**APL2107LVBC/D**

2.1 x 0.6 mm Right Angle Surface LED Lamp

**DESCRIPTIONS**
- The Blue source color devices are made with InGaN Light Emitting Diode
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

**FEATURES**
- 2.1 x 1.0 x 0.6 mm right angle SMD LED, 0.6 mm thickness
- Low power consumption
- Wide viewing angle
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Tinned pads for improved solderability
- Halogen-free
- RoHS compliant

**APPLICATIONS**
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

**ATTENTION**
Observe precautions for handling electrostatic discharge sensitive devices

**PACKAGE DIMENSIONS**

```
Part Number Emitter Color (Material) Lens Type  I_v (mcd) @ 2mA [2] Viewing Angle [3]
APA2107LVBC/D Blue (InGaN) Water Clear 10 20 170°
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Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1 (0.004") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.
5. For right angle SMD LEDs, the solder stencil should be at least 5mil in thickness, to prevent poor soldering due to insufficient solder paste.

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### ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Emitting Color</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength at Peak Emission $I_F = 2mA$</td>
<td>$\lambda_{\text{peak}}$</td>
<td>Blue</td>
<td>-</td>
<td>465</td>
</tr>
<tr>
<td>Dominant Wavelength $I_F = 2mA$</td>
<td>$\lambda_{\text{dom}}^{[1]}$</td>
<td>Blue</td>
<td>-</td>
<td>470</td>
</tr>
<tr>
<td>Spectral Bandwidth at 50% $\Phi$ REL MAX $I_F = 2mA$</td>
<td>$\Delta \lambda$</td>
<td>Blue</td>
<td>-</td>
<td>22</td>
</tr>
<tr>
<td>Capacitance</td>
<td>$C$</td>
<td>Blue</td>
<td>-</td>
<td>100</td>
</tr>
<tr>
<td>Forward Voltage $I_F = 2mA$</td>
<td>$V_F^{[2]}$</td>
<td>Blue</td>
<td>2.2</td>
<td>2.65</td>
</tr>
<tr>
<td>Reverse Current ($V_R = 5V$)</td>
<td>$I_R$</td>
<td>Blue</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Temperature Coefficient of $\lambda_{\text{peak}}$ $I_F = 2mA, -10^\circ C \leq T \leq 85^\circ C$</td>
<td>$T C_{\lambda_{\text{peak}}}$</td>
<td>Blue</td>
<td>-</td>
<td>0.04</td>
</tr>
<tr>
<td>Temperature Coefficient of $\lambda_{\text{dom}}$ $I_F = 2mA, -10^\circ C \leq T \leq 85^\circ C$</td>
<td>$T C_{\lambda_{\text{dom}}}$</td>
<td>Blue</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>Temperature Coefficient of $V_F$ $I_F = 2mA, -10^\circ C \leq T \leq 85^\circ C$</td>
<td>$T C_{V_F}$</td>
<td>Blue</td>
<td>-</td>
<td>-2.9</td>
</tr>
</tbody>
</table>

Notes:
1. The dominant wavelength ($\lambda_{d}$) above is the setup value of the sorting machine. (Tolerance $\lambda_{d} : \pm 1\text{nm}$.)
2. Forward voltage: ±0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

### ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation</td>
<td>$P_D$</td>
<td>120</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>115</td>
<td>$^\circ C$</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{op}$</td>
<td>-40 to +85</td>
<td>$^\circ C$</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{slg}$</td>
<td>-40 to +85</td>
<td>$^\circ C$</td>
</tr>
<tr>
<td>DC Forward Current</td>
<td>$I_F$</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>Peak Forward Current</td>
<td>$I_{FM}^{[1]}$</td>
<td>100</td>
<td>mA</td>
</tr>
<tr>
<td>Electrostatic Discharge Threshold (HBM)</td>
<td></td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td>Thermal Resistance (Junction / Ambient)</td>
<td>$R_{th JA}^{[2]}$</td>
<td>250</td>
<td>$^\circ C/W$</td>
</tr>
<tr>
<td>Thermal Resistance (Junction / Solder point)</td>
<td>$R_{th JS}^{[2]}$</td>
<td>490</td>
<td>$^\circ C/W$</td>
</tr>
</tbody>
</table>

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. $R_{th JA}, R_{th JS}$ Results from mounting on PC board FR4 (pad size ≥ 16 mm$^2$ per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

- Ta = 25 °C

SPATIAL DISTRIBUTION

- Ta = 25 °C

BLUE

Forward Current vs. Forward Voltage
- Ta = 25 °C

Luminous Intensity vs. Forward Current
- Ta = 25 °C

Forward Current Derating Curve

Luminous Intensity vs. Ambient Temperature

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

TAPE SPECIFICATIONS (units : mm)

REEL DIMENSION (units : mm)

Notes:
1. Don’t cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times.
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.
PACKING & LABEL SPECIFICATIONS

PRECAUTIONARY NOTES
1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
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