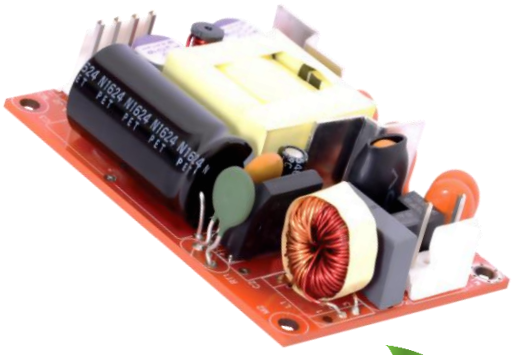
MBC41 Series

Ultra Low Profile

Open Frame Power Supplies

Medical



RoHS Compliant

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

bel POWER SOLUTIONS & PROTECTION
a bel group

belfuse.com/power-solutions

1. MODEL SELECTION

MODEL NUMBER [1]	CONNECTOR	VOLTAGE	MAX. LOAD	MIN. LOAD	RIPPLE & NOISE [2]
MBC41-1T05L MBC41-1005L MBC41-1005P	Screw Terminal Header PCB Mount	5 V	5 A	0.0 A	1.5%
MBC41-1T12L MBC41-1012L MBC41-1012P	Screw Terminal Header PCB Mount	12 V	3.33 A	0.0 A	1%
MBC41-1T15L MBC41-1015L MBC41-1015P	Screw Terminal Header PCB Mount	15 V	2.67 A	0.0 A	1%
MBC41-1T24L MBC41-1024L MBC41-1024P	Screw Terminal Header PCB Mount	24 V	1.67 A	0.0 A	1%
MBC41-1T30L MBC41-1030L MBC41-1030P	Screw Terminal Header PCB Mount	30 V	1.33 A	0.0 A	1%
MBC41-1T48L MBC41-1048L MBC41-1048P	Screw Terminal Header PCB Mount	48 V	0.83 A	0.0 A	1%
MBC41-1T58L MBC41-1058L MBC41-1058P	Screw Terminal Header PCB Mount	58 V	0.69 A	0.0 A	1%
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 µA < 100 µA
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 µF (Tantalum capacitor) in parallel with a 0.1 µF 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/ µs 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

© 2019 Bel Power Solutions & Protection

6. SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Isolation Voltage	Input to Output: (Medical applications) Input to GND: (Not Applicable For Class II Option) Output to GND: for type BF for type B (N/A for Class II Option)	4000 VAC 1500 VAC 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 Screw Terminal / Header	Pin 1 Pin 2 Pin 3	AC Line Not Fitted AC Neutral	Tyco: 640445-3 Mating: 647402-3; Pins: 3-647409-1	(Header)
DC Output Connector	J2 Screw Terminal / Header	Pin 1, 2 Pin 3, 4	V1 +VE V1 -VE	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)

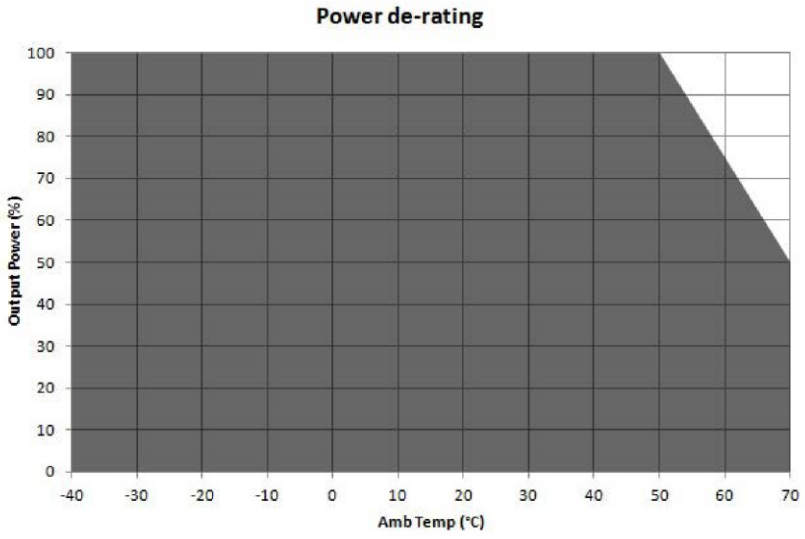


Figure 1. Derating Curve for all Outputs

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

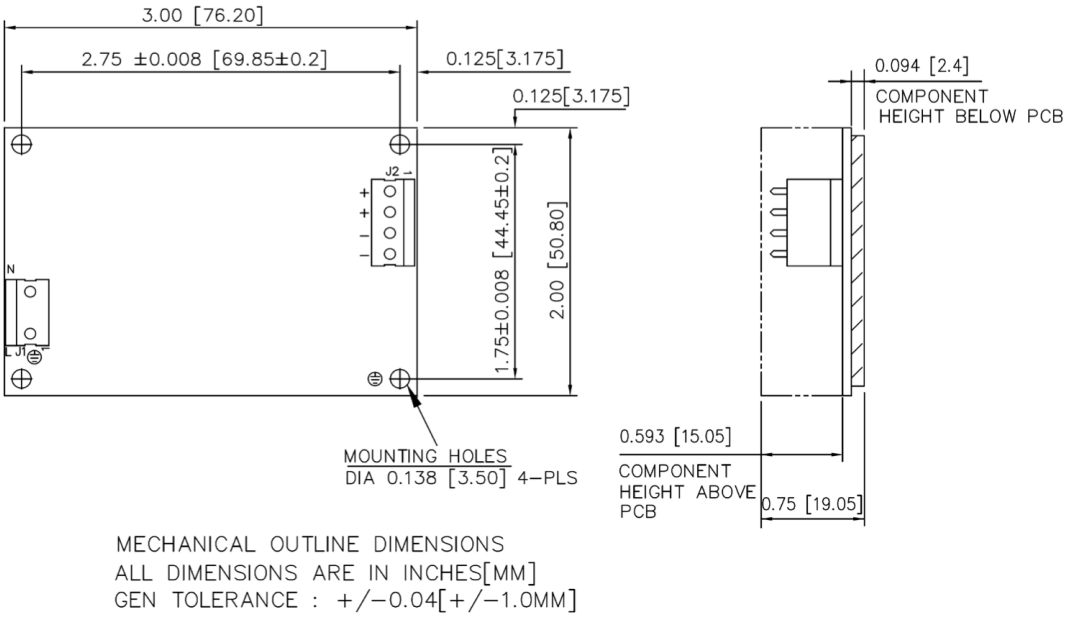


Figure 2. Mechanical Drawing – Option with Header

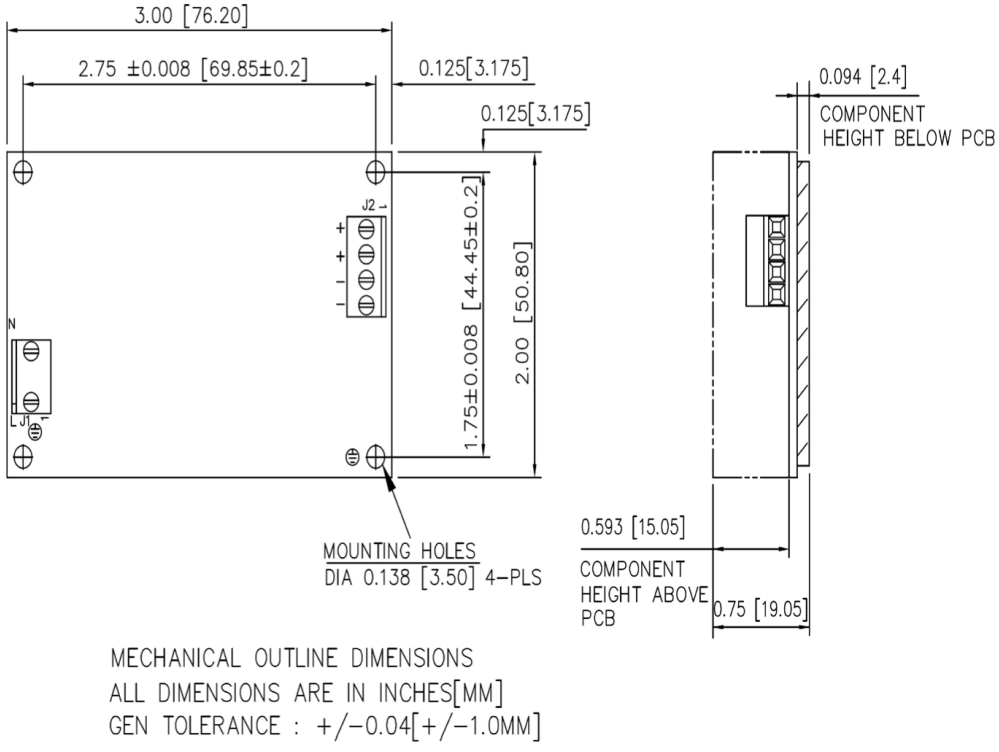


Figure 3. Mechanical Drawing – Option with Screw Terminal

© 2019 Bel Power Solutions & Protection

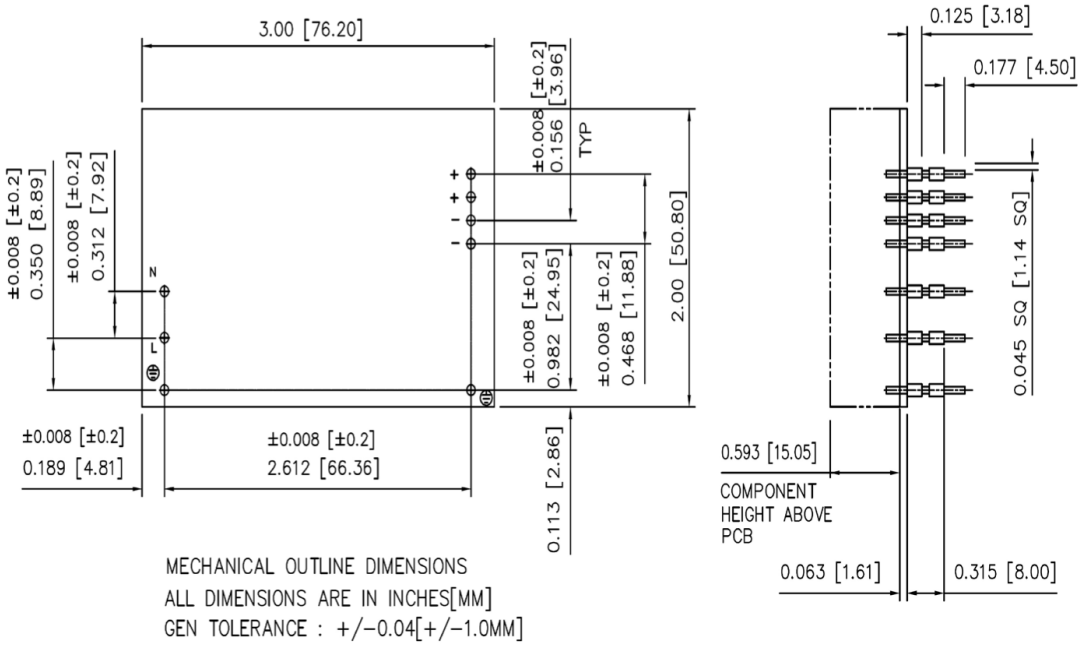


Figure 4. Mechanical Drawing – PCB Mount Option

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.

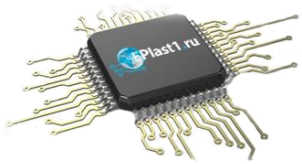
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.