

# ABC150 Series

## Open Frame Power Supplies

The ABC150 Series of open-frame power supplies, with its wide universal 90 - 264 VAC input range and high power density, is available at 150 W of output power and a variety of 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.

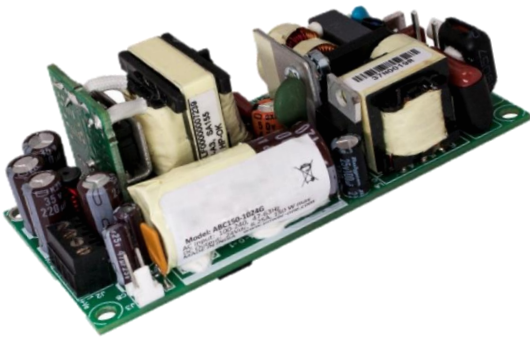
These power supplies are ideal for telecom, datacom, industrial equipment and other applications.

### Key Features & Benefits

- 4 x 2 x 1.3 Inch Form Factor
- 150 W with Forced-Air Cooling
- 12 V @ 0.5 A fan voltage auxiliary output
- High Efficiency > 86%
- Low conducted and radiated noise
- Light weight
- IEC Protection Class Options:
  - Class I: Earthing Tab J4 (no suffix)
  - Class II: No Earthing Tab (-2 suffix)
- Cover Kit Accessory Available
- RoHS Compliant

### Applications

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



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## 1. MODEL SELECTION

| MODEL <sup>1</sup>         | CONNECTOR                 | OUTPUT VOLTAGE | MAX LOAD CONVECTION <sup>2</sup> | MAX LOAD 300 LFM <sup>2,3,4</sup> | MINIMUM LOAD | RIPPLE & NOISE <sup>5</sup> |
|----------------------------|---------------------------|----------------|----------------------------------|-----------------------------------|--------------|-----------------------------|
| ABC150-1005G               | JST                       | 5 VDC          | 16.0 A                           | 16.0 A                            | 0.0 A        | 1%                          |
| ABC150-1T05G               | Screw Terminal            | 5 VDC          | 16.0 A                           | 20.0 A                            | 0.0 A        | 1%                          |
| ABC150-1012G               | JST                       | 12 VDC         | 8.33 A                           | 12.5 A                            | 0.0 A        | 1%                          |
| ABC150-1T12G               | Screw Terminal            | 12 VDC         | 8.33 A                           | 12.5 A                            | 0.0 A        | 1%                          |
| ABC150-1015G               | JST                       | 15 VDC         | 6.67 A                           | 10.0 A                            | 0.0 A        | 1%                          |
| ABC150-1T15G               | Screw Terminal            | 15 VDC         | 6.67 A                           | 10.0 A                            | 0.0 A        | 1%                          |
| ABC150-1024G               | JST                       | 24 VDC         | 4.17 A                           | 6.25 A                            | 0.0 A        | 1%                          |
| ABC150-1T24G               | Screw Terminal            | 24 VDC         | 4.17 A                           | 6.25 A                            | 0.0 A        | 1%                          |
| ABC150-1048G               | JST                       | 48 VDC         | 2.08 A                           | 3.13 A                            | 0.0 A        | 1%                          |
| ABC150-1T48G               | Screw Terminal            | 48 VDC         | 2.08 A                           | 3.13 A                            | 0.0 A        | 1%                          |
| COVER-201-XBC <sup>6</sup> | 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:<br>230 VAC:                                      | 1.7 A max.<br>0.85 A max.                                    |
| No Load Power       |                                                           | 1.2 W                                                        |
| Inrush Current      | 120 VAC:<br>230 VAC:                                      | 35 A max.<br>65 A max.                                       |
| Leakage Current     | 120 VAC:<br>230 VAC:                                      | < 150 µA<br>< 300 µA                                         |
| Power Factor        | 120 VAC:<br>230 VAC:                                      | 0.99<br>0.95                                                 |
| Switching Frequency | PFC converter (variable)<br>Resonant converter (variable) | 35 - 250 kHz, 90 kHz typical<br>35 - 250 kHz, 90 kHz typical |

<sup>1</sup> For Class II (without input Earth pin) add suffix -2 (e.g.: ABC150-1012G-2).

<sup>2</sup> Combined output power from V1, VSTBY and VFAN should not exceed the total output power rating.

<sup>3</sup> Fan output voltage tolerance is +/-20%.

<sup>4</sup> Peak current for fan output is 1 A.

<sup>5</sup> 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.

<sup>6</sup> When used in Cover Kit, de-rate output power to 70 % under all operating conditions.

### 3. OUTPUT SPECIFICATIONS

| PARAMETER                | DESCRIPTION / CONDITION                                                                       | SPECIFICATION                  |
|--------------------------|-----------------------------------------------------------------------------------------------|--------------------------------|
| Output Power             | Derate output power linearly to 80% from 90 VAC to 80 VAC input<br>Peak Power 170 W for 0.2 s | 150 W                          |
| Efficiency               | 120 VAC:<br>230 VAC:                                                                          | 84% typical<br>86% typical     |
| Hold Up Time             | 120 VAC:<br>230 VAC:                                                                          | 6 ms<br>10 ms                  |
| Line Regulation          |                                                                                               | +/-0.5%                        |
| Load Regulation          |                                                                                               | +/-2.0%                        |
| Transient Response       | Main output 50 to 100% load change,<br>50 Hz, 50% duty cycle, 0.1A / $\mu$ s                  | < 10%,<br>recovery time < 5 ms |
| Rise Time                |                                                                                               | < 100 ms                       |
| Set Point Accuracy       | Main output                                                                                   | $\pm$ 1%                       |
| Voltage Adjustment       | V1                                                                                            | $\pm$ 3 %                      |
| Over Current Protection  |                                                                                               | 110% typical above rating      |
| Over Voltage Protection  | V1                                                                                            | 110 to 150%                    |
| Short Circuit Protection | Short term, Automatic recovery                                                                |                                |

### 4. ENVIRONMENTAL SPECIFICATIONS

| PARAMETER             | DESCRIPTION / CONDITION                            | SPECIFICATION                                      |
|-----------------------|----------------------------------------------------|----------------------------------------------------|
| Operating Temperature | Refer to derating curves<br>Start-up is guaranteed | -20 to 70°C<br>-20 to 0°C                          |
| Storage Temperature   |                                                    | -40 to 70° C                                       |
| Cooling               | 5 V model<br>Other models                          | Convection:<br>300 LFM:<br>Convection:<br>300 LFM: |
| Humidity              | Non Condensing                                     | 80 W<br>100 W<br>100 W<br>150 W                    |
| Altitude              | Operating:<br>Non-Operating:                       | 95%<br>10,000 ft.<br>40,000 ft.                    |
| Reliability           | MTBF according to Telcordia -SR332-Issue 3         | 2.4 million hours                                  |

### 5. EMC SPECIFICATIONS

| PARAMETER                          | DESCRIPTION / CONDITION                                                        | SPECIFICATION        |
|------------------------------------|--------------------------------------------------------------------------------|----------------------|
| Conducted Emissions                | EN55032-B, CISPR22-B, FCC PART15-B                                             | Pass                 |
| Radiated Emissions                 | EN 55032 A;<br>with external core (King core K5B RC 25x12x15-M in input cable) | Pass<br>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      |

## 6. SAFETY SPECIFICATIONS

| PARAMETER         | DESCRIPTION / CONDITION                                                                               | SPECIFICATION |
|-------------------|-------------------------------------------------------------------------------------------------------|---------------|
| Isolation Voltage | Input to Output:                                                                                      | Min. 4242 VDC |
| Safety Standards  | Approved to the latest edition of the following standards:<br>CSA/UL60950-1, EN60950-1 and IEC60950-1 |               |
| 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                   | AC Line             |
|                     |     | Pin 2                   | AC Neutral          |
| DC Output Connector | J2  | Pin 1,2                 | V1                  |
|                     |     | Pin 3,4                 | RTN                 |
| Fan                 | J3  | Pin 1                   | VFAN (12 V / 0.5 A) |
|                     |     | Pin 2                   | RTN                 |
| Earthing Tab        | J4  |                         |                     |

## 8. MECHANICAL SPECIFICATIONS

| PARAMETER  | DESCRIPTION / CONDITION                       |
|------------|-----------------------------------------------|
| Weight     | 150 g (0.33 lbs.)                             |
| Dimensions | 101.6 x 50.8 x 33.6 mm (4.0 x 2.0 x 1.3 inch) |

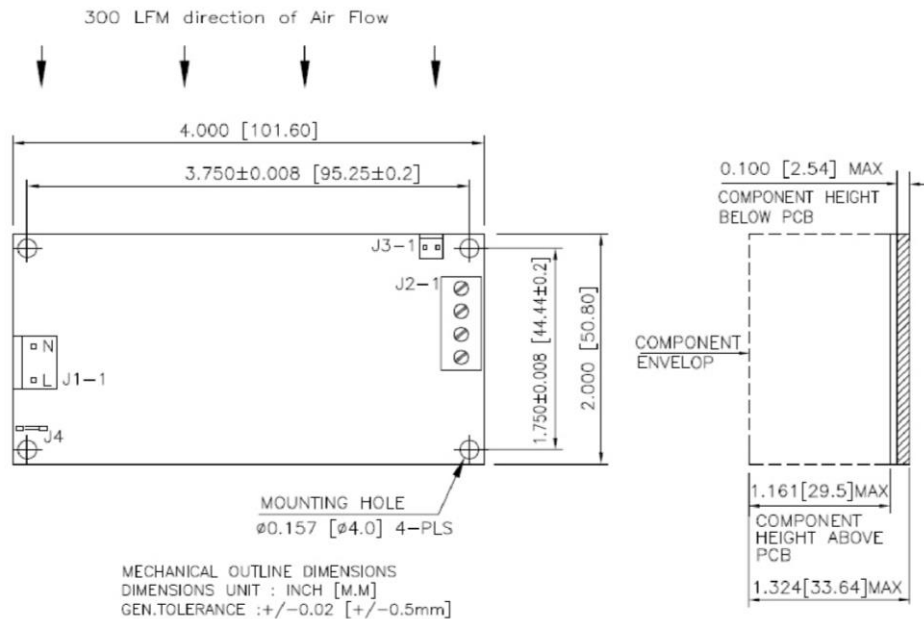
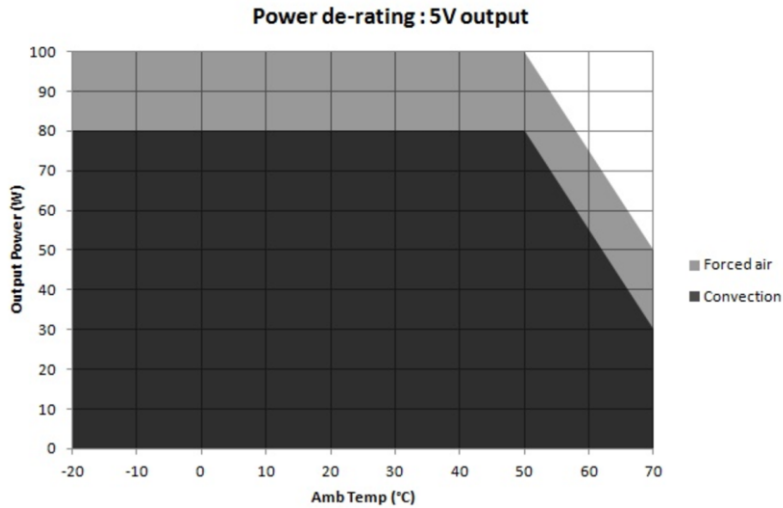


Figure 1 - Mechanical Drawing

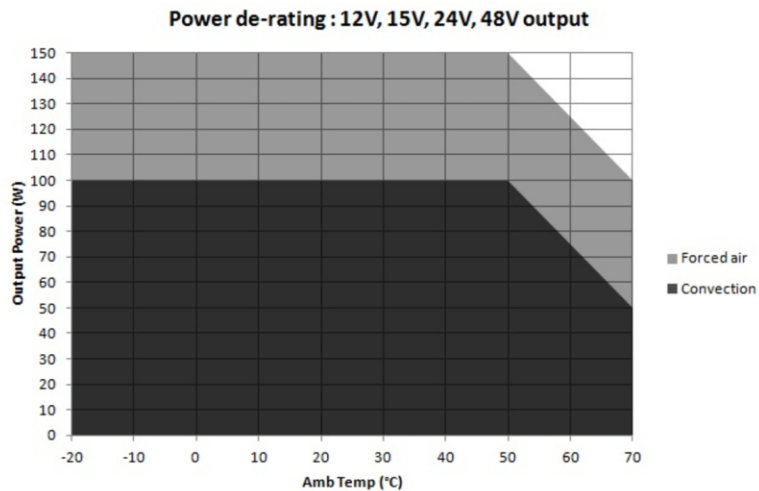
**NOTES:** In case the PCB is mounted in a metal enclosure, using metal hardware ensure the following:

- 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.



Convection load: 80 W up to 50 °C  
De-rate above 50 °C @ 3.125% per °C

Forced air cooled load: 100W up to 50°C  
De-rate above 50 °C @ 2.5% per °C



Convection load: 100 W up to 50 °C  
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load : 150 W up to 50°C  
De-rate above 50 °C @ 1.67% per °C

Figure 2. Derating Curves

**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.