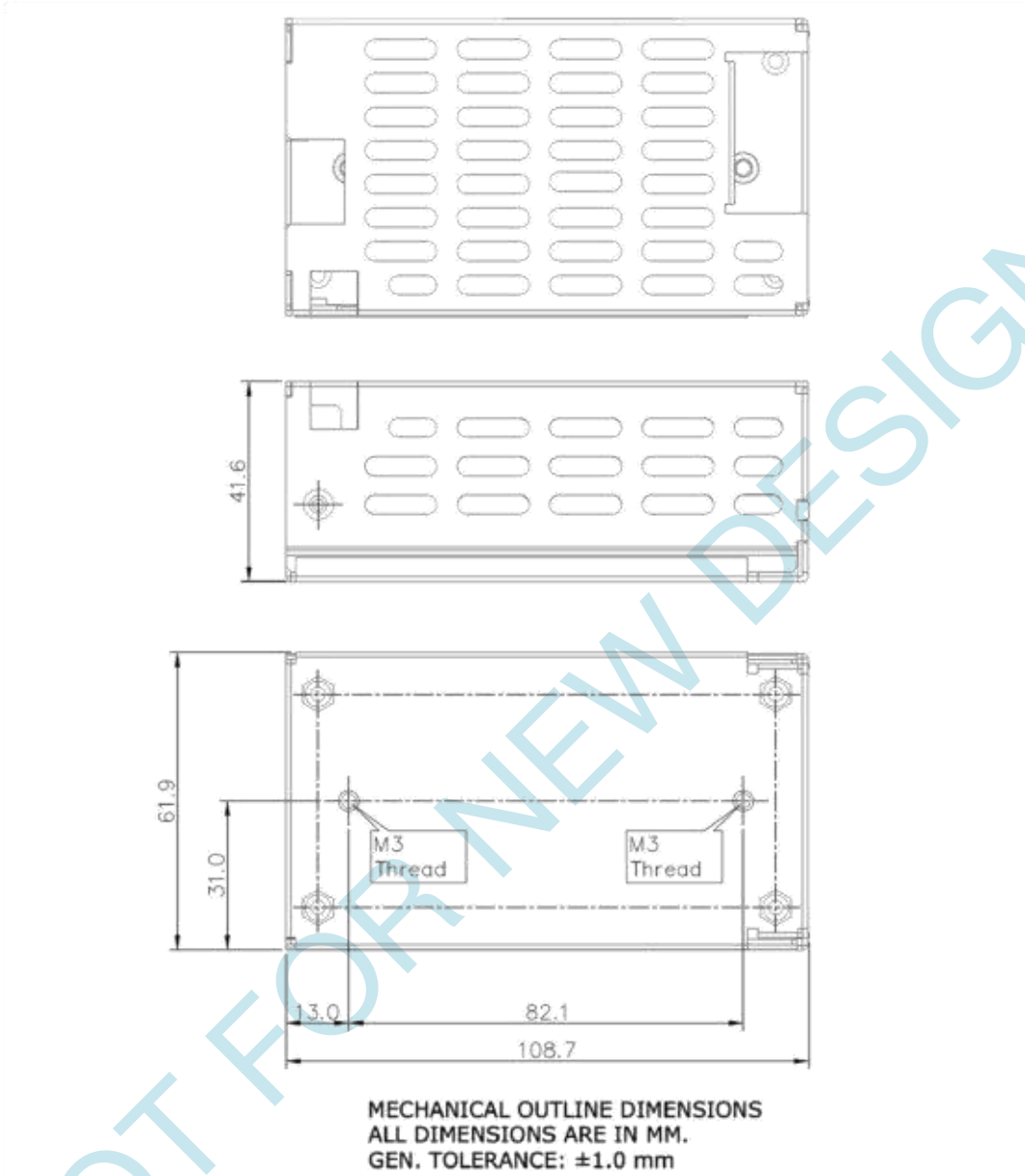


Figure 3. Mechanical Drawing with Cover Kit

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

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