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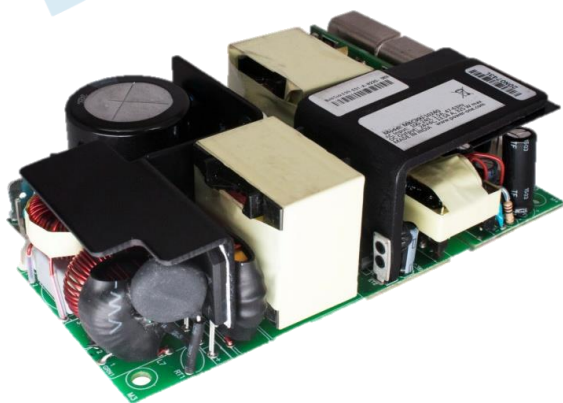
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[Bel Fuse Inc.](#)  
[MBC300-1T05G-2](#)

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[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

## MBC300 Series AC-DC Open Frame Medical Power Supplies



### Key Features & Benefits

- 200 W convection cooled
- -20 to 50°C full load operation
- 2x MOPP
- 5.0 x 3.0 x 1.5 inch (127.0 x 76.2 x 38.1 mm)
- 12 V fan & 5 V standby outputs
- Inhibit and Power Good signals
- No minimum load required
- IEC Protection Class Options:
  - Class I: Earthing Tab J4 (no suffix)
  - Class II: No Earthing Tab (-2 suffix)
- Conducted EMI EN 55022-B, FCC Part 15 Level B
- Medical Safety Agency Approvals
- CE marked

The **MBC300 Series** of open-frame medical power supplies, with its wide universal 90-264 VAC input range, is available at 300 W of output power and a variety of single output voltages. The MBC series was designed to 3rd edition medical approvals and provides 2x MOPP (Means of Patient Protection) isolation for class 1 and class 2 installations.

These medical power supplies are ideal for monitoring, home health equipment as well as surgical devices.

### Applications

- Diagnostic
- Drug Pump
- Dialysis
- Home Health Care
- Monitoring
- Imaging

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## MBC300 Series

### Model Selection

MODEL	OUTPUT VOLTAGE (VDC)	MAX LOAD CONVECTION <sup>1,2,5</sup>	MAX LOAD 300 LFM <sup>1,2,5</sup>	MINIMUM LOAD (A)	RIPPLE & NOISE <sup>4</sup>	CONNECTOR	TOTAL REGULATION
MBC300-1T05G	5	28.0 A	40.0 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T05G-2	5	28.0 A	40.0 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T12G	12	16.67 A	25.0 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T12G-2	12	16.67 A	25.0 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T15G	15	13.33 A	20.0 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T15G-2	15	13.33 A	20.0 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T24G	24	7.5 A	13.54 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T24G-2	24	7.5 A	13.54 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T30G	30	6.0 A	10.83 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T30G-2	30	6.0 A	10.83 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T48G	48	3.75 A	6.77 A	0	2%	Screw Terminal	± 2.5%
MBC300-1T48G-2	48	3.75 A	6.77 A	0	2%	Screw Terminal	± 2.5%
Vfan (all models) <sup>3</sup>	12	0.5 A	0.5 A				± 20%
V s/b (all models)	5	2.0 A	2.0 A				± 5%

Warranty 2 years.

#### NOTES:

- <sup>1</sup> Peak current rating on main output is 120% of max., lasting < 30 s with a maximum 10% duty cycle.
- <sup>2</sup> Combined output power of main output, fan supply and standby supply shall not exceed max. power rating.
- <sup>3</sup> Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-30% and needs min. 1% load on main output to be within regulation band. Ripple and noise is less than 10%.
- <sup>4</sup> 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.
- <sup>5</sup> Derate power linearly to 80% from 90 Vac to 80 Vac input.

## MBC300 Series

### TECHNICAL PARAMETERS

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

#### Input Specifications

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Input Voltage	Universal	90-264 VAC / 120-390 VDC
Input Frequency		47 to 63 Hz
Inrush Current	120 VAC 230 VAC	35 A max. 65 A max.
Leakage Current	@ 120VAC @ 230 VAC	< 125 $\mu$ A < 250 $\mu$ A
No Load Power		0.8 W
Input Current	120 VAC @ 200 W 230 VAC @ 200 W	3.2 A max 1.65 A max

#### Output Specifications

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Output Power		200 to 325 W
Efficiency	120 VAC 230 VAC	88% typical 92% typical
Hold Up Time	120 / 230 VAC	10 ms
Power Factor	120 VAC 230 VAC	0.98 0.95
Line Regulation		+/-0.5%
Load Regulation		+/-2%
Transient Response	Main output 50 to 100% load change, 50 Hz, 50% duty cycle, 0.1A / $\mu$ Sec	< 10%, recovery time < 5 ms
Rise Time		< 100 ms
Set Point Tolerance		$\pm$ 1%
Voltage Adjustment		$\pm$ 3 %
Over Voltage Protection	Automatic recovery	110 to 150 %
Over Current Protection		110 to 150 %
Short Circuit Protection	Short term, automatic recovery	
Over Temperature Protection	Automatic Recovery	110° C primary heat sink

#### Other Specifications

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Isolation Voltage	Input to Output:	5900 VDC min
Switching Frequency	PFC converter (fixed) Resonant converter (variable)	80 kHz typical 35 to 250 kHz, 90 kHz typical
Reliability	MTBF according to Telcordia –SR332-issue 3	1.77m Hours
Operating Temperature	Refer to derating curve; -20 to 0°C, start-up is guaranteed	-20 to 70°C
Storage Temperature		-40 to 70° C
Cooling*	Convection: With 300LFM:	140W max (5V model), 200W max (12V, 15V, 24V, 30V & 48V models) 200W max (5V model) 300W max (12V and 15V models) 325W max (24V, 30V and 48V models)

\* Refer de-rating curves to determine output power over the entire operating temperature range

## MBC300 Series

### Environmental

PARAMETER	DESCRIPTION / CONDITION	CRITERION
Conducted Emissions	EN55022-B, CISPR22-B, FCC PART15-B	
Radiated Emissions	EN55022-B, CISPR22-B, FCC PART15-B	To be controlled in end system
Harmonic Current	EN61000-3-2	Class D
Static Discharge	EN61000-4-2	Level-3
RF Field Susceptibility	EN61000-4-3	Level-3
Fast Transients/Bursts	EN61000-4-4	Level-3
Surge Susceptibility	EN61000-4-5	Level 3
Humidity	Non Condensing	95%
Altitude	Operating: Non-Operating:	10,000 ft. 40,000 ft.

### Safety Approvals

PARAMETER	DESCRIPTION / CONDITION
Agency Approvals	Approved to the latest edition of the following standards: CSA/UL60601-1, EN60601-1 and IEC60601-1
CE mark	Complies with LVD Directive

### Signals

PARAMETER	DESCRIPTION / CONDITION
Power Good *	TTL signal goes high after main output is within regulation band, delay is 0.1 to 0.3 s
Remote On/ Off	To turn on PSU short remote pin to ground
Remote Sense	Compensates for 200 mV drop

\* Power good signal cannot be used as a current source. Internal pull up resistor from PG signal to 5V is 10K. It is recommended to use external transistor if intended to source current.

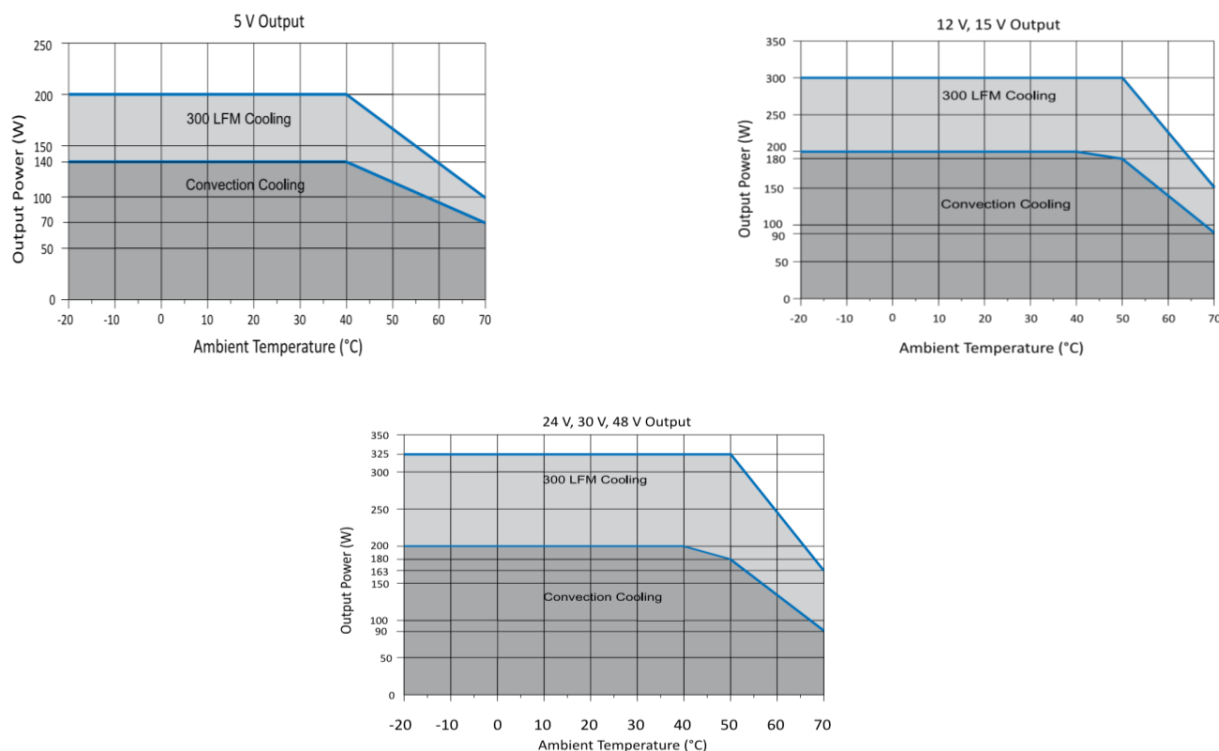
### Connector & Pin Description

CONNECTOR	PIN	DESCRIPTION / CONDITION	MANUFACTURER / PN
AC Input Connector	J1	Pin 1 AC LINE Pin 2 AC NEUTRAL	Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106 6-32 inches Screw Pan HD
DC Output Connector	J2	Pin 1 RTN Pin 2 V1	Mating: 16 AWG wire crimped to Ring Tongue Terminal AMP: 8-31886-1
Signal Connector	J3	Pin 1 REMOTE ON/OFF Pin 2 RTN Pin 3 VFAN (+12 V/0.5 A) Pin 4 -VE REMOTE SENSE Pin 5 VSTBY (+5 V/2 A, +/-5%) Pin 6 +VE REMOTE SENSE Pin 7 RTN Pin 8 POWER GOOD	Molex: 22-23-2081 Mating: 22-01-2087; Pins: 08-50-0113
Earthing Tab	J4	Spade Connector (Class 1 product only)	Molex: 19705-4301 Mating Connector: Molex: 190030001

\* PSU is supplied with J3 housing, pin-1 and pin-2 shorted to enable main output without remote on/off feature.

## MBC300 Series

Figure 1 - Output Power Vs. Temperature Derating Curves

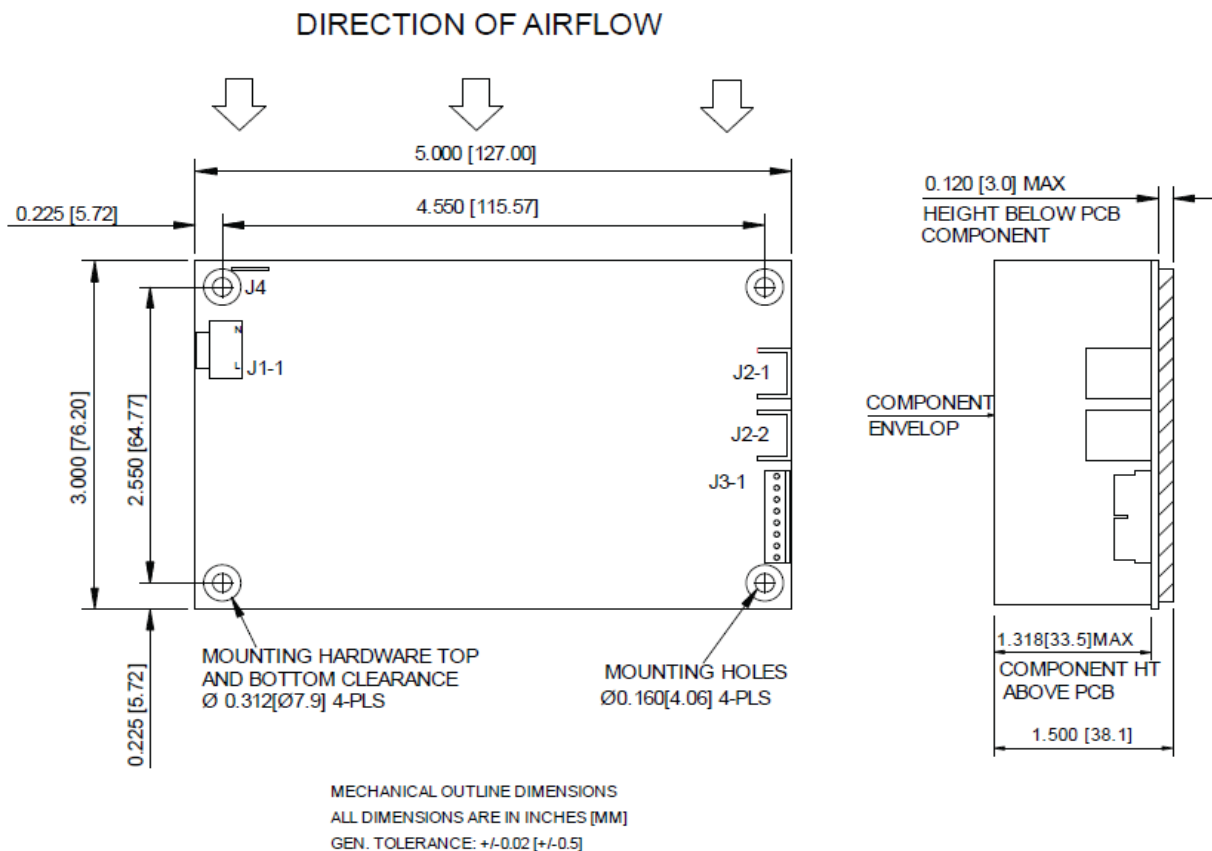


**NOTE:** The de-rating curves are valid for input voltages of 115 VAC to 264 VAC. Below 115 VAC to 90 VAC the convection rating is 180 Watts maximum.

### Mechanical

PARAMETER	DESCRIPTION / CONDITION
Weight	450 g (0.99 lbs)
Dimensions	127.0 x 76.2 x 38.1 mm (5.0 x 3.0 x 1.5 inch)

## MBC300 Series



**NOTE:** Air flow over long edge (either direction) required for air flow rating.

**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.