**LDB-L Series**

**DC-DC Constant Current Buck-Boost LED driver**

**Features:**
- DC/DC buck-boost converter
- Constant current output: 300mA to 600mA
- Wide input voltage: 9 ~ 36VDC
- Wide output LED string voltage: 2 ~ 40VDC
- High efficiency up to 91%
- Built-in EMI filter, comply with EN55015 and FCC part15 without additional input filter and capacitors
- Built-in PWM and remote ON/OFF control
- Protections: Short circuit / Over temperature
- Cooling by free air convection
- Fully encapsulated with IP67 level
- Compact size
- Low cost, high reliability
- Suitable for driving illumination LED
- 3 years warranty

### SPECIFICATION

<table>
<thead>
<tr>
<th>ORDER NO.</th>
<th>CURRENT RANGE</th>
<th>VOLTAGE RANGE</th>
<th>CURRENT ACCURACY (Typ.)</th>
<th>RIPPLE &amp; NOISE (max.)</th>
<th>SWITCHING FREQUENCY</th>
<th>EXTERNAL CAPACITANCE LOAD (max.)</th>
<th>VOLTAGE RANGE</th>
<th>EFFICIENCY (max.)</th>
<th>PWM FREQUENCY</th>
<th>DIMMING &amp; ON/OFF CONTROL</th>
<th>PROTECTION</th>
<th>ENVIRONMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDB-300L</td>
<td>300mA</td>
<td>2 ~ 40VDC</td>
<td>±4%</td>
<td>150mVp-p</td>
<td>350KHz</td>
<td>10uF</td>
<td>9 ~ 36VDC</td>
<td>89%</td>
<td>1kHz</td>
<td>Leave open if not use</td>
<td>Regulated at rated output current</td>
<td>±0.03% / ℃</td>
</tr>
<tr>
<td>LDB-350L</td>
<td>350mA</td>
<td>2 ~ 40VDC</td>
<td>±4%</td>
<td>150mVp-p</td>
<td>350KHz</td>
<td>10uF</td>
<td>9 ~ 36VDC</td>
<td>89%</td>
<td>1kHz</td>
<td>Power ON with dimming: DIM ~ Vin &gt; 2 ~ 10VDC or open circuit</td>
<td>Protection type: Can be continued, recovers automatically after fault condition is removed</td>
<td>-55 ~ +125℃, 10 ~ 95% RH</td>
</tr>
<tr>
<td>LDB-500L</td>
<td>500mA</td>
<td>2 ~ 32VDC</td>
<td>±4%</td>
<td>150mVp-p</td>
<td>350KHz</td>
<td>10uF</td>
<td>9 ~ 30VDC</td>
<td>89%</td>
<td>1kHz</td>
<td>Power OFF : DIM ~ Vin &lt; 0.5VDC or short</td>
<td>Protection type: Shut down, recovers automatically after temperature goes down</td>
<td>±0.03% / ℃</td>
</tr>
<tr>
<td>LDB-600L</td>
<td>600mA</td>
<td>2 ~ 30VDC</td>
<td>±4%</td>
<td>200mVp-p</td>
<td>350KHz</td>
<td>10uF</td>
<td>9 ~ 28VDC</td>
<td>87%</td>
<td>1kHz</td>
<td>1mA at PWM dimming OFF and 24VDC input</td>
<td>1mA at PWM dimming OFF and 24VDC input</td>
<td>100 ~ 1000Hz</td>
</tr>
</tbody>
</table>

**EMC**
- Compliance to EN55015, FCC part 15 class B
- Compliance to EN61000-4-2,3,4,6,8, light industry level, criteria A

**Others**
- MTBF: 2000000hrs min. MIL-HDBK-217F (25℃)
- Dimension: 31.8°x20.3°x12.2mm or 1.25°x0.8°x0.48° inch (L"W"H)
- Weight: LDB-L.15.6g; LDB-LW.18g
- Potting Material: Exopy(UL94-V0)

**NOTE**
1. All parameters are specified at normal input (24VDC), rated load, 25℃, 70% RH ambient.
2. Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf capacitor.
## Mechanical Specification

**Blank type (LDB – _L):**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Output</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2</td>
<td>-Vin</td>
<td>Don’t connect to -Vout</td>
</tr>
<tr>
<td>11, 12</td>
<td>-Vout</td>
<td>LED - Connection</td>
</tr>
<tr>
<td>13, 14</td>
<td>+Vout</td>
<td>LED + Connection</td>
</tr>
<tr>
<td>21</td>
<td>PWM DIM</td>
<td>ON/OFF and PWM Dimming (Leave open if not used)</td>
</tr>
<tr>
<td>23, 24</td>
<td>+Vin</td>
<td>DC Supply</td>
</tr>
</tbody>
</table>

**W type (LDB – _LW):**

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Output</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-Vin (Black)</td>
<td>Don’t connect to -Vout</td>
</tr>
<tr>
<td>11</td>
<td>-Vout (Blue)</td>
<td>LED - Connection</td>
</tr>
<tr>
<td>14</td>
<td>+Vout (Yellow)</td>
<td>LED + Connection</td>
</tr>
<tr>
<td>21</td>
<td>PWM DIM (White)</td>
<td>ON/OFF and PWM Dimming (Leave open if not used)</td>
</tr>
<tr>
<td>23</td>
<td>+Vin (Red)</td>
<td>DC Supply</td>
</tr>
</tbody>
</table>

**NOTE:** Pin tolerance ±0.05mm

**NOTE:** All wires UL3385 22AWG

## Pin Configuration

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## Derating Curve

- 69°C for 300/500mA
- 71°C for 500/600mA

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File Name: LDB-L-SPEC   2014-10-09
### Standard Application

![Diagram showing PWM dimming control](image)

- **PWM Dimming Control**
  - **PWM Signal**: H(5V) ON, L(0V) OFF, Max
  - **Output Current**: 0

- **Output Voltage(LEDs)**
  - **PWM Dimming Operation**: Output current will change to PWM style.
  - **Non-Linear, Tol: 4%(Typ.)**

- **H**: >2~10VDC or open circuit
- **L**: <0.5VDC or short

- **PWM Dimming Control**
  - **PWM Signal**: ON
  - **Output Voltage**: H(5V) Max, L(0V) OFF

### Efficiency VS Output Voltage(Number of LEDs)

- **Fig-1**: LDB-300L
  - **Output Voltage(LEDs)**: 5V, 12V, 24V, 36V
  - **Efficiency (%)**: 50% to 95%

- **Fig-2**: LDB-350L
  - **Output Voltage(LEDs)**: 12V, 24V, 36V
  - **Efficiency (%)**: 50% to 95%

- **Fig-3**: LDB-500L
  - **Output Voltage(LEDs)**: 12V, 24V, 36V
  - **Efficiency (%)**: 50% to 95%

- **Fig-4**: LDB-600L
  - **Output Voltage(LEDs)**: 12V, 24V, 36V
  - **Efficiency (%)**: 50% to 95%

- **Non-Linear, Tol: 4%(Typ.)**

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