SPECIFICATION FOR CERAMIC COB LED

Part No: LCOB50-15W030XXFR60-0320

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

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LCOB50-15W030XXFR60
BS-Normal CRI Series COB LED

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

LCOB50-15W030XXFR60
Absolute Maximum Ratings at $T_a=25^\circ C$:

<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>$P_d$</td>
<td>15</td>
<td>W</td>
</tr>
<tr>
<td>Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)</td>
<td>LCOB50-15W030XXXFR60</td>
<td>$I_{F\text{(peak)}}$</td>
<td>480</td>
<td>mA</td>
</tr>
<tr>
<td>Continuous Forward Current</td>
<td></td>
<td>$I_F$</td>
<td>320</td>
<td>mA</td>
</tr>
<tr>
<td>LED junction temperature</td>
<td></td>
<td>$J_T$</td>
<td>120</td>
<td>°C</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td></td>
<td>$V_R$</td>
<td>75</td>
<td>V</td>
</tr>
<tr>
<td>Thermal Resistance, junction to case</td>
<td>LCOB50-15W030XXXFR60</td>
<td>$\theta_{j-c}$</td>
<td>2.0</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>$T_{opr}$</td>
<td>-30°C to +85°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>$T_{stg}$</td>
<td>-40°C to +100°C</td>
<td></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>
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</thead>
<tbody>
<tr>
<td>Luminous flux</td>
<td></td>
<td>$\phi$</td>
<td>$I_e=320mA$</td>
<td>1450</td>
<td></td>
<td>1750</td>
<td>lm</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>201/2</td>
<td></td>
<td></td>
<td>140</td>
<td></td>
<td></td>
<td>deg</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>LCOB50-15W030XXXFR60</td>
<td>$V_F$</td>
<td>$I_e=320mA$</td>
<td>42</td>
<td>47.5</td>
<td>51</td>
<td>V</td>
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<tr>
<td>Reverse Current</td>
<td></td>
<td>$I_R$</td>
<td>$V_R=75V$</td>
<td>160</td>
<td></td>
<td></td>
<td>uA</td>
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<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>60</td>
<td></td>
<td>65</td>
<td></td>
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</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 $T_p$ temperature over the rating in operation.
Electrical Characteristics

Derating Curves characteristics

Forward Current Derating Curve

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

![Typical Polar Radiation Pattern](image)

Typical Spatial Radiation Pattern

![Typical Spatial Radiation Pattern](image)

Typical Polar Radiation Pattern

![Typical Polar Radiation Pattern](image)
### Order Code

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<tbody>
<tr>
<td>LC</td>
<td>XXXX</td>
<td>-XXWX</td>
<td>XX</td>
<td>X</td>
<td>XXX</td>
<td>-XXXX</td>
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</table>

**编码原则：**

A: LC表示日明陶瓷面光源产品

B: XXXX表示产品的尺寸规格，如：4008、4012、6012；OB25、OB35、OB50

C: XXWX表示产品功率大小，如：05W0表示该产品的功率大小为5瓦

D: XX表示产品的标称色温，如：27、30、35、40、45、50、57、65等

E: XX表示晶片规格

F: X表示产品的亮度范围，如：70lm/w≤E<90lm/w；90lm/w≤F<110lm/w；110lm/w≤G<130lm/w

G: XX表示产品的显指范围，如：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: XXXX表示产品正常工作时的正向电流值，如：0200表示电流值大小为200mA等

More detail please see “Lightspot LED Binning and Labeling.pdf”

**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.