MBC201 Series

Open Frame Power Supplies

Medical

The MBC201 Series of open-frame medical power supplies, with its wide universal input range 90-264 VAC, is available at 200 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 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

- 5 x 3 x 1.5 Inch Form Factor
- 200 W with Forced-Air Cooling
- Approved to EN/IEC 60601-1
- High Efficiency > 88%
- 12 V Fan & 5 V Standby Outputs
- Remote Sense
- IEC Protection Class Options:
- Class I: Earthing Tab J4 (no suffix)
- Class II: No Earthing Tab (-2 suffix)
- Medical Safety Agency Approvals
- RoHS Compliant
- CE Marked

Applications

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

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1. MODEL SELECTION

MODEL[1]	CONNECTOR	OUTPUT VOLTAGE	MAX LOAD CONVECTION [2]	MAX L2AD 300 LFM [2 3, 4]	MINIMUM LOAD	RIPPLE & NOISE [5]
MBC201-1005G	JST	5.0 VDC	26.0 A	26.0 A	0.0 A	1%
MBC201-1T05G	Screw Terminal	5.0 VDC	26.0 A	35.0 A	0.0 A	1%
MBC201-1012G	JST	12 VDC	13.33 A	16.67 A	0.0 A	1%
MBC201-1T12G	Screw Terminal	12	13.33 A	16.67 A	0.0 A	1%
MBC201-1015G	JST	15	10.66 A	13.33 A	0.0 A	1%
MBC201-1T15G	Screw Terminal	15	10.66 A	13.33 A	0.0 A	1%
MBC201-1024G	JST	24	6.66 A	8.33 A	0.0 A	1%
MBC201-1T24G	Screw Terminal	24	6.66 A	8.33 A	0.0 A	1%
MBC201-1030G	JST	30	5.33 A	6.66 A	0.0 A	1%
MBC201-1T30G	Screw Terminal	30	5.33 A	6.66 A	0.0 A	1%
MBC201-1048G	JST	48	3.33 A	4.17 A	0.0 A	1%
MBC201-1T48G	Screw Terminal	48	3.33 A	4.17 A	0.0 A	1%
COVER-201-XBC[6]	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	90-264 VAC / 120-390 VDC
Input Frequency		47 to 63 Hz
Input Current	120 VAC: 230 VAC:	2.4 A max. 1.2 A max.
Inrush Current	120 VAC: 230 VAC:	35 A max. 65 A max.
Leakage Current	120 VAC: 230 VAC:	< 150 µA < 300 µA
Power Factor	120 VAC: 230 VAC:	0.99 0.95
Switching Frequency	PFC converter (variable) Resonant converter (variable)	35 to 250 kHz, 90 kHz typical 35 to 250 kHz, 90 kHz typical

[1] For Class II (without input Earth pin) add suffix -2 (e.g.: MBC201-1012G-2).
[2] Combined output power from V1, VSTBY and VFAN should not exceed the total output power rating.
[3] Fan output voltage tolerance is +/-20%. During V1 full load, VFAN needs min. 20 mA load to be within regulation band.
[4] Peak current for fan output is 1 A.
[5] Ripple is 2% up to 20% load and < 1% above 20% load. 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.
[6] When used in Cover Kit, de-rate output power to 70 % under all operating conditions.

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Efficiency	120 VAC: 230 VAC:	84% typical 86% typical
Hold Up Time	120 / 230 VAC	10 ms
Output Power	Derate output power linearly to 80% from 90 V to 80 VAC input. Peak Power: 250 W for 0.2 s	160 W to 200 W
Line Regulation		+/-0.5%
Load Regulation		+/-2.0%
Transient Response	Main output 50 to 100% load change, 50 Hz, 50% duty cycle, 0.1A / µs	< 10%, recovery time < 5 ms
Rise Time		< 100 ms
Set Point Accuracy		± 1%
Voltage Adjustment	V1	± 3 %
Over Voltage Protection	V1 only	110 to 150 %
Over Current Protection		110% typical above rating
Short Circuit Protection	Short term, auto recovery	

4. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION		SPECIFICATION
Operating Temperature	Refer to derating curve (*Figure 1*) Start-up is guaranteed		-20 to 70°C -20 to 0°C
Storage Temperature			-40 to 70° C
Cooling	5 V model	Convection: 300 LFM:	130 W 175 W
	Other models	Convection: 300 LFM:	160 W 200 W
Humidity	Non Condensing		95%
Altitude	Operating: Non-Operating:		10,000 ft. 40,000 ft.
Reliability	MTBF according to Telcordia –SR332-Issue 3		1.6 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

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6. SAFETY SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Isolation Voltage	Input to Output:	Min. 5900 VDC
Safety Standards	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. SIGNALS

PARAMETER	DESCRIPTION / CONDITION
Power Good Signal	TTL signal goes high after main output is in regulation band. Delay is 0.1 to 0.3 sec.
Power Fail Signal	TTL signal goes low 1 ms advance before output goes out of regulation due to mains failure
Remote ON / OFF	To turn-on power supply short J3 pin 4 to pin 6 (PSU is shipped in this configuration)
Remote Sense	Compensates for 200 mV cable drop

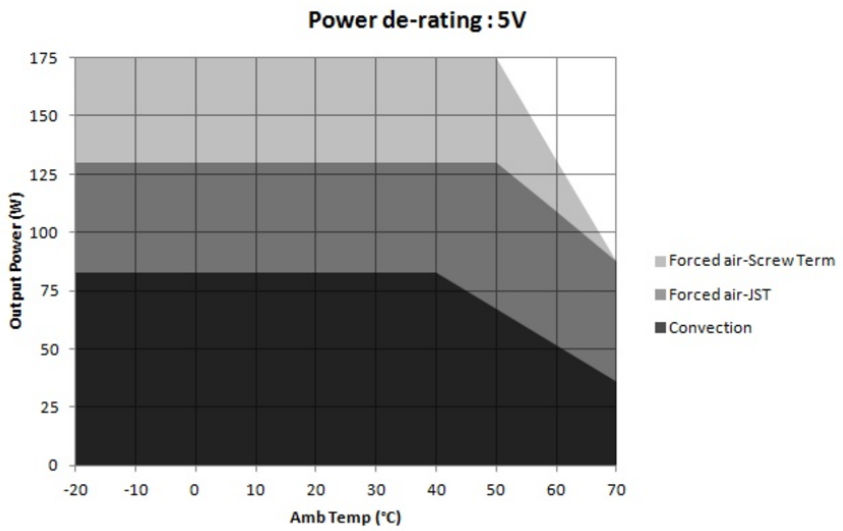
8. CONNECTOR & PIN DESCRIPTION

CONNECTOR	PIN	DESCRIPTION / CONDITION		MANUFACTURER / PN
AC Input Connector	J1	Pin 1 Pin 2	AC Neutral AC Line	Molex: 26-60-4030 or equivalent; Mating: 09-50-3031; Pins: 08-50-0106
DC Output Connector	J2	Pin 1,2,3 Pin 4,5,6	RTN Vout	Option 1: Tyco: 2-1776112-3 or equivalent Mating: 13 AWG wire Option 2: JST: B6P-VH-B (LF) (SN) or B6P-VH (LF) (SN) or equivalent Mating: VHR-6M; Pins: SVH-41T-P1.1
Signals & Aux Power[7]	J3	Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8	+VE Remote Sense VFAN (+12 V/0.5 A) -VE Remote Sense Remote ON/OFF VSTBY (+5 V/1 A, +/-5%) RTN (Signal) Power Fail Power Good	Molex: 22-23-2081 or equivalent Mating: 22-01-2087, Pins: 08-50-0113
Earthing Tab	J4			Molex: 19705-4301 or equivalent Mating: 190030001

9. MECHANICAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION
Weight	325 g (0.72 lbs.)
Dimensions	127.0 x 76.2 x 38.1 mm (5 x 3 x 1.5 inch)
Cooling	Convection: 83 W; 300 LFM: 175 W (5 V model) Convection: 160 W; 300 LFM: 200 W (other models)

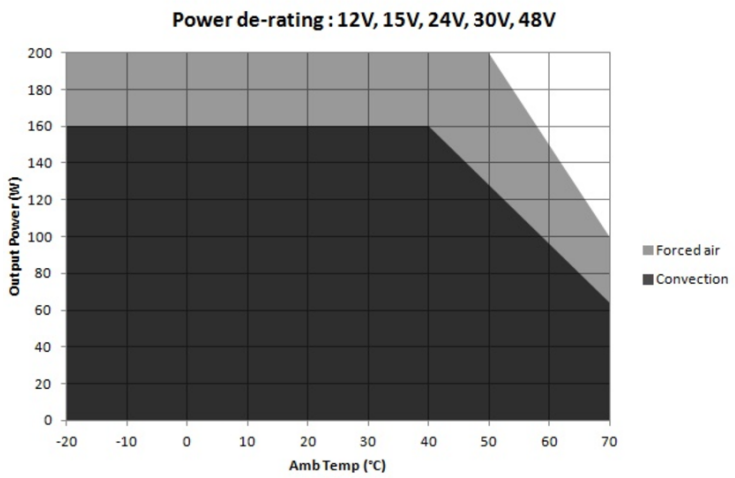
[7] PSU is supplied with J3 housing, pin-4 and pin-6 shorted to enable main output without remote on/off feature



Convection load: 83 W up to 40 °C
De-rate above 40 °C @ 1.89% per °C

Forced air cooled load: 130 W up to 50°C
(for screw terminal version)
De-rate above 50 °C @ 1.63% per °C

Forced air cooled load: 175 W up to 50°C
(for JST connector version)
De-rate above 50 °C @ 2.5% per °C



Convection load: 160 W up to 40 °C
De-rate above 40 °C @ 2% per °C

Forced air cooled load: 200 W up to 50°C
De-rate above 50 °C @ 2.5% per °C

Figure 1. Derating Curves

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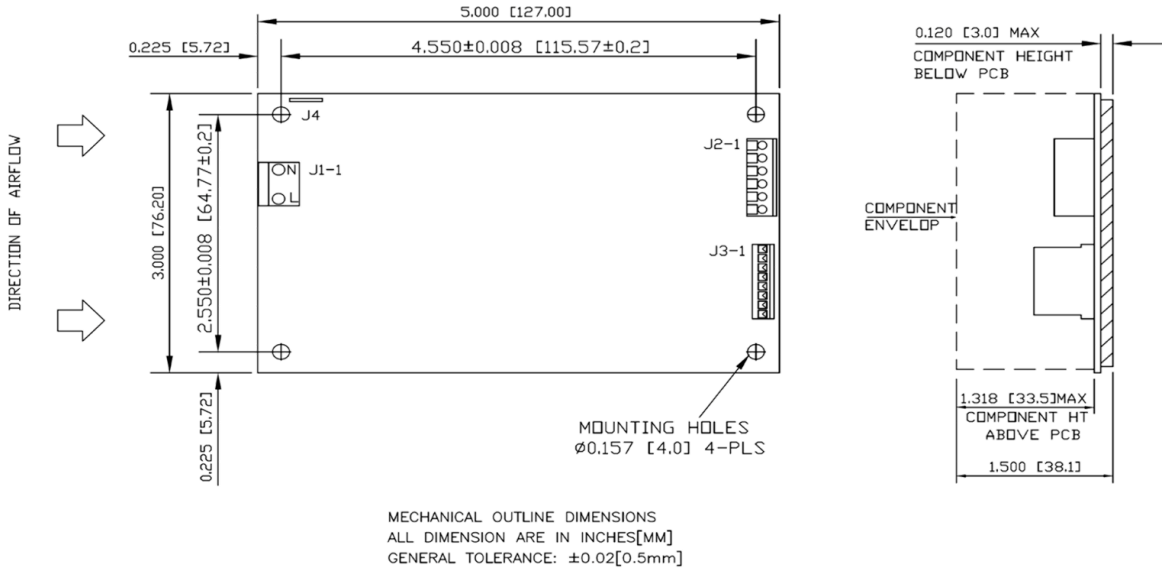

Figure 2 - Mechanical Drawing

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.

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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