

MBC41 Series

Ultra Low Profile

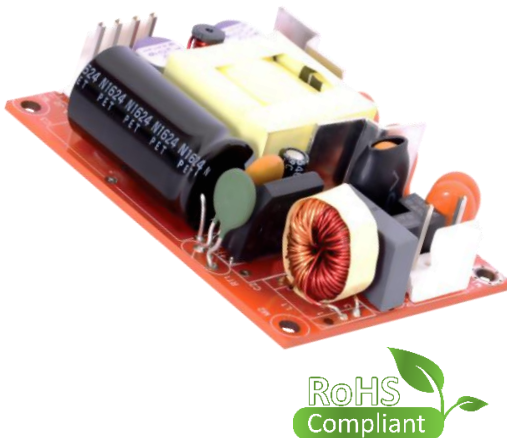
Open Frame Power Supplies

Medical

The MBC41 Series of ultra-low open frame medical power supplies feature a wide universal AC input range of 85 V – 264 VAC, offering output power 40 W with natural convection cooling. They are available in a variety of isolated single output voltages. The MBC41 ultra low profile series is also available in a PCB mount format, facilitating simple embedded integration onto user's main PCB assembly.

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 0.75 Inches Form factor
- PCB Mount option available
- 40 Watts Convection
- Approved to EN/IEC 60601-1
- Efficiencies 85% Typical
- -40 to 70 degree operating temperature
- Dual fusing
- 2 million hours, Telcordia -SR332-issue 3 MTBF
- Standby Power < 0.3 W
- Medical (BF) Safety Approvals

Applications

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

1. MODEL SELECTION

MODEL NUMBER ¹	CONNECTOR	VOLTAGE	MAX. LOAD	MIN. LOAD	RIPPLE & NOISE ²
MBC41-1T05L	Screw Terminal	5 V	5 A	0.0 A	1.5%
MBC41-1005L	Header				
MBC41-1005P	PCB Mount				
MBC41-1T12L	Screw Terminal	12 V	3.33 A	0.0 A	1%
MBC41-1012L	Header				
MBC41-1012P	PCB Mount				
MBC41-1T15L	Screw Terminal	15 V	2.67 A	0.0 A	1%
MBC41-1015L	Header				
MBC41-1015P	PCB Mount				
MBC41-1T24L	Screw Terminal	24 V	1.67 A	0.0 A	1%
MBC41-1024L	Header				
MBC41-1024P	PCB Mount				
MBC41-1T30L	Screw Terminal	30 V	1.33 A	0.0 A	1%
MBC41-1030L	Header				
MBC41-1030P	PCB Mount				
MBC41-1T48L	Screw Terminal	48 V	0.83 A	0.0 A	1%
MBC41-1048L	Header				
MBC41-1048P	PCB Mount				
MBC41-1T58L	Screw Terminal	58 V	0.69 A	0.0 A	1%
MBC41-1058L	Header				
MBC41-1058P	PCB Mount				
COVER-41-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	85 - 264 VAC / 390 VDC
Input Frequency		47 - 63 Hz
Input Current	115 VAC: 230 VAC:	0.8 A max. 0.4 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- without input Earth pin) Touch current	300 A μ A < 100 μ A
Switching Frequency	Typical	65 kHz

¹ For Class II Option (without input Earth pin) add suffix: -2 (e.g.: MBC41-1012L-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. Output ripple can be more than 10% of the output voltage.

³ When used in Cover Kit, de-rate output power to 70 % under all operating conditions.
Cover Kit is not suited for PCB mount version.

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power	Convection cooling	40 W
Efficiency	Typical	85%
Hold-up Time	230 VAC:	6 ms
Line Regulation		+/-0.5%
Load Regulation		+/-1%
Transient Response	25% step load change, at 0.1 A/ μ s slew rate, 50% duty cycle, 50 Hz = 4%	recovery time < 5 ms
Rise Time	Typical	50 ms
Set Point Tolerance		2% (3% for 5 V model)
Over Current Protection		> 110%
Over Voltage Protection		110 to 140%
Short Circuit Protection	Hiccup mode	

4. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature	Startup is guaranteed with spec. deviation, see Fig. 1	-40 to +70°C -40 to 0°C
Storage Temperature		-40 to +85°C
Relative Humidity	Non-condensing	5% to 95%
Altitude	Operating: Non-operating:	16,000 ft 40,000 ft.
MTBF	Telcordia -SR332-issue 3	2 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; with external core (King core K5B RC 25x12x15-M in input cable)	Pass 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 A & B

6. SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Isolation Voltage	Input to Output: (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
Safety Standard(s)	Approved to the latest edition of the following standards: CSA/UL60601-1, EN60601-1 and IEC60601-1.	
Agency Approvals	Nemko, UL, C-UL	
CE mark	Complies with LVD Directive	

7. CONNECTOR & PIN DESCRIPTION

CONNECTOR	PIN	DESCRIPTION / CONDITION	MANUFACTURER / PN
AC Input Connector	J1	Pin 1	AC Line
	Screw Terminal / Header	Pin 2	Not Fitted
		Pin 3	AC Neutral
DC Output Connector	J2	Pin 1, 2	V1 +VE
	Screw Terminal / Header	Pin 3, 4	V1 -VE
			Tyco: 640445-3 Mating: 647402-3; Pins: 3-647409-1 (Header)
			Tyco: 640445-4 Mating: 647402-4; Pins: 3-647409-1

8. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION
Weight	approx. 100 g
Dimensions	76.2 x 50.8 x 19.05 mm (3 x 2 x 0.75 inches)

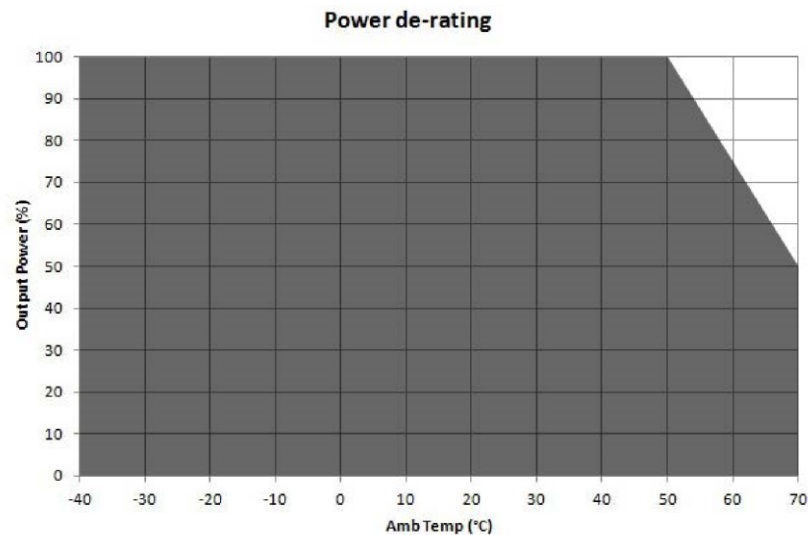


Figure 1. Derating Curve for all Outputs

De-rate linearly from 100% at 50°C to 50% at 70°C

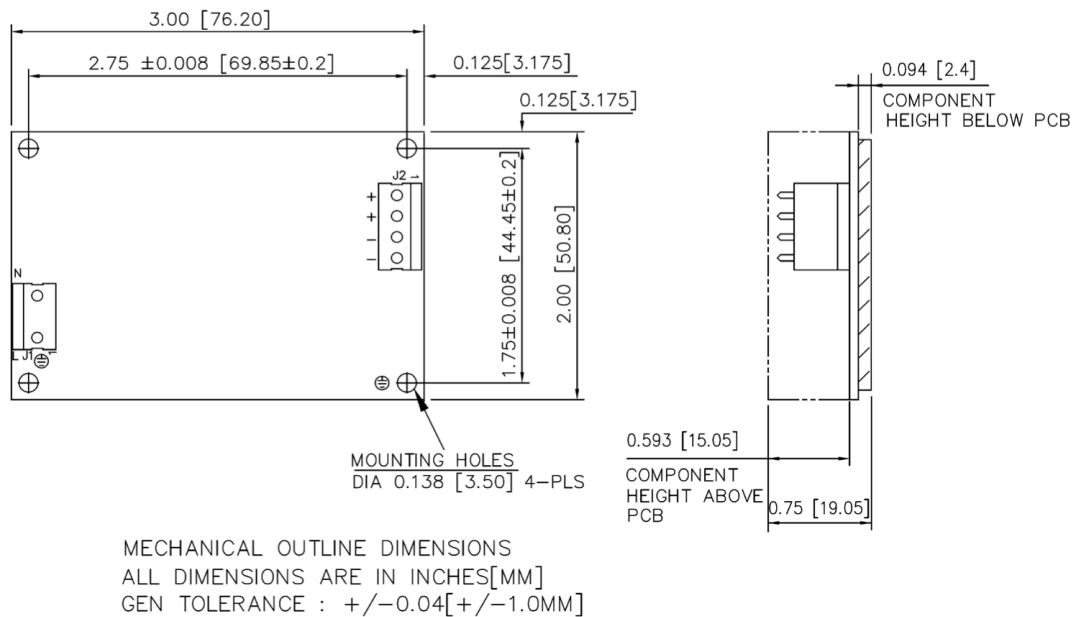


Figure 2. Mechanical Drawing – Option with Header

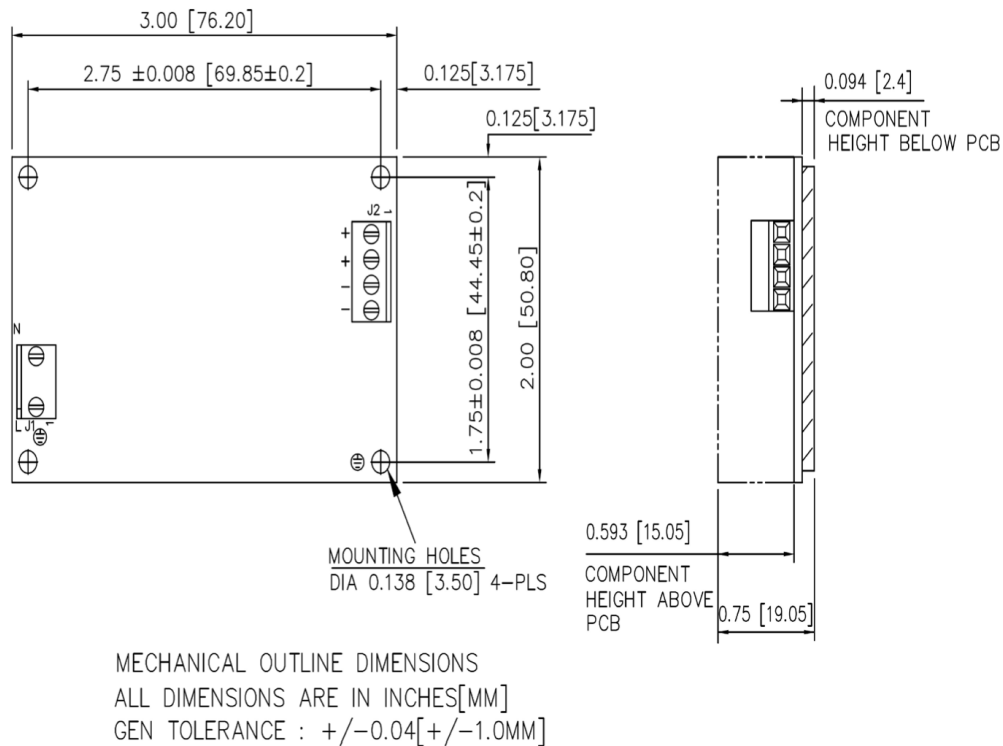


Figure 3. Mechanical Drawing – Option with Screw Terminal

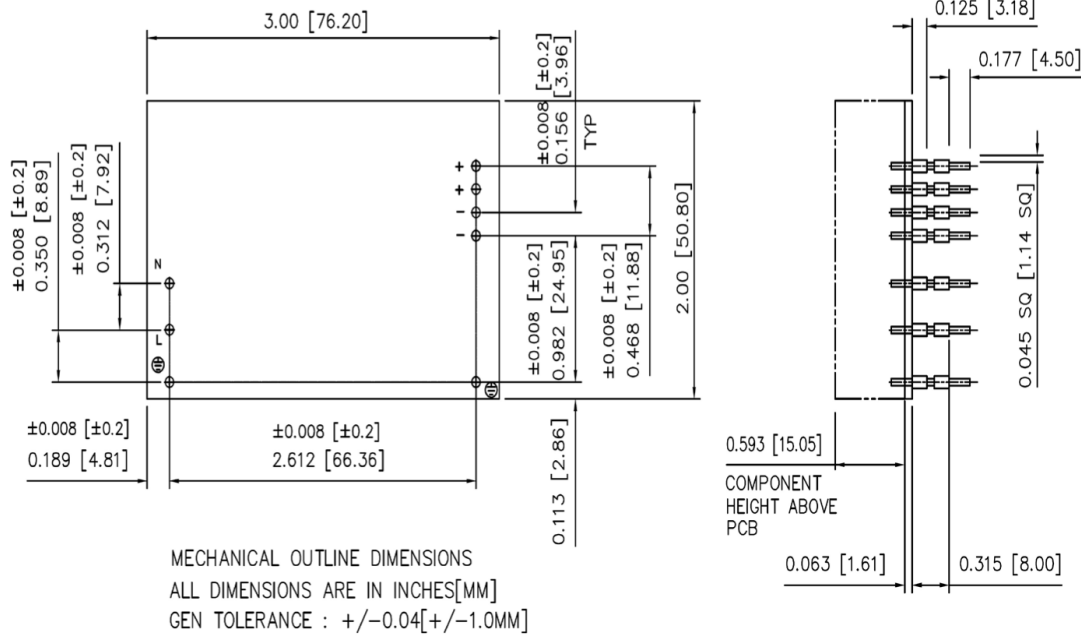


Figure 4. Mechanical Drawing – PCB Mount Option

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Bel Power Solutions:

[MBC41-1024P](#) [MBC41-1005P](#) [MBC41-1015P](#) [MBC41-1012P](#) [MBC41-1030L](#) [MBC41-1024L](#) [MBC41-1005L](#)
[MBC41-1015L](#) [MBC41-1T15L](#) [MBC41-1012L](#) [MBC41-1048L](#) [MBC41-1T12L](#) [MBC41-1058L](#) [MBC41-1T05L](#) [MBC41-1T48L](#) [MBC41-1T24L](#)