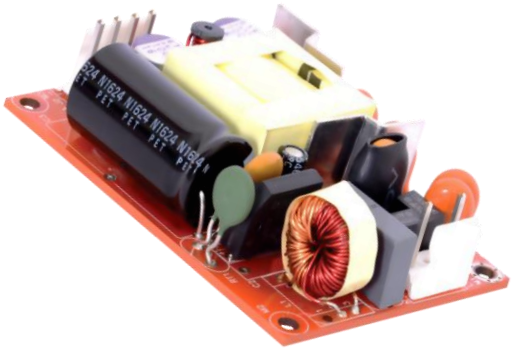
MBC41 Series

Ultra Low Profile
Open Frame Power Supplies
Medical

PRELIMINARY



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

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				

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.
3 Cover Kit is not suited for PCB mount version.

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 uA < 100 uA
Switching Frequency	Typical	65 kHz

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/uS 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	EN55011-B, CISPR11-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: Radiated with external core: (King core K5B RC 25x12x15-M in input cable (5 turns))	Level A Level B
Surge Susceptibility	EN61000-4-5:	Level-3
AC Flicker	EN61000-3-3:	Pass

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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)

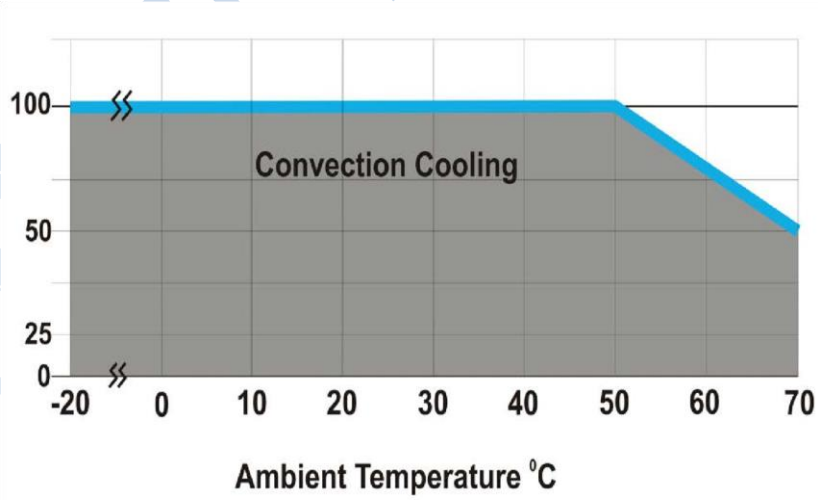
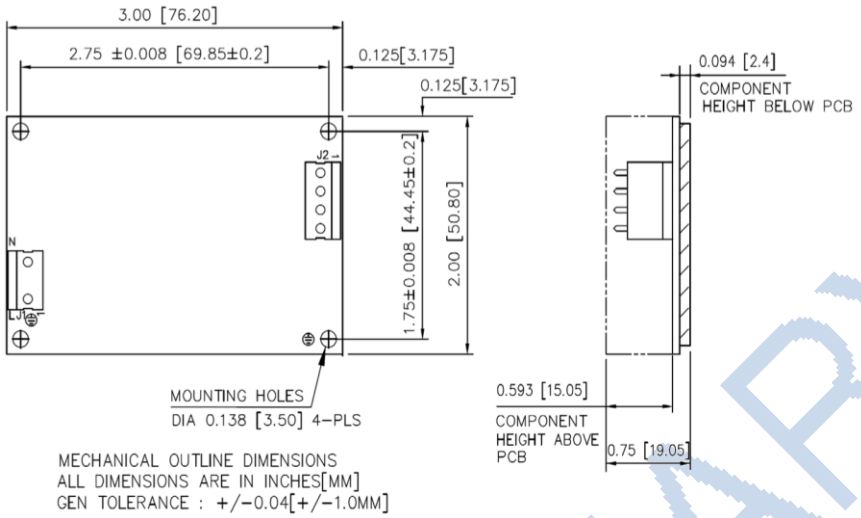
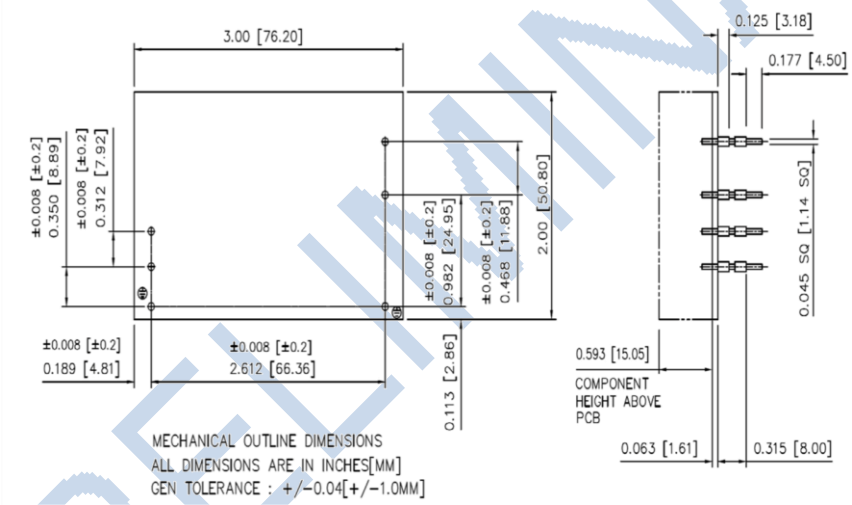


Figure 1. Derating Curve for all Outputs



Mechanical Drawing – Options with Header and Screw Terminal



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.

PRELIMINARY

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.

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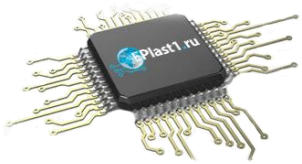
Наши преимущества:

- 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

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