

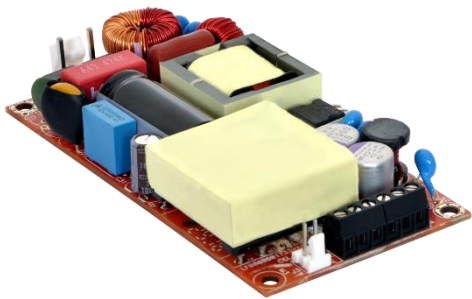
ABC180 Series

Ultra Low Profile Open Frame Power Supplies

The ABC180 Series of ultra low profile open frame power supplies feature a wide universal AC input range of 80 – 264 VAC, offering up to 180 W of output power with 13 CFM, or up to 120 W with convection cooling in a compact footprint, with a variety of isolated single output voltages.

The high efficiency and high power density of the ABC family ensures minimal power loss in end-use equipment, thereby facilitating higher reliability, easier thermal management and meets regulatory approvals for environmentally-friendly end products.

These power supplies are ideal for broad range of telecom, datacom, industrial equipment and other applications.



Key Features & Benefits

- 4 x 2 x 0.75 Inch Form Factor
- 180 Watts with Forced Air Cooling
- Efficiencies up to 92%
- -40 to 70 °C Operating Temperature
- IEC / EN / UL 62368-1 Compliant
- 12 V / 0.5 A Fan Output
- Thermal Shut-Down Feature
- 3.37 million hours, Telcordia -SR332-issue 3 MTBF
- No Load Power < 0.5 W

Applications

- Instrumentation
- Lighting
- Industrial Applications
- Applied Computing
- Renewable Energy
- Test and Measurement
- Robotics
- Wireless Communication



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1. MODEL SELECTION

| MODEL NUMBER ¹ | OUTPUT CONNECTOR | VOLTAGE | MAX. LOAD | | | POWER |
|----------------------------|-----------------------------|---------|------------------------------|----------------------------|-------------------|-------|
| | | | CONVECTION 50°C (112.5 W) | CONVECTION 40°C (120 W) | 13 CFM (180 W) | |
| ABC180-1T12L | Screw Terminal | 12 V | 9.37 A | 10 A | 15 A | 180 W |
| ABC180-1012L | Header Molex Connector | | | | | |
| ABC180-1T15L | Screw Terminal | 15 V | 7.5 A | 8 A | 12 A | 180 W |
| ABC180-1015L | Header Molex Connector | | | | | |
| ABC180-1T24L | Screw Terminal | 24 V | 4.68 A | 5 A | 7.5 A | 180 W |
| ABC180-1024L | Header Molex Connector | | | | | |
| ABC180-1T30L | Screw Terminal | 30 V | 3.75 A | 4 A | 6 A | 180 W |
| ABC180-1030L | Header Molex Connector | | | | | |
| ABC180-1T48L | Screw Terminal | 48 V | 2.34 A | 2.5 A | 3.75 A | 180 W |
| ABC180-1048L | Header Molex Connector | | | | | |
| ABC180-1T58L | Screw Terminal | 58 V | 1.94 A | 2.07 A | 3.1 A | 180 W |
| ABC180-1058L | Header Molex Connector | | | | | |
| COVER-180-XBC ² | Metal Cover Kit (accessory) | | | | | |

¹ Class II version available. Add suffix "-2" at the end of the Model Number

² When used in Cover Kit, de-rate output power to 70 % under all operating conditions.

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 77% at 80 VAC) | 80 – 264 VAC / 390 VDC |
| Input Frequency | | 47 – 63 Hz |
| Input Current | 115 VAC: 230 VAC: | 2.2 A max. 1.1 A max. |
| No Load Power | Typical | < 0.5 W |
| Inrush Current | 115 VAC: 230 VAC: 264 VAC: | 25 A 45 A 75 A |
| Leakage Current | Typical (N/A For Class II Option) Touch current | 300 µA < 100 µA |
| Switching Frequency | PFC PWM | 70 – 130 kHz 50 – 80 kHz |

3. OUTPUT SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|--|---|--------------------------|
| Output Voltage | Refer to Model selection table | From 12 V to 58 V |
| Output Power ³ | 13 CFM (forced air cooling) Convection (natural cooling) | 180 W up to 120 W |
| Efficiency | 48 V, 58 V: 24 V, 30 V: 12 V, 15 V: | 92% 90% 88% |
| Hold-up Time | At 180 W: At 120 W: | 10 ms 16 ms |
| Power Factor | 115 VAC: 230 VAC: | > 0.95 0.90 |
| Line Regulation ⁴ | | ± 0.5% |
| Load Regulation ⁴ | | ± 1% |
| Minimum Load | | 0.0 A |
| Transient Response | 25% step load change, at 0.1 A/μs slew rate, 50% duty cycle, 50 Hz = 4% | recovery time < 5 ms |
| Ripple ^{4,5} | 24, 30, 48 & 58 V outputs 12 V & 15 V outputs | 1.0 % max. 2.0 % max. |
| Output Voltage Adjustment ⁶ | | ± 3% |
| Rise Time | Typical | 55 ms |
| Set Point Tolerance ⁴ | | ± 1% |
| Over Current Protection | | > 110% |
| Over Voltage Protection | | 110 to 140% |
| Short Circuit Protection | Hiccup mode | |
| Cooling | With 13 CFM forced air cooling (100 to 264 VAC) ⁷ With natural convection cooling (100 to 264 VAC) ⁸ | 180 W Up to 120 W |

³ Combined output power of main output, fan supply shall not exceed max. power rating.

⁴ Fan supply output voltage tolerance including set point accuracy, line and load regulation is ± 10% and ripple and noise is less than 10%.

⁵ Ripple is peak to peak with 20 MHz bandwidth and 10 μF (Electrolytic capacitor) in parallel with a 0.1 μF capacitor at rated line voltage and load ranges.

⁶ Adjustment potentiometer is located on the SMT side of the PCB

⁷ Refer to Mechanical Drawing

⁸ Refer to Derating Curve

4. EMC SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|------------------------------------|---|----------------------|
| Conducted Emissions | EN 55032-B, CISPR22-B, FCC PART15-B | Pass |
| Radiated Emissions | EN 55032 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 3, 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 3, Criterion A |
| Voltage Dips, Interruptions | EN 61000-4-11 | Criterion A & B |



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5. SAFETY SPECIFICATIONS

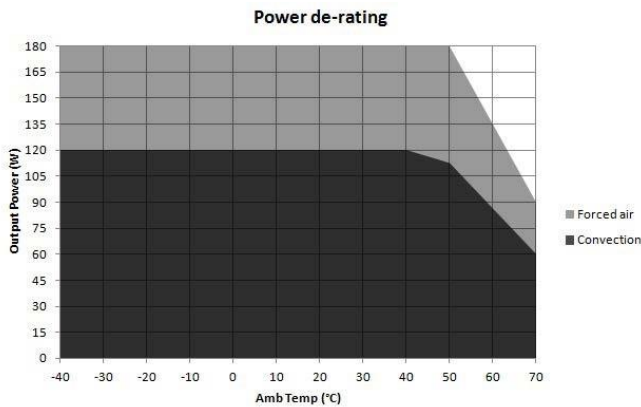
| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|--------------------|---|----------------------|
| Isolation Voltage | Input to Output: (for ITE applications) Input to GND: (Not Applicable for Class II Option) | 4000 VDC 2500 VDC |
| Safety Standard(s) | EN / IEC / UL 62368-1(Ed .3) | |
| Agency Approvals | Nemko, UL, C-UL | |
| CE mark | Complies with LVD Directive | |

6. ENVIRONMENTAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION | SPECIFICATION |
|-----------------------|---|--------------------------|
| Operating Temperature | -40 to 0°C startup guaranteed, with spec deviation ⁹ | -40 to +70°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 |

⁹ Output ripple can be more than 10% of the output voltage.

DERATING CURVES



Convection load: 120 W up to 40 °C
De-rate between 40-50 °C @ 0.625% per °C
De-rate above 50 °C @ 2.33% per °C

Forced air cooled load: 180 W up to 50°C
De-rate above 50 °C @ 2.5% per °C

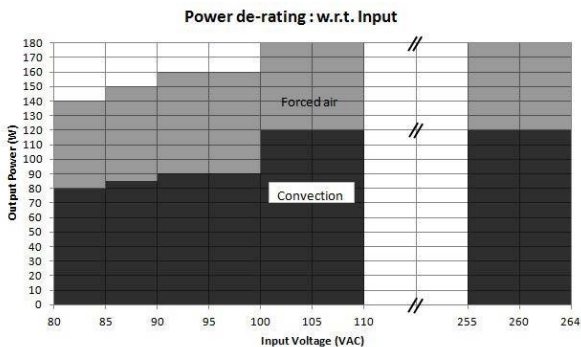


Figure 1. Power Derating Curves

7. CONNECTOR & PIN DESCRIPTION

| CONNECTOR | PIN | DESCRIPTION / CONDITION | MANUFACTURER / PN |
|---------------------|-----|---|---|
| AC Input Connector | J1 | Pin 1 AC Line Pin 2 Not Fitted Pin 3 AC Neutral ¹⁰ | Molex: 26-60-4030 Mating: 09-50-3031; Pins: 08-50-0106 |
| DC Output Connector | J2 | Pin 1, 2, 3 V1 +VE Pin 4, 5, 6 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 FAN +VE Pin 2 FAN -VE | AMP: 640456-2 Mating: 640440-2 |

¹⁰ Fusing on neutral for ITE model is optional.

8. MECHANICAL SPECIFICATIONS

| PARAMETER | DESCRIPTION / CONDITION |
|------------|---|
| Weight | approx. 200 g |
| Dimensions | 101.6 x 50.8 x 19.05 mm (4 x 2 x 0.75 in) |

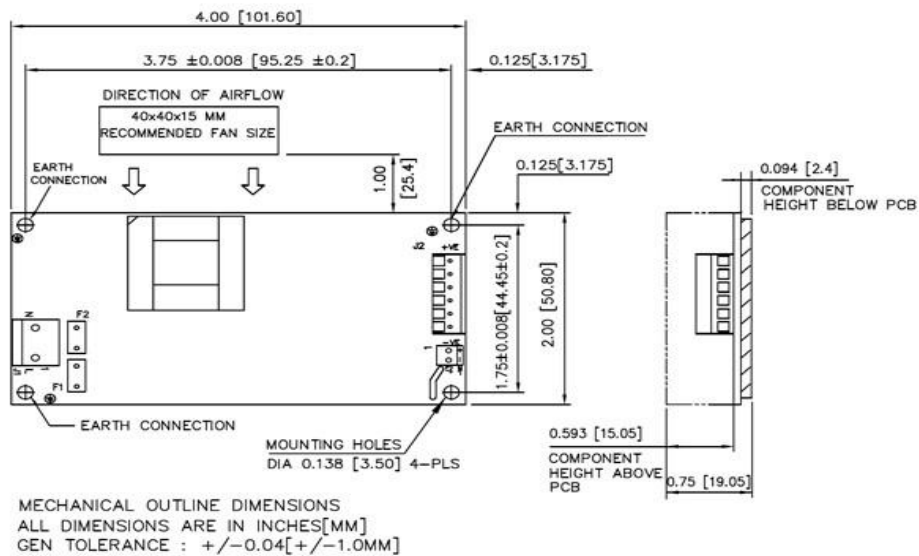


Figure 2. Mechanical Drawing – Option 1 (Output Connector – Screw Terminal)

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.

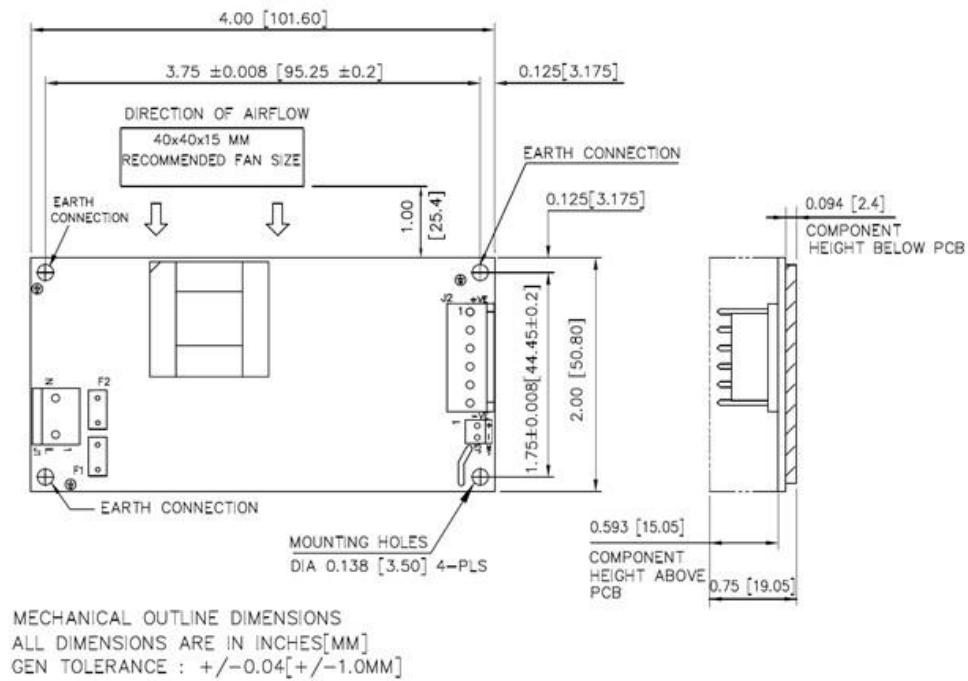
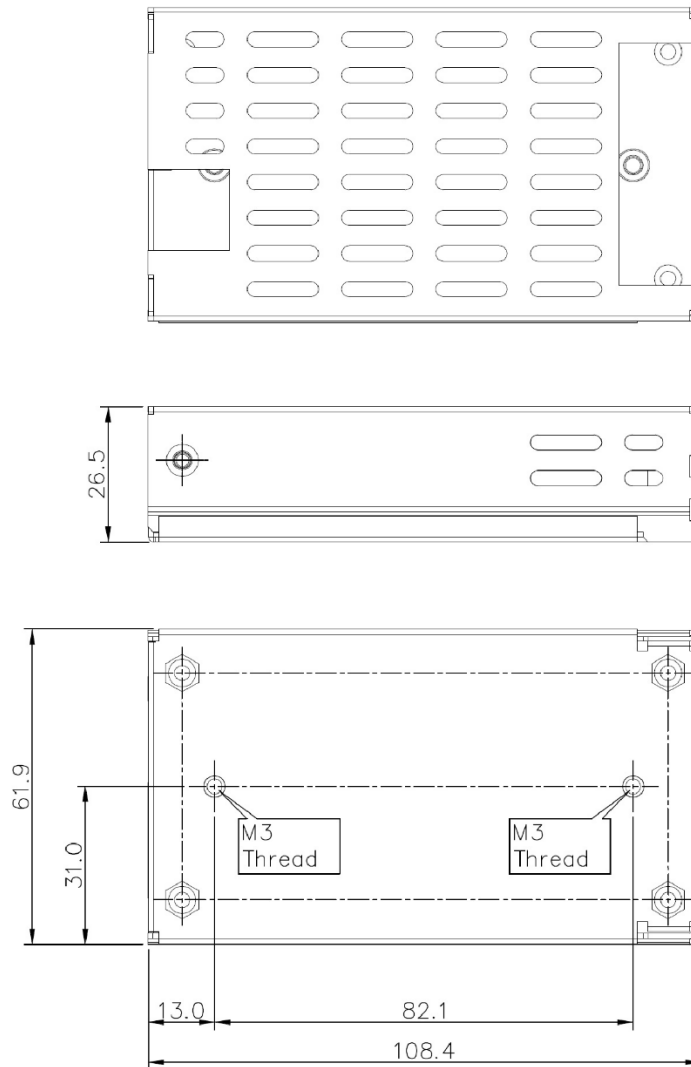


Figure 3. Mechanical Drawing – Option 2 (Output Connector – Header Molex)

NOTES: In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following:

- 4 Stand off, used to mount PCB has OD of 5.4 mm max.
- 5 Screws, used to fix PCB on stand off, have head dia of 6.0 mm max.
- 6 Washer, if used, to have dia of 6.5 mm max.



MECHANICAL OUTLINE DIMENSIONS
ALL DIMENSIONS ARE IN MM.
GEN. TOLERANCE: ±1.0 mm

Figure 4. Mechanical Drawing – Cover Kit Option

For more information on these products consult: tech.support@psbel.com

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