MBC275 Series

Ultra Low Profile Open Frame Power Supplies Medical

The MBC275 Series of ultra low open frame medical power supplies feature a wide universal AC input range of 85 V – 264 VAC, offering 275 W of output power with forced air cooling in a variety of isolated single output voltages.

The MBC series was designed to 3rd edition medical approvals and provides 2x MOPP (Means of Patient Protection) isolation for Class I and Class II installations.

These power supplies are ideal for medical, telecom, datacom, industrial equipment and other applications.

RoHS Compliant

Key Features & Benefits

- 5 x 3 x 0.75 Inches Form factor
- 275 Watts with Forced Air Cooling
- Approval to EN60601 3rd Edition
- Efficiencies up to 92%
- -40 to 70°C degree operating temperature
- Dual fusing
- 12 V / 0.5 A Fan Output, Thermal Shut-Down feature
- 3.37 million Hours, Telcordia -SR332-issue 3 MTBF
- Standby Power < 0.5 W
- Medical (BF) Safety Approvals

Applications

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

1. MODEL SELECTION

MODEL NUMBER	CONNECTOR	VOLTAGE	MAX. LOAD (CONVECTION) 152 W @ 50°C	MAX. LOAD (CONDUCTION) 160 W @ 40°C	MAX. LOAD (13 CFM)	MIN. LOAD	RIPPLE & NOISE [1]
MBC275-1T12L MBC275-1012L	Screw Terminal Molex Connector	12 V	12.5 A	13.33 A	20.83 A	0.0 A	2%
MBC275-1T15L MBC275-1015L	Screw Terminal Molex Connector	15 V	10 A	10.66 A	16.67 A	0.0 A	2%
MBC275-1T24L MBC275-1024L	Screw Terminal Molex Connector	24 V	6.25 A	6.67 A	10.41 A	0.0 A	1%
MBC275-1T30L MBC275-1030L	Screw Terminal Molex Connector	30 V	5 A	5.33 A	8.33 A	0.0 A	1%
MBC275-1T48L MBC275-1048L	Screw Terminal Molex Connector	48 V	3.12 A	3.33 A	5.2 A	0.0 A	1%
MBC275-1T58L MBC275-1058L	Screw Terminal Molex Connector	58 V	2.58 A	2.76 A	4.31 A	0.0 A	1%
COVER-275-XBC	metal cover kit accessory						

[1] 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.

2. INPUT SPECIFICATIONS

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

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Input Voltage	Universal (Derate from 100% at 100 VAC to 72% for forced cooling and 69% for convection cooling at 80 VAC)	80-264 VAC / 390 VDC
Input Frequency		47-63 Hz
Input Current	115 VAC: 230 VAC:	2.6 A max. 1.3 A max.
No Load Power	Typical for MBC275-1XXX Typical for MBC275-1XXX-PGPF	< 0.5 W < 0.85 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
Power Factor	At full load	> 0.95
Switching Frequency	PFC PWM	70 to 130 kHz 50 to 80 kHz

3. OUTPUT SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Output Power[2]	With 13 CFM forced air cooling With natural convection cooling at 100 to 264 VAC	275 W up to 160 W
Efficiency (typical @ 230 VAC full load)	48 V, 58 V: 24 V, 30 V: 12 V, 15 V:	92% 90% 88%
Hold-up Time	At 275 W: At 160 W:	8 ms 16 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
Voltage Adjustment		+/-3%
Rise Time	Typical	55 ms
Set Point Tolerance[3]		+/-1%
Over Current Protection		> 110%
Over Voltage Protection		110 to 140%
Short Circuit Protection	Hiccup mode	

[2] Combined output power of main output, fan supply shall not exceed max. Power rating.
[3] Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10% and Ripple and noise is less than 10%.

4. ENVIRONMENTAL SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Operating Temperature	Startup guaranteed with spec. deviation	-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	3.37 million hours

5. EMC SPECIFICATIONS

PARAMETER	DESCRIPTION / CONDITION	SPECIFICATION
Conducted Emissions	EN55022-B, CISPR22-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
Harmonic Current	EN61000-3-2:	Class D

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	

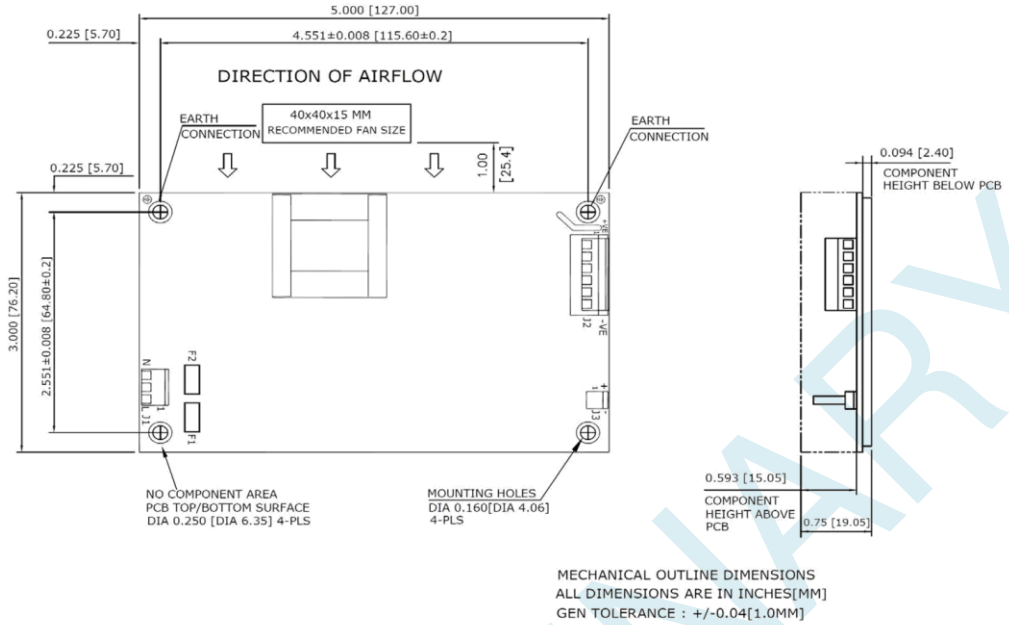
7. CONNECTOR & PIN DESCRIPTION

CONNECTOR	PIN	DESCRIPTION / CONDITION		MANUFACTURER / PN
AC Input Connector	J1	Pin 1 Pin 2 Pin 3	AC Line Not Fitted AC Neutral	Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106
DC Output Connector	J2	Pin 1, 2, 3 Pin 4. 5. 6	V1 +VE V1 -VE	Option 1 (Screw Terminal): Molex: 39357 Series or equivalent Option 2 (Molex Connector): Molex: 26-60-4060 Mating: 09-50-3061; Pins: 08-50-0106
Aux (Fan) Output	J3	Pin 1 Pin 2	FAN +VE FAN -VE	AMP: 640456-2 Mating: 640440-2
Signal Output[4]	J4	Pin 1 Pin 2 Pin 3	Vs PGPF GDN	AMP :640456-3 Mating: 640440-3

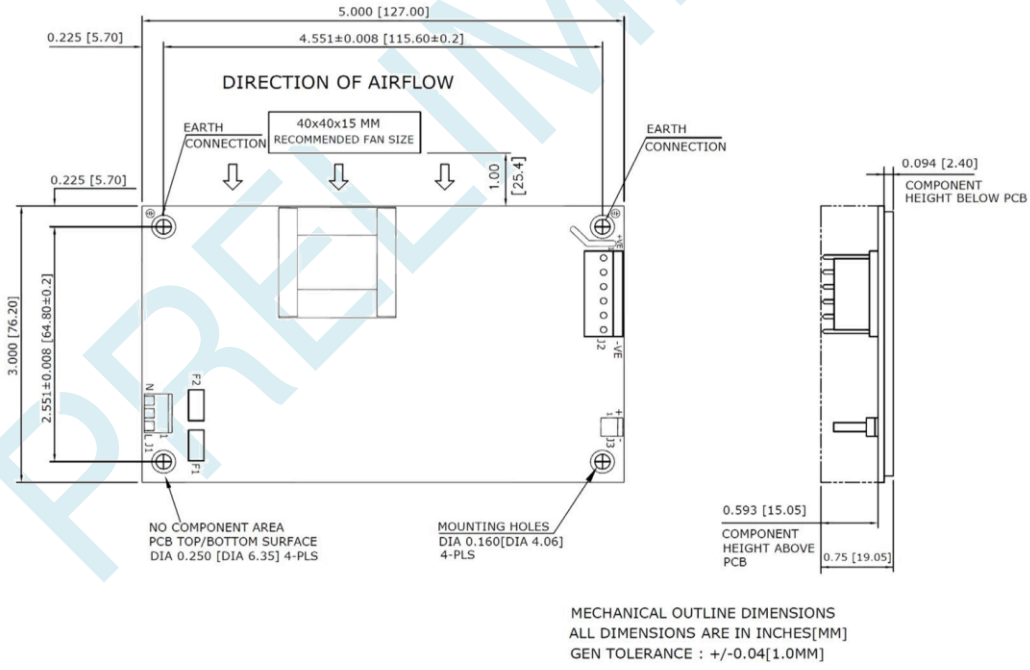
[4] For PGPF Signal Output Connector option please contact factory.

8. MECHANICAL SPECIFICATIONS

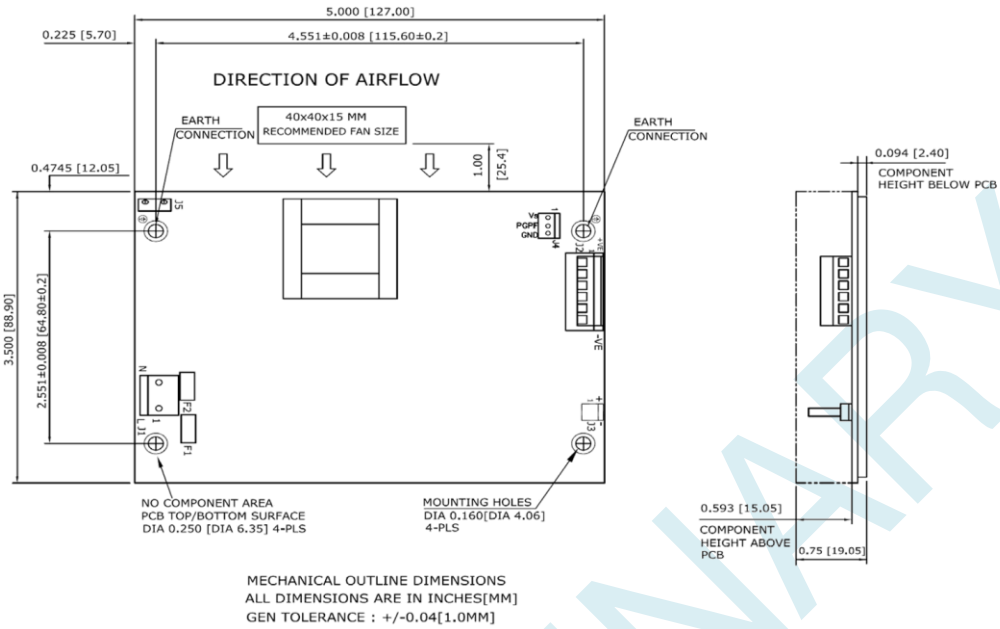
PARAMETER	DESCRIPTION / CONDITION
Weight	approx. 200 g
Dimensions	127 x 76.2 x 19.05 mm (5 x 3 x 0.75 inches)
Cooling	275 W with 13 CFM forced air cooling (refer to Mechanical Drawing) Up to 160 W with natural convection cooling (refer to Derating Curve)



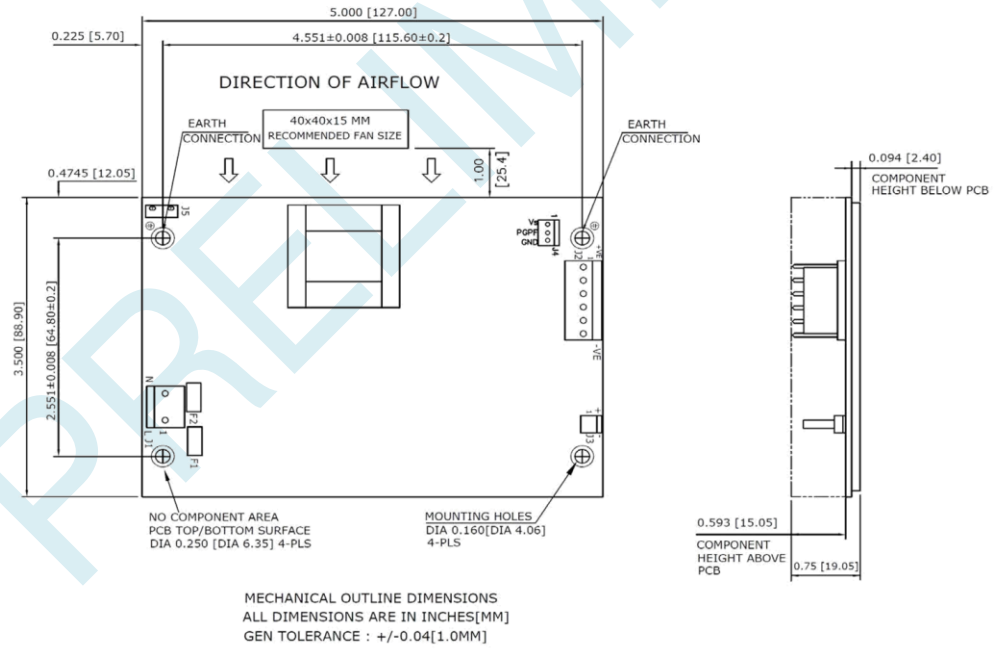
Mechanical Drawing – Option 1 without PGPF



Mechanical Drawing – Option 2 without PGPF

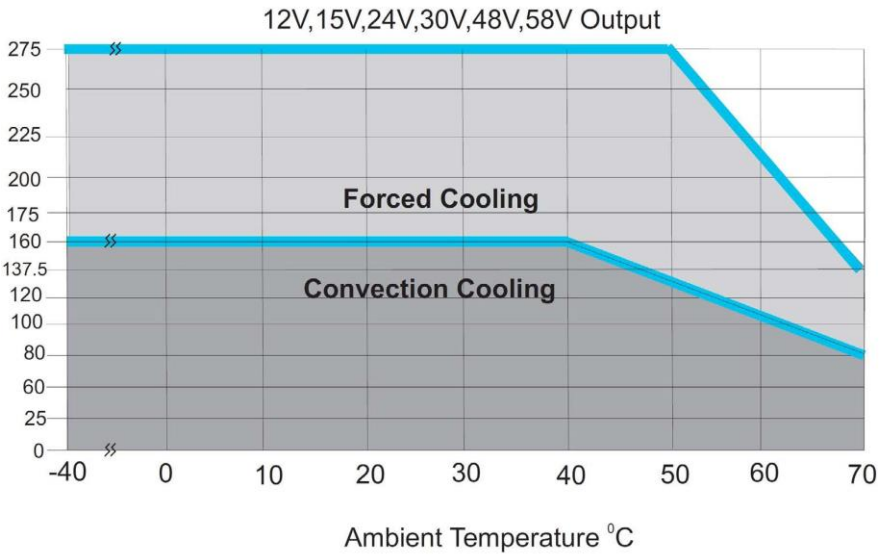


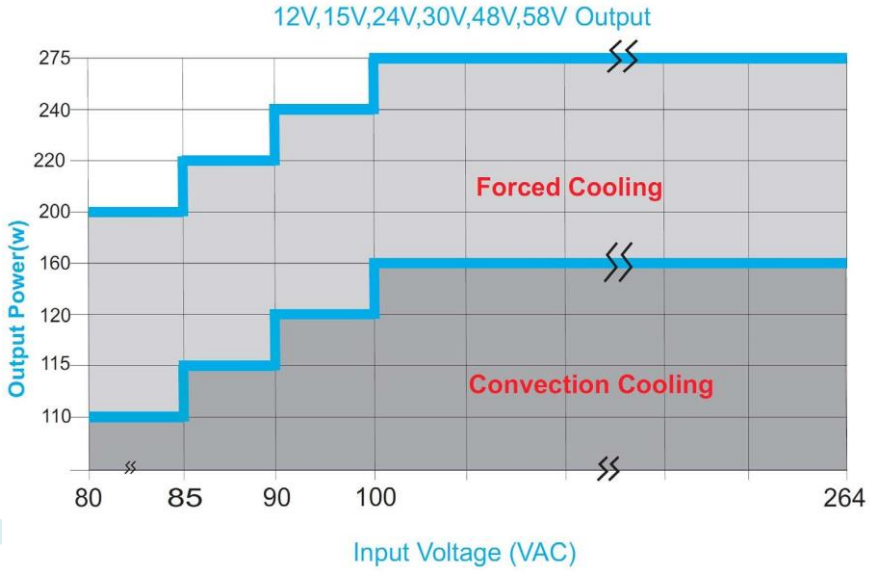
Mechanical Drawing – Option 1 with PGPF



Mechanical Drawing – Option 2 with PGPF

DERATING CURVES





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.