Technical Data Sheet

3474AN/BADB-AGJA/X/MS

Features

- High luminous intensity output
- Oval Shape
- Well defined spatial radiation
- Wide viewing angle ($2\theta_{1/2}$): 110° / 50°
- UV resistant epoxy
- The product itself will remain within RoHS compliant version

Descriptions

- This precision optical performance oval LED is specifically designed for passenger information signs
- This lamp has matched radiation patterns with red and green mixing color applications

Applications

- Color graphic signs
- Message boards
- Variable message signs (VMS)
- Commercial outdoor advertising

Device Selection Guide

<table>
<thead>
<tr>
<th>LED Part No.</th>
<th>Chip Material</th>
<th>Emitted Color</th>
<th>Lens Color</th>
<th>Stopper</th>
</tr>
</thead>
<tbody>
<tr>
<td>3474AN/BADB-AGJA/MS</td>
<td>InGaN</td>
<td>Blue</td>
<td>Blue Diffused</td>
<td>No</td>
</tr>
<tr>
<td>3474AN/BADB-AGJA/P/MS</td>
<td>Blue</td>
<td>Blue Diffused</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Package Dimensions

Stopper Type

No Stopper Type

Notes:

- All dimensions are in millimeters, tolerance is 0.25mm except being specified.
- Protruded resin under flange is 1.5mm Max LED.
- Bare copper alloy is exposed at tie-bar portion after cutting.
Technical Data Sheet

Absolute Maximum Rating \((T_a=25\, ^\circ C)\)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Absolute Maximum Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>(I_F)</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>Pulse Forward Current</td>
<td>(I_{FP})</td>
<td>100</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>(T_{opr})</td>
<td>-40 ~ +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>(T_{stg})</td>
<td>-40 ~ +100</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering Temperature</td>
<td>(T_{sol})</td>
<td>260</td>
<td>°C</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>(P_d)</td>
<td>100</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>(V_R)</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Electrostatic Discharge</td>
<td>ESD</td>
<td>1K</td>
<td>V</td>
</tr>
</tbody>
</table>

Notes: Soldering time \(\leq 5\) seconds.

Electro-Optical Characteristics \((T_a=25\, ^\circ C)\)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous Intensity</td>
<td>(I_V)</td>
<td>720</td>
<td>--</td>
<td>1450</td>
<td>mcd</td>
<td>(I_F=20, \text{mA})</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>(2\theta_{1/2})</td>
<td>--</td>
<td>X:110Y:50</td>
<td>--</td>
<td>deg</td>
<td></td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>(\lambda_p)</td>
<td>--</td>
<td>468</td>
<td>--</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td>Dominant Wavelength</td>
<td>(\lambda_d)</td>
<td>465</td>
<td>470</td>
<td>475</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td>Spectrum Half width</td>
<td>(\Delta \lambda)</td>
<td>26</td>
<td>--</td>
<td>--</td>
<td>nm</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>(V_F)</td>
<td>2.8</td>
<td>--</td>
<td>3.6</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Reverse Current</td>
<td>(I_R)</td>
<td>--</td>
<td>--</td>
<td>50</td>
<td>(\mu) A</td>
<td></td>
</tr>
</tbody>
</table>

Rank Combination \((I_F=20\, \text{mA})\)

<table>
<thead>
<tr>
<th>Rank</th>
<th>G2</th>
<th>H1</th>
<th>H2</th>
<th>J1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous Intensity</td>
<td>720~860</td>
<td>860~1030</td>
<td>1030~1210</td>
<td>1210~1450</td>
</tr>
</tbody>
</table>

*Measurement Uncertainty of Luminous Intensity: ±10%  Unit:mcd

<table>
<thead>
<tr>
<th>Rank</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominant Wavelength</td>
<td>465~470</td>
<td>470~475</td>
</tr>
</tbody>
</table>

*Measurement Uncertainty of Dominant Wavelength ±1.0nm  Unit:nm
Typical Electro-Optical Characteristics Curves

- Spectrum Distribution
- Forward Voltage
- Luminous Intensity vs. Ambient Temperature
- Radiation Diagram
- Forward Current vs. Ambient Temperature
- Luminous Intensity vs Forward Current
Packing Specification

- Anti-electrostatic bag

- Inner Carton

- Outside Carton

Label Form Specification

CPN: Customer’s Production Number
P/N: Production Number
QTY: Packing Quantity
CAT: Ranks of Luminous Intensity and Forward Voltage
HUE: Rank of Dominant Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

Packing Quantity

1. 1000 PCS/1 Bag, 5 Bags/1 Inner Carton
2. 10 Inner Cartons/1 Outside Carton
Notes

1. Lead Forming
   - During lead formation, the leads should be bent at a point at least 3mm from the base of the epoxy bulb.
   - Lead forming should be done before soldering.
   - Avoid stressing the LED package during leads forming. The stress to the base may damage the LED’s characteristics or it may break the LEDs.
   - Cut the LED leadframes at room temperature. Cutting the leadframes at high temperatures may cause failure of the LEDs.
   - When mounting the LEDs onto a PCB, the PCB holes must be aligned exactly with the lead position of the LED. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

2. Storage
   - The LEDs should be stored at 30°C or less and 70%RH or less after being shipped from Everlight and the storage life limits are 3 months. If the LEDs are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.
   - Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

3. Soldering
   - Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
Recommended soldering conditions:

<table>
<thead>
<tr>
<th>Hand Soldering</th>
<th>DIP Soldering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temp. at tip of iron</td>
<td>Preheat temp.</td>
</tr>
<tr>
<td>300°C Max. (30W Max.)</td>
<td>100°C Max. (60 sec Max.)</td>
</tr>
<tr>
<td>Soldering time</td>
<td>Bath temp. &amp; time</td>
</tr>
<tr>
<td>3 sec Max.</td>
<td>260 Max., 5 sec Max.</td>
</tr>
<tr>
<td>Distance</td>
<td>Distance</td>
</tr>
<tr>
<td>3mm Min. (From solder joint to epoxy bulb)</td>
<td>3mm Min. (From solder joint to epoxy bulb)</td>
</tr>
</tbody>
</table>

Recommended soldering profile

Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.

Dip and hand soldering should not be done more than one time

After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to room temperature.

A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.

Although the recommended soldering conditions are specified in the above table, dip or handsoldering at the lowest possible temperature is desirable for the LEDs.
Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

4. Cleaning
   - When necessary, cleaning should occur only with isopropyl alcohol at room temperature for a duration of no more than one minute. Dry at room temperature before use.
   - Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such as ultrasonic power and the assembled condition. Ultrasonic cleaning shall be pre-qualified to ensure this will not cause damage to the LED

5. Heat Management
   - Heat management of LEDs must be taken into consideration during the design stage of LED application. The current should be de-rated appropriately by referring to the de-rating curve found in each product specification.
   - The temperature surrounding the LED in the application should be controlled. Please refer to the data sheet de-rating curve.

6. ESD (Electrostatic Discharge)
   - Electrostatic discharge (ESD) or surge current (EOS) can damage LEDs.
   - An ESD wrist strap, ESD shoe strap or antistatic gloves must be worn whenever handling LEDs.
   - All devices, equipment and machinery must be properly grounded.
   - Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing.

7. Other
   - Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
   - When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply
with the absolute maximum ratings and the instructions included in these specification sheets.

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