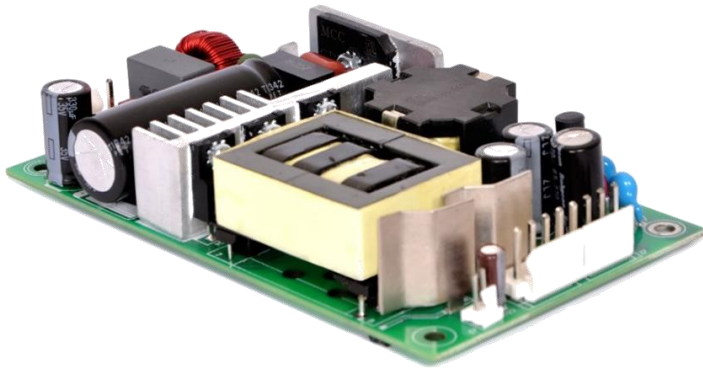


# MBC350 Series Low Profile Medical Open Frame Power Supplies



## Applications

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

## Key Features & Benefits

- 3 x 5 x 1 Inches Form Factor
- 350 Watts with Forced Air Cooling & 200 Watts with Convection Cooling
- Efficiencies up to 94%
- -40 to 70 degree operating temperature
- 12 V Fan Output, Thermal Shut-Down feature
- 800 k Hours MTBF
- Standby Power < 0.5 W
- Approved to EN60601-1 3rd Edition
- RoHS Compliant
- CE mark

### North America

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# MBC350 Series

## Model Selection

MODEL NUMBER	DESCRIPTION	VOLTAGE	MAX. LOAD (CONVECTION)	MAX. LOAD (375 LMF)	MIN. LOAD	RIPPLE & NOISE <sup>1</sup>
MBC350-1T12L	Screw Terminal	12 V	15 A	25 A	0.0 A	1%
MBC350-1T15L	Screw Terminal	15 V	12 A	21.67 A	0.0 A	1%
MBC350-1T24L	Screw Terminal	24 V	8.33 A	14.60 A	0.0 A	1%
MBC350-1024L	Molex Connector					
MBC350-1T30L	Screw Terminal	30 V	6.67 A	11.67 A	0.0 A	1%
MBC350-1030L	Molex Connector					
MBC350-1T48L	Screw Terminal	48 V	4.17 A	7.30 A	0.0 A	1%
MBC350-1048L	Molex Connector					
MBC350-1T58L	Screw Terminal	58 V	3.45 A	6.04 A	0.0 A	1%
MBC350-1058L	Molex Connector					
MBC350-CK metal cover kit accessory						

### NOTES:

1. Ripple is peak to peak with 20 MHz bandwidth and 10  $\mu$ F (Tantalum capacitor) in parallel with a 0.1  $\mu$ F capacitor at rated line voltage and load ranges.
2. Combined output power of main output, fan supply shall not exceed max. power rating.
3. Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10% and ripple and noise is less than 10%.
4. Thermal shutdown feature: The power supply goes in hiccup mode when the temperature of PCB exceeds 110 °C (+/-10 °C).
5. Output ripple can be more than 10% of the output voltage.

# MBC350 Series

## TECHNICAL PARAMETERS

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

### Input Specifications

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Input Voltage	Universal (Derate from 100% at 100 VAC to 90% at 90 VAC)	85-264 VAC / 390 VDC
Input Frequency		47 - 63 Hz
Input Current	115 VAC: 230 VAC:	3.6 A max. 1.8 A max.
No Load Power	Typical	>0.5 W
Inrush Current	115 VAC: 230 VAC: 264 VAC:	25 A 45 A 75 A
Leakage Current	Typical Touch Current	300 uA <100 uA
Power Factor	with Full Load	>0.95

### Output Specifications

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Output Power	With 375 LFM: Convection:	350 W 200 W
Efficiency	48 V, 58 V: 24 V, 30 V: 12 V, 15 V:	94% 93% 92%
Hold-up Time	Full Load: Convection Load:	8 ms typical 14 ms typical
Line Regulation		+/-0.5%
Load Regulation		+/-1%
Transient Response	50-100% step load change, at 0.1A/uS slew rate, 50% duty cycle, 50Hz = 5% ,	recovery time < 5 ms
Rise Time	Typical	55 ms
Set Point Tolerance		+/-1%
Over Current Protection	Hiccup mode / Auto Recovery	>110%
Over Voltage Protection	Hiccup mode / Auto Recovery	110 to 140%
Short Circuit Protection	Hiccup mode / Auto Recovery	

### Other Specifications

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Isolation Voltage	Input to Output: medical applications Input to GND:	4000 VAC 1500 VAC
Switching Frequency	PFC: PWM:	70 - 130 KHz 50 - 80 KHz
Operating Temperature	-40 to 0°C startup guaranteed, with spec deviation	-40 to +70°C
Non-operating Temperature		-40 to 85° C
Reliability	MTBF according to Bellcore TR-332, @ 25°C	>800 kh
Cooling	With 375 LFM forced air cooling at 100 to 264 VAC: With natural convection cooling at 100 to 264 VAC:	350 W 200 W

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# MBC350 Series

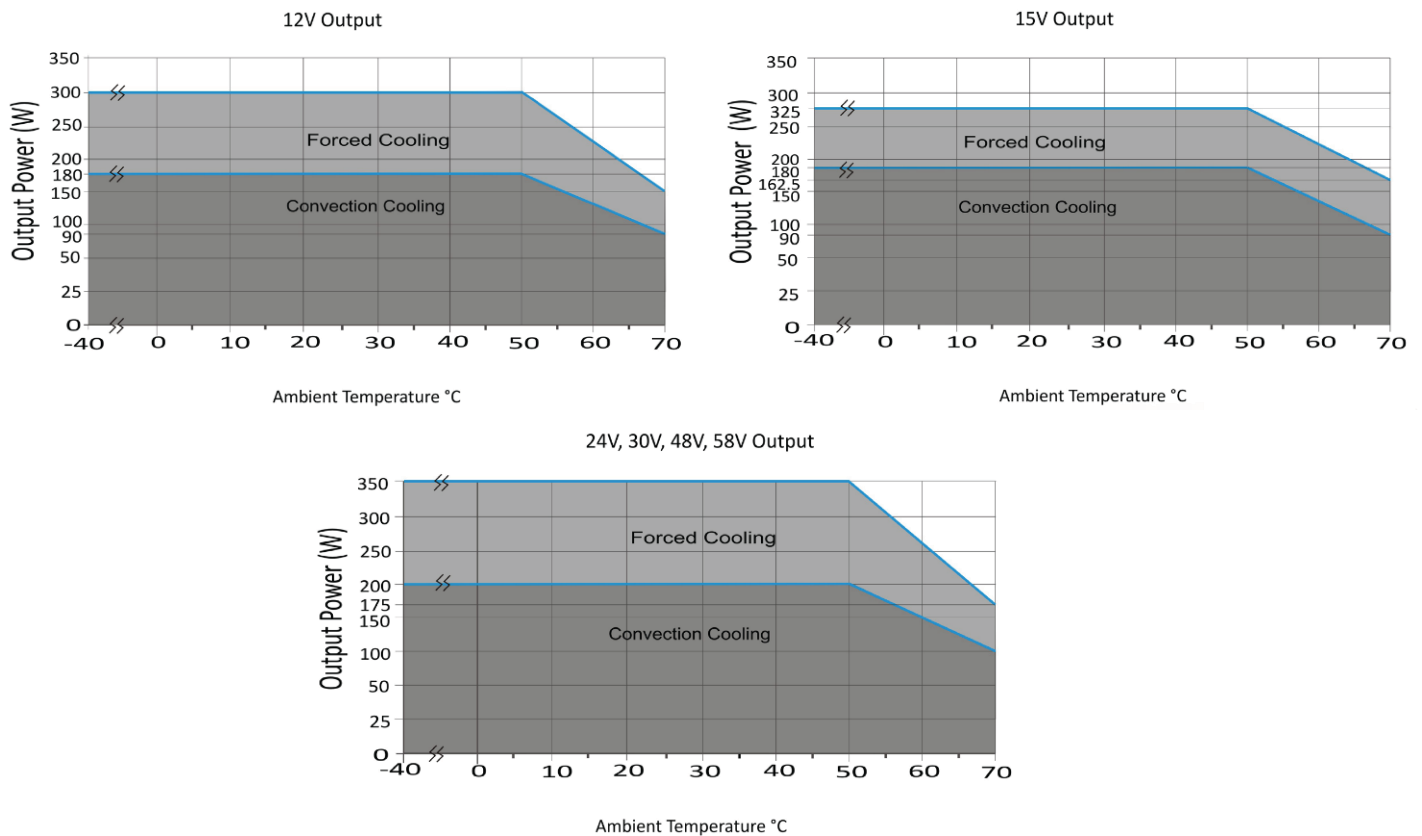
## Environmental

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Conducted Emissions	EN55022-B, CISPR22-B, FCC PART15 - B	
Static Discharge	EN61000-4-2:	Level-3
RF Field Susceptibility	EN61000-4-3:	Level-3
Fast Transients/Bursts	EN61000-4-4:	Level-3
Radiated Emissions	Radiated:	Level A
	Radiated with external core:	TBD
Surge Susceptibility	EN61000-4-5:	Level-3
Harmonic Current	EN61000-3-2:	Class D
Altitude	Operating:	10,000 ft.
	Non-operating:	40,000 ft.
Humidity	Non Condensing	5% to 95%

## Safety Approvals

PARAMETER	DESCRIPTION / CONDITION
Safety Standard(s)	EN60601-1
	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

Figure 1 – Derating Curves



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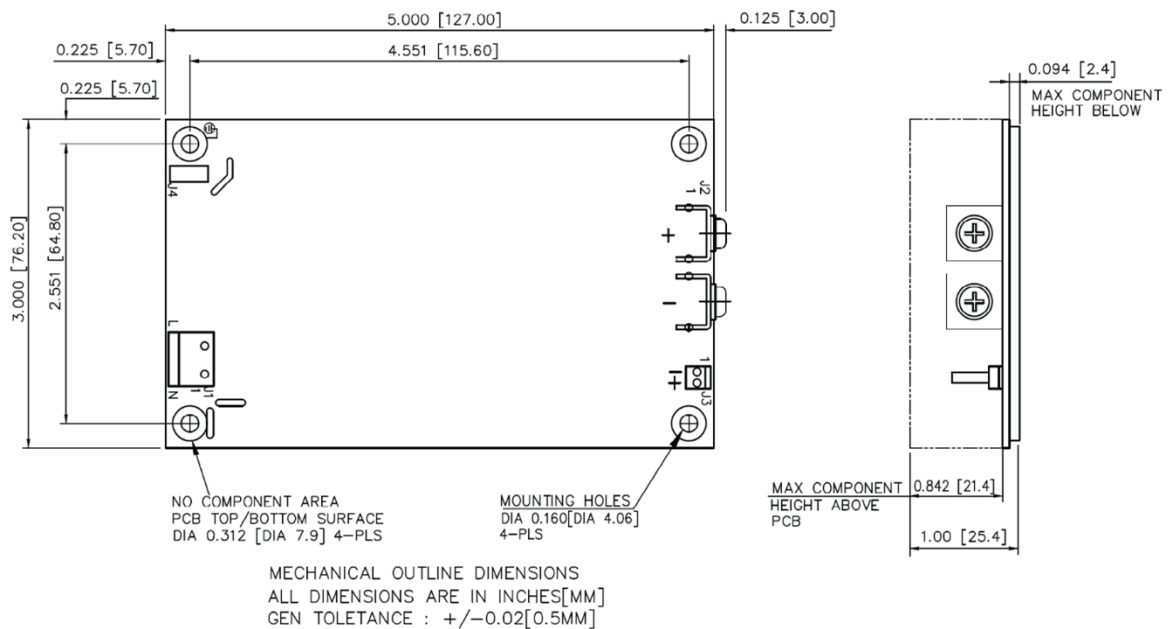
## Connector & Pin Description

CONNECTOR	PIN	DESCRIPTION/CONDITION	MANUFACTURER / PN
AC Input Connector	J1	Pin 1 AC Neutral Pin 2 Not Fitted Pin 3 AC Line	Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106
DC Output Connector	J2	Screw Terminal (Option 1) Pin 1 V1 -VE Pin 2 V1 + VE	6-32 inches Screw Pan HD Mating: 16 AWG wire crimped to Ring Tongue Terminal AMP: 8-31886-1
		Molex Connector (Option 2) Pin 1,2,3,4 V1 -VE Pin 5,6,7,8 V1 + VE	Molex: 26-60-4080 Mating: 09-50-3081; Pins: 08-50-0106
Aux (Fan) Output	J3	Pin 1 FAN -VE Pin 2 FAN +VE	AMP :640456-2 Mating: 640440-2
Earth	J4		Molex: 19705-4301 Mating: 19003-0001

## Mechanical

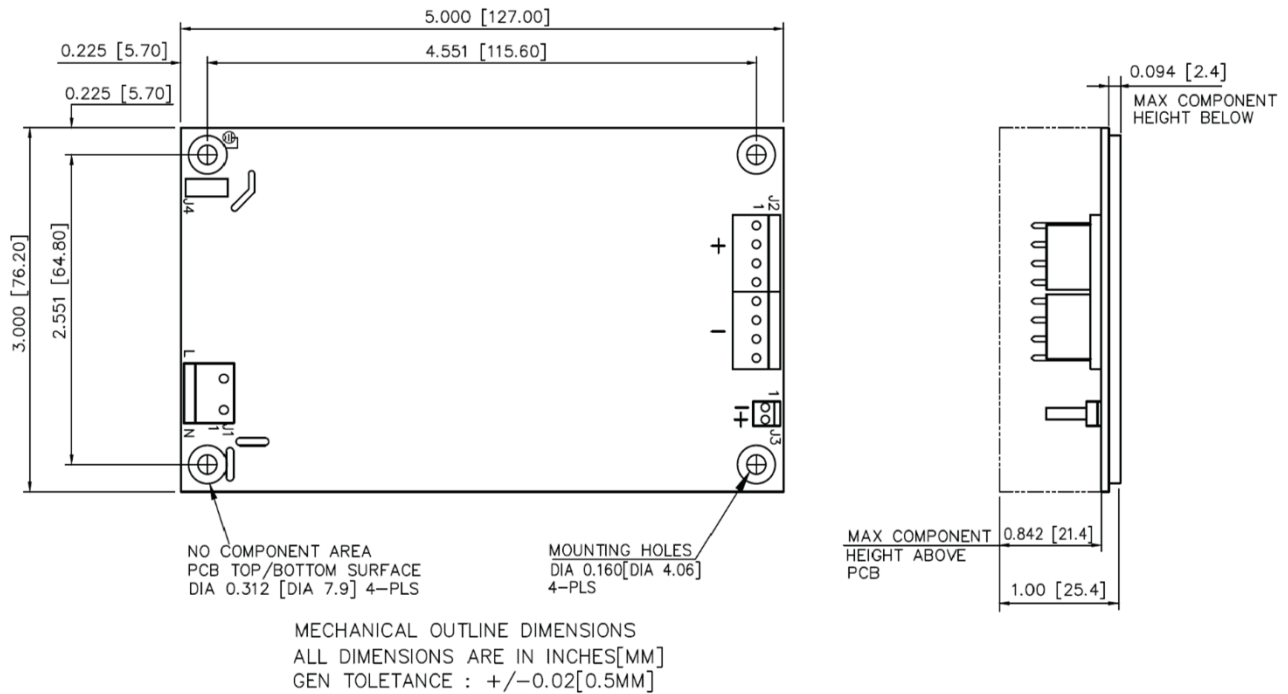
PARAMETER	DESCRIPTION/CONDITION
Weight	300 g max
Dimensions	76.2 x 127 x 25.4 mm (3 x 5 x 1 inch)

Figure 2 – Mechanical Drawing – Screw Terminal Option



# MBC350 Series

Figure 3 – Mechanical Drawing – Molex Connector Option



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.

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