

# ABC350 Series

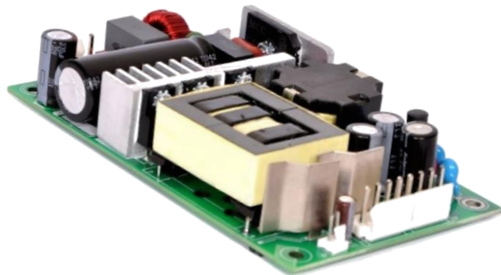
## Low Profile Open Frame Power Supplies

Not For New Design  
Please refer to exact equivalent product series  
**WLP350**

The ABC350 Series of open frame power supplies feature a wide universal AC input range of 90 – 264 VAC, offering 350 W of output power in a compact 3 x 5 x 1 inch 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 telecom, datacom, industrial equipment and other applications.



### Key Features & Benefits

- 3 x 5 x 1 Inch Form Factor
- 350 W with Forced Air Cooling & 200 W with Convection Cooling
- Efficiencies up to 94%
- No Load Power < 0.5 W
- -40 to 70°C Operating Temperature
- 12 V / 0.5 A Fan Output, Thermal Shut-Down Feature
- 2.56 Million Hours, Telcordia -SR332-Issue 3 MTBF
- IEC/EN/UL 62368-1:2018 (Ed 3.0) Certified
- IEC/EN 61558 Compliant (Suitable for Household and Similar electrical equipment certified under IEC/EN 60335-1 standards)
- CCC (China Compulsory Certification approval)
- Approved with metal enclosures/accessories
- RoHS Compliant

### Applications

- |                           |                          |
|---------------------------|--------------------------|
| ▪ Instrumentation         | ▪ Renewable Energy       |
| ▪ Lighting                | ▪ Test and Measurement   |
| ▪ Industrial Applications | ▪ Automation Control     |
| ▪ Applied Computing       | ▪ Wireless Communication |

## 1. MODEL SELECTION

| MODEL NUMBER <sup>1</sup>  | DESCRIPTION                 | VOLTAGE | MAX. LOAD<br>(CONVECTION) | MAX. LOAD<br>(375 LFM) | POWER |
|----------------------------|-----------------------------|---------|---------------------------|------------------------|-------|
| ABC350-1T12L               | Screw Terminal              | 12 V    | 15 A                      | 25 A                   | 300 W |
| ABC350-1012L <sup>2</sup>  | Molex Connector             |         |                           | 18.75 A                | 225 W |
| ABC350-1T15L               | Screw Terminal              | 15 V    | 12 A                      | 21.67 A                | 325 W |
| ABC350-1015L <sup>2</sup>  | Molex Connector             |         |                           | 18. A                  | 270 W |
| ABC350-1T24L               | Screw Terminal              | 24 V    | 8.33 A                    | 14.60 A                | 350 W |
| ABC350-1024L               | Molex Connector             |         |                           |                        |       |
| ABC350-1T30L               | Screw Terminal              | 30 V    | 6.67 A                    | 11.67 A                | 350 W |
| ABC350-1030L               | Molex Connector             |         |                           |                        |       |
| ABC350-1T48L               | Screw Terminal              | 48 V    | 4.17 A                    | 7.30 A                 | 350 W |
| ABC350-1048L               | Molex Connector             |         |                           |                        |       |
| ABC350-1T58L               | Screw Terminal              | 58 V    | 3.45 A                    | 6.04 A                 | 350 W |
| ABC350-1058L               | Molex Connector             |         |                           |                        |       |
| COVER-350-XBC <sup>3</sup> | Metal cover kit (accessory) |         |                           |                        |       |

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

<sup>2</sup> Models ABC350-1012L and ABC350-1015L do not have CCC approval

<sup>3</sup> 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<br>(Derate from 100% at 100 VAC to 90% at 90 VAC) | 90-264 VAC / 390 VDC        |
| Input Frequency     |                                                             | 47 - 63 Hz                  |
| Input Current       | 115 VAC:<br>230 VAC:                                        | 3.6 A max.<br>1.8 A max.    |
| No Load Power       | Typical                                                     | >0.5 W                      |
| Inrush Current      | 115 VAC:<br>230 VAC:<br>264 VAC:                            | 25 A<br>45 A<br>75 A        |
| Leakage Current     | Typical                                                     | 300 µA                      |
| Power Factor        | Full Load                                                   | > 0.95                      |
| Switching Frequency | PFC:<br>PWM:                                                | 70 - 130 KHz<br>50 - 80 KHz |

### 3. OUTPUT SPECIFICATIONS

| PARAMETER                        | DESCRIPTION / CONDITION                                                                                  | SPECIFICATION                     |
|----------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------|
| Output Voltage                   |                                                                                                          | 12 to 58 V                        |
| Output Power <sup>4</sup>        | With 375 LFM:<br>Convection:                                                                             | 350 W<br>200 W                    |
| Output Adjustment                |                                                                                                          | +/-3%                             |
| Hold-up Time                     | Full Load:<br>Convection Load:                                                                           | > 8 ms typical<br>> 14 ms typical |
| Efficiency                       | 48 V, 58 V:<br>24 V, 30 V:<br>12 V, 15 V:                                                                | 94%<br>93%<br>92%                 |
| Line Regulation <sup>6</sup>     |                                                                                                          | +/-0.5%                           |
| Load Regulation <sup>6</sup>     |                                                                                                          | +/-1%                             |
| Minimum Load                     |                                                                                                          | 0.0 A                             |
| Transient Response               | 50-100% step load change, at 0.1A/ $\mu$ S slew rate,<br>50% duty cycle, 50 Hz = 5% ,                    | recovery time < 5 ms              |
| Ripple <sup>5, 6</sup>           | For all outputs                                                                                          | 1.0 % max                         |
| Rise Time                        | Typical                                                                                                  | 55 ms                             |
| Set Point Tolerance <sup>6</sup> |                                                                                                          | +/-1%                             |
| Over Current Protection          | Hiccup mode / Auto Recovery                                                                              | >110%                             |
| Over Voltage Protection          | Hiccup mode / Auto Recovery                                                                              | 110 to 140%                       |
| Short Circuit Protection         | Hiccup mode / Auto Recovery                                                                              |                                   |
| Cooling                          | With 375 LFM forced air cooling at 100 to 264 VAC:<br>With natural convection cooling at 100 to 264 VAC: | 350 W<br>200 W                    |

<sup>4</sup> Combined output power of main output, fan supply shall not exceed max. power rating.

<sup>5</sup> Ripple is peak to peak with 20 MHz bandwidth and 10  $\mu$ F (Electrolytic capacitor) in parallel with a 0.1  $\mu$ F capacitor at rated line voltage and load ranges.

<sup>6</sup> Fan supply output voltage tolerance including set point accuracy, line and load regulation is +/-10 % and ripple and noise is less than 10 %.

### 4. 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 4, 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      |

## 5. SAFETY SPECIFICATIONS

| PARAMETER         | DESCRIPTION / CONDITION                                                                                                                                                                                                                                                                                                                                                  | SPECIFICATION        |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Isolation Voltage | Input to Output: for ITE application<br>Input to GND:                                                                                                                                                                                                                                                                                                                    | 3000 VAC<br>1500 VAC |
| Safety Standards  | IEC 62368-1:2018, IEC 61558-1:2005, IEC 61558-1:2005/AMD1:2009, IEC 61558-2-16:2009, IEC 61558-2-16:2009 /AMD1:2013, IEC 60950-1(ed.2); am1; am2, EN 61558-2-16:2009; A1, EN 61558-1:2005; A1, EN 60950-1:2006; A11; A1; A12; A2, UL 62368-1 and CAN/CSA C22.2 No. 62368-1:19<br>UL 60950-1 and CAN/CSA C22.2 No. 60950-1-07, GB4943.1-2011; GB9254-2008; GB17625.1-2012 |                      |
| Agency Approvals  | Nemko, UL, C-UL, CCC                                                                                                                                                                                                                                                                                                                                                     |                      |
| CE mark           | Complies with LVD Directive                                                                                                                                                                                                                                                                                                                                              |                      |

## 6. ENVIRONMENTAL SPECIFICATIONS

| PARAMETER                          | DESCRIPTION / CONDITION                                         | SPECIFICATION            |
|------------------------------------|-----------------------------------------------------------------|--------------------------|
| Operating Temperature <sup>7</sup> | -40 to 0°C startup guaranteed, with spec deviation <sup>8</sup> | -40 to +70°C             |
| Storage Temperature                |                                                                 | -40 to 85° C             |
| Altitude                           | Operating:<br>Non-operating:                                    | 16,000 ft.<br>40,000 ft. |
| Humidity                           | Non-Condensing                                                  | 5% to 95%                |
| Reliability                        | MTBF according to Telcordia - SR332-Issue 3                     | 2.56 million hours       |

<sup>7</sup> Thermal shutdown feature: The power supply goes in hiccup mode when the temperature of PCB exceeds 110 °C (+/-10 °C).

<sup>8</sup> Output ripple can be more than 10% of the output voltage.

## 7. CONNECTOR & PIN DESCRIPTION

| CONNECTOR           | PIN | DESCRIPTION / CONDITION                                                                                                               | MANUFACTURER / PN                                                                                                                                              |
|---------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Input Connector  | J1  | Pin 1 AC Line<br>Pin 2 Not Fitted<br>Pin 3 AC Neutral                                                                                 | Molex: 26-60-4030<br>Mating: 09-50-3031; Pins: 08-50-0106                                                                                                      |
| DC Output Connector | J2  | Screw Terminal (Option 1)<br>Molex Connector (Option 2)<br>Pin 1 V1 +VE<br>Pin 2 V1 - VE<br>Pin 1,2,3,4 V1 +VE<br>Pin 5,6,7,8 V1 - VE | 6-32 inches Screw Pan HD<br>Mating: 16 AWG wire crimped to Ring<br>Tongue Terminal AMP: 8-31886-1<br>Molex: 26-60-4080<br>Mating: 09-50-3081; Pins: 08-50-0106 |
| Aux (Fan) Output    | J3  | Pin 1 FAN +VE<br>Pin 2 FAN -VE                                                                                                        | AMP :640456-2<br>Mating: 640440-2                                                                                                                              |
| Earth               | J4  |                                                                                                                                       | Molex: 19705-4301<br>Mating: 19003-0001                                                                                                                        |

## 8. MECHANICAL SPECIFICATIONS

| PARAMETER  | DESCRIPTION / CONDITION                 |
|------------|-----------------------------------------|
| Weight     | 300 g                                   |
| Dimensions | 76.2 x 127.0 x 25.4 mm (3 x 5 x 1 inch) |

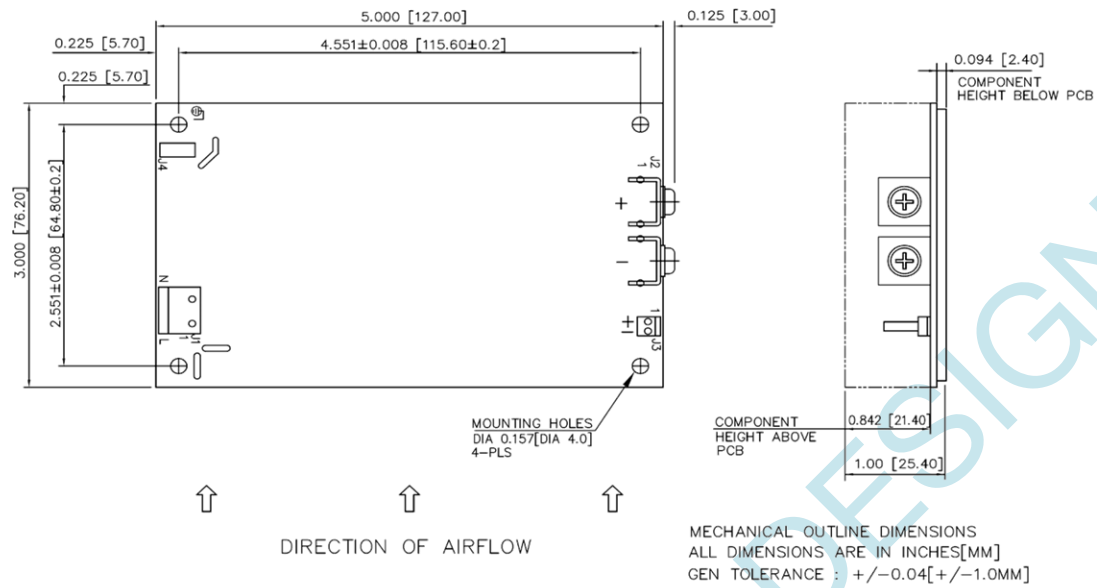


Figure 1. Mechanical Drawing - Screw Terminal (Option 1)

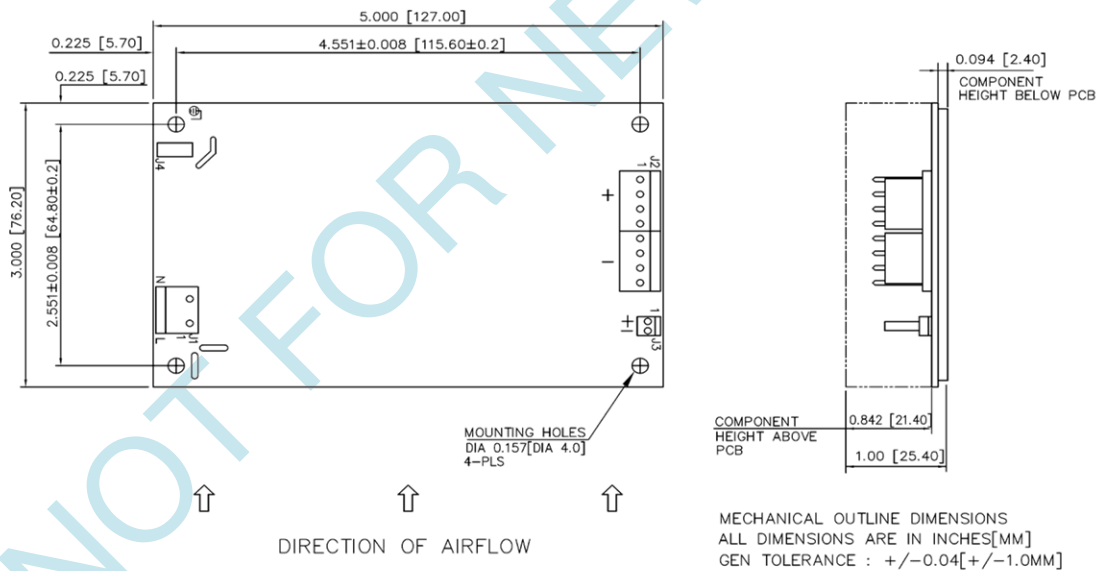


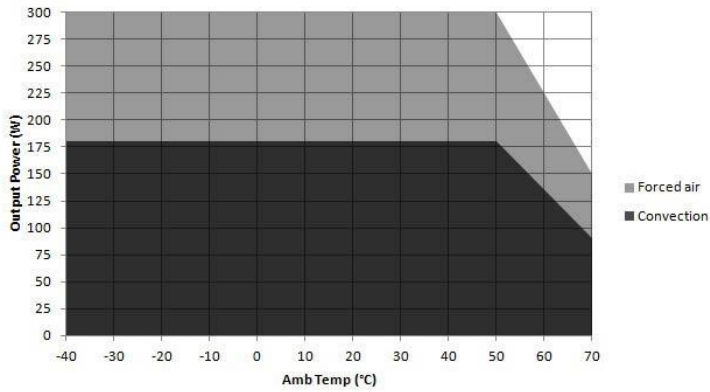
Figure 2. Mechanical Drawing - Molex Header (Option 2)

**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.

## 9. POWER DERATING CURVES

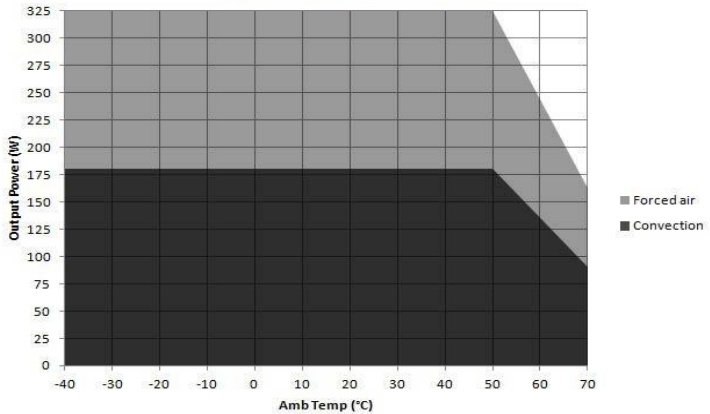
Power de-rating : 12V output



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

Forced air cooled load: 300 W up to 50°C  
De-rate above 50 °C @ 2.5% per °C

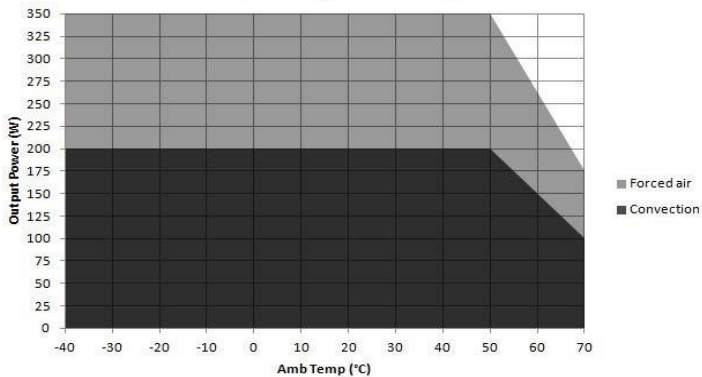
Power de-rating : 15V output



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

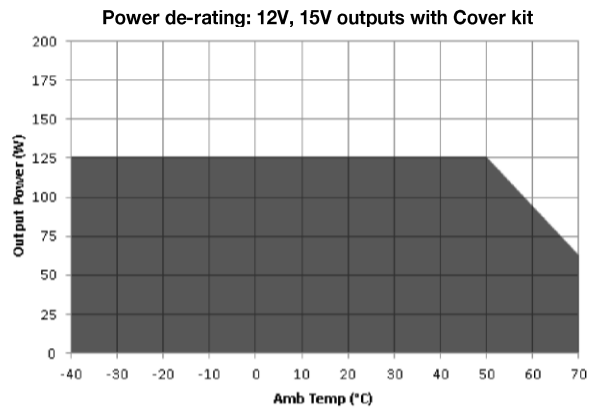
Forced air cooled load: 325 W up to 50°C  
De-rate above 50 °C @ 2.5% per °C

Power de-rating : 24V, 30V, 48V, 58V

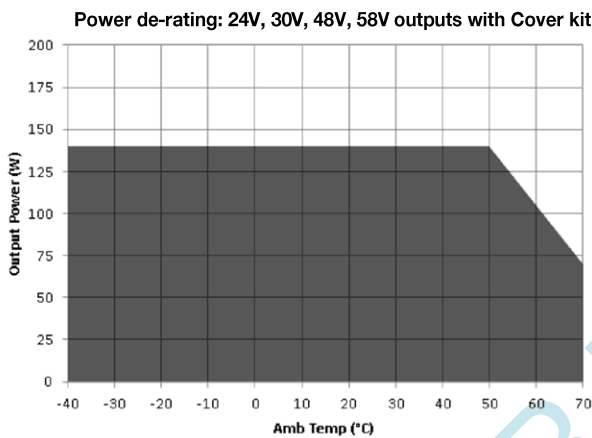


Convection load: 200 W up to 50 °C  
De-rate above 50 °C @ 2.5% per °C

Forced air cooled load: 350 W up to 50°C  
De-rate above 50 °C @ 2.5% per °C



Convection load: 126 W up to 50 °C  
De-rate above 50 °C @ 2.5% per °C



Convection load: 140W up to 50 °C  
De-rate above 50 °C @ 2.5% per °C

**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.



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