DESCRIPTIONS

- The Orange source color devices are made with AlGaInP 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

- 3.0 mm x 2.0 mm SMD LED, 2.8 mm thickness
- Low power consumption
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Tinned pads for improved solderability
- 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

<table>
<thead>
<tr>
<th>APDA3020SECK/J4-PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0 x 2.0 mm Right Angle SMD LED</td>
</tr>
</tbody>
</table>

RECOMMENDED SOLDERING PATTERN

(Units: mm; tolerance: ± 0.1)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Emitting Color (Material)</th>
<th>Lens Type</th>
<th>$I_v (mcd) @ 20mA$</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>APDA3020SECK/J4-PF</td>
<td>Super Bright Orange (AlGaInP)</td>
<td>Water Clear</td>
<td>22000</td>
<td>10°</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>28000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*7000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*9000</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.2(0.008") 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.

SELECTION GUIDE

Notes:
1. $\theta_{1/2}$ is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity / luminous flux: ±15%.
3. Luminous intensity value is traceable to CIE127-2007 standards.

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**ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°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 = 20mA</td>
<td>( \lambda_{\text{peak}} )</td>
<td>Super Bright Orange</td>
<td>611</td>
<td>nm</td>
</tr>
<tr>
<td>Dominant Wavelength I_F = 20mA</td>
<td>( \lambda_{\text{dom}} ) [1]</td>
<td>Super Bright Orange</td>
<td>605</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Bandwidth at 50% ( \Phi_{\text{rel max}} ) I_F = 20mA</td>
<td>( \Delta \lambda )</td>
<td>Super Bright Orange</td>
<td>17</td>
<td>nm</td>
</tr>
<tr>
<td>Capacitance</td>
<td>C</td>
<td>Super Bright Orange</td>
<td>27</td>
<td>pF</td>
</tr>
<tr>
<td>Forward Voltage I_F = 20mA</td>
<td>V_F [2]</td>
<td>Super Bright Orange</td>
<td>2.2</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current (V_R = 5V)</td>
<td>I_R</td>
<td>Super Bright Orange</td>
<td>-</td>
<td>10</td>
</tr>
</tbody>
</table>

Notes:
1. The dominant wavelength (\( \lambda_d \)) above is the setup value of the sorting machine. (Tolerance \( \lambda_d \) : ±1nm.)
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°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>84</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>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>T_{op}</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>T_{stg}</td>
<td>-40 to +85</td>
<td>°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>150</td>
<td>mA</td>
</tr>
<tr>
<td>Electrostatic Discharge Threshold (HBM)</td>
<td>-</td>
<td>3000</td>
<td>V</td>
</tr>
</tbody>
</table>

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 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

![Graph showing relative intensity vs. wavelength with peak intensity at a certain wavelength.

SPATIAL DISTRIBUTION

![Graph showing spatial distribution with a peak intensity at a certain angle.

SUPER BRIGHT ORANGE

Forward Current vs. Forward Voltage

![Graph showing forward current vs. forward voltage with a peak intensity at a certain voltage.

Luminous Intensity vs. Forward Current

![Graph showing luminous intensity vs. forward current with a peak intensity at a certain current.

Forward Current Derating Curve

![Graph showing forward current derating curve with a decrease in current at higher temperatures.

Luminous Intensity vs. Ambient Temperature

![Graph showing luminous intensity vs. ambient temperature with a peak intensity at a certain temperature.

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

![Graph showing reflow soldering profile with temperature vs. time.

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.

TAPE SPECIFICATIONS (units : mm)

![Diagram showing tape specifications with dimensions labeled.

REEL DIMENSION (units : mm)

![Diagram showing reel dimension with dimensions labeled.

Downloaded from Arrow.com.
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.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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