SPECIFICATION FOR CERAMIC COB LED

Part No: LCOB50-40W030XXER80-0640

Description:
37.5*37.5mm COB LED

Dice Material: InGaN

Confirmed by Customer: __________________________

Approved by __________________________

Checked by __________________________

Prepared by __________________________

ATTENTION
OBSERVE PRECAUTIONS
ELECTROSTATIC
SENSITIVE
DEVICES

RoHS
Compliant

Factory Address: 6/F, 5th Building, Kenova Industrial District, Qing Quan Road, Long Hua, Shen Zhen, Guangdong Province, P.R. China
Tel: (86) 755-29058805
sales@cob-led.com
**Introduction**

Lightspot BS High CRI series LED Light engine is based on our main patent—**MCOB** (Multi-Chips On Board). Lightspot LEDs combine tens or hundreds of power LED chips with a rugged package capable of operating in excess of power. Lightspot LEDs maximally decrease LED uncomfortable glare and also Zebra strips, at the same time increase LED light efficiency and reduce thermal resistance.

**Features:**

- Area light source, which can avoid glare
- More energy efficient than incandescent, halogen and some fluorescent lamps
- Industry’s lowest thermal resistance
- Long operating life, lumen maintenance of greater than 70% after 50,000 hours
- Low forward voltage operated
- Instant light (less than 100ns)
- Lead Free product, RoHS compliant
- No UV
Application

◇ Automotive interior / exterior lighting
◇ Automotive signal lighting
◇ General Torch
◇ Architectural lighting
◇ LCD TV / Monitor Backlight
◇ Projector light source
◇ Traffic signals
◇ Task lighting
◇ Decorative / Pathway lighting
◇ Remote / Solar powered lighting
◇ Household appliances

Outline Dimensions:

LCOB50-40W030XXER80
Absolute Maximum Ratings at Ta=25℃:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Part No.</th>
<th>Symbol</th>
<th>Maximum</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation</td>
<td></td>
<td>Pd</td>
<td>40</td>
<td>W</td>
</tr>
<tr>
<td>Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)</td>
<td>LCOB50-40W030XXER80</td>
<td>IF(peak)</td>
<td>1000</td>
<td>mA</td>
</tr>
<tr>
<td>Continuous Forward Current</td>
<td></td>
<td>IF</td>
<td>640</td>
<td>mA</td>
</tr>
<tr>
<td>LED junction temperature</td>
<td></td>
<td>JT</td>
<td>120</td>
<td>℃</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td></td>
<td>VR</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>Thermal Resistance, junction to case</td>
<td>LCOB50-40W030XXER80</td>
<td>Rθ j-c</td>
<td>3.0</td>
<td>°C/W</td>
</tr>
<tr>
<td>Soldering Temperature °C</td>
<td></td>
<td></td>
<td>5 seconds, 260°C or lower</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>Topr</td>
<td></td>
<td>-30℃ to + 85℃</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>Tstg</td>
<td></td>
<td>-40℃ to + 100℃</td>
<td></td>
</tr>
</tbody>
</table>

- **Warm white**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Part No.</th>
<th>Symbol</th>
<th>Test Condition</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous flux</td>
<td></td>
<td>φ</td>
<td>Iᵣ=640mA</td>
<td>2900</td>
<td>/</td>
<td>3500</td>
<td>lm</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td></td>
<td>291/2</td>
<td></td>
<td>140</td>
<td></td>
<td></td>
<td>deg</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>LCOB50-40W030XXER80</td>
<td>Vᵢ</td>
<td>Iᵢ=640mA</td>
<td>60</td>
<td>62</td>
<td>72</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current</td>
<td></td>
<td>Iᵣ</td>
<td>Vᵢ=100V</td>
<td></td>
<td></td>
<td>160</td>
<td>uA</td>
</tr>
<tr>
<td>Correspondingly</td>
<td></td>
<td>CCT</td>
<td></td>
<td>2870</td>
<td>3045</td>
<td>3220</td>
<td>K</td>
</tr>
<tr>
<td>Color Rendering Index</td>
<td></td>
<td>CRI</td>
<td></td>
<td>80</td>
<td>/</td>
<td>85</td>
<td></td>
</tr>
</tbody>
</table>

1. The luminous intensity data did not include ±10% testing tolerance.
2. Tolerance of CRI is ±2.
Relative Spectral Power Distribution

Temperature Characteristics

Please ensure the maintenance of heat radiation not to exceed Tp temperature over the rating in operation.
Electrical Characteristics

Derating Curves characteristics

Forward Current Derating Curve

To keep Tp(PAD-temperature) lower than rating, enough heat-radiation performance needs to be secured by using an adequate heat sink.
Typical Polar Radiation Pattern

Typical Spatial Radiation Pattern

Typical Polar Radiation Pattern
### Order Code

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>X2</td>
<td>X3</td>
<td>X4</td>
<td>X5</td>
<td>X6</td>
<td>X7</td>
<td>X8</td>
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</tbody>
</table>

#### Part Number System:

- **X1**: "LC" Abbr."Lightspot Ceramic COB"
- **X2**: COB LED Outline Size: 4008, 4012, 6012; OB25, OB35, OB50
- **X3**: Power. 10W0 repents 10Watt
- **X4**: Color temperature: 27, 30, 35, 40, 45, 50, 57, 65...
- **X5**: Chip specification
- **X6**: Lumen range. 如: 70lm/w ≦ E < 90lm/w; 90lm/w ≦ F < 110lm/w;
  
  110lm/w ≦ G < 130lm/w
- **X7**: Color rendering Index(CRI): 55 ≦ R55 < 60; 60 ≦ R60 < 65; 65 ≦ R65 < 70; 70 ≦ R70 < 75
  
  75 ≦ R75 < 80; 80 ≦ R80 < 85; 85 ≦ R85 < 90; 90 ≦ R90 < 95
- **H**: Standard Forward Current. 0400 repents 400mA

### NOTICE:

- All dimensions are in millimeter.
- Tolerance is ±0.1mm unless otherwise noted.
- It is strongly recommended that the temperature of lead be not higher than 60°C.
- This information in this document is subject to change in order to improve reliability, design or function without prior notice and does not represent a commitment on the part of this company.
- Avoids preserving in the high temperature, the high-moisture, as well as in the acidic environment.