5.0mm Round Type LED Lamps

PART NO.: 383-2UBC/C470

Features:
- Choice of various viewing angles
- Available on tape and reel.
- Reliable and robust

Descriptions:
- The series is specially designed for applications requiring higher brightness
- The led lamps are available with different colors, intensities,

Applications:
- TV set
- Monitor
- Telephone
- Computer

Package Dimensions:

Notes:
1. All dimensions are in millimeters.
2. An epoxy meniscus may extend about 1.5mm(0.059") down to the lead.
3. Tolerances unless Dimension ±0.25mm.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>Chip Material</th>
<th>Emitted Color</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>383-2UBC/C470</td>
<td>InGaN/SiC</td>
<td>Blue</td>
<td>Water Clear</td>
</tr>
</tbody>
</table>

A0004068.X0004041
5.0mm Round Type LED Lamps

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>If</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>-40 to +100</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering Temperature</td>
<td>Tsol</td>
<td>260 ± 5</td>
<td>°C</td>
</tr>
<tr>
<td>Electrostatic Discharge</td>
<td>ESD</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>Pd</td>
<td>120</td>
<td>mW</td>
</tr>
<tr>
<td>Peak Forward Current (Duty 1/10 @ 1KHz)</td>
<td>If(Peak)</td>
<td>100</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>VR</td>
<td>5</td>
<td>V</td>
</tr>
</tbody>
</table>

Electronic Optical Characteristics:

<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>Iv</td>
<td>400</td>
<td>800</td>
<td></td>
<td>mcd</td>
<td>If= 20 mA</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>2θ 1/2</td>
<td></td>
<td>6</td>
<td></td>
<td>deg</td>
<td>If= 20 mA</td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>λp</td>
<td></td>
<td>468</td>
<td></td>
<td>nm</td>
<td>If= 20 mA</td>
</tr>
<tr>
<td>Dominant Wavelength</td>
<td>λd</td>
<td></td>
<td>470</td>
<td></td>
<td>nm</td>
<td>If= 20 mA</td>
</tr>
<tr>
<td>Spectrum Radiation Bandwidth</td>
<td>△λ</td>
<td></td>
<td>26</td>
<td></td>
<td>nm</td>
<td>If= 20 mA</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>VF</td>
<td></td>
<td>3.5</td>
<td>4.3</td>
<td>V</td>
<td>If= 20 mA</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>Ir</td>
<td></td>
<td>50</td>
<td></td>
<td>μA</td>
<td>VR= 5 V</td>
</tr>
</tbody>
</table>
5.0mm Round Type LED Lamps

PART NO.: 383-2UBC/C470

Typical Electro-Optical Characteristic Curves:
5.0mm Round Type LED Lamps

PART NO.: 383-2UBC/C470

RELIABILITY TEST ITEMS AND CONDITIONS:

<table>
<thead>
<tr>
<th>NO</th>
<th>Item</th>
<th>Test Conditions</th>
<th>Test Hours/Cycle</th>
<th>Ac/Re</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solder Heat</td>
<td>TEMP: 260°C ± 5°C</td>
<td>5 SEC</td>
<td>76 PCS</td>
</tr>
<tr>
<td>2</td>
<td>Temperature Cycle</td>
<td>H: +85°C 30min&lt;br&gt;L: -55°C 30min</td>
<td>50 CYCLES</td>
<td>76 PCS</td>
</tr>
<tr>
<td>3</td>
<td>Thermal Shock</td>
<td>H: +100°C 5min&lt;br&gt;L: -10°C 5min</td>
<td>50 CYCLES</td>
<td>76 PCS</td>
</tr>
<tr>
<td>4</td>
<td>High Temperature Storage</td>
<td>TEMP: 100°C</td>
<td>1000 HRS</td>
<td>76 PCS</td>
</tr>
<tr>
<td>5</td>
<td>Low Temperature Storage</td>
<td>TEMP: -55°C</td>
<td>1000 HRS</td>
<td>76 PCS</td>
</tr>
<tr>
<td>6</td>
<td>DC Operating Life</td>
<td>TEMP: 25°C&lt;br&gt;IF = 20mA</td>
<td>1000 HRS</td>
<td>76 PCS</td>
</tr>
<tr>
<td>7</td>
<td>High Temperature / High Humidity</td>
<td>85°C / 85% RH</td>
<td>1000 HRS</td>
<td>76 PCS</td>
</tr>
</tbody>
</table>
SECOND SOURCE T-1¾
SOLID STATE LAMPS

HIGH EFF. RED HLMP-3300 HIGH EFF. RED HLMP-3315
HIGH EFF. RED HLMP-3301 HIGH EFF. RED HLMP-3316
STANDARD RED FLV110

PACKAGE DIMENSIONS

DESCRIPTION

Direct replacements for popular T-1¾ lamps from Fairchild and Hewlett-Packard. The FLV110 is a Standard Red Lamp with a low profile (285 inch) lens. HLMP-33XX parts are High Efficiency Red with a standard T-1¾ package.

FLV110, HLMP-3300 and HLMP-3301 are diffused. HLMP-3315 and HLMP-3316 are non-diffused.

FEATURES

- Replace Fairchild and Hewlett-Packard devices
- Popular, general purpose lamps
- Wide and narrow viewing angle devices for direct view or backlighting
- Solid state reliability
- Sturdy leads for easier assembly
## ELECTRO-OPTICAL CHARACTERISTICS

(25°C Ambient Temperature)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>HLMP-3300</th>
<th>HLMP-3301</th>
<th>HLMP-3315</th>
<th>HLMP-3316</th>
<th>FLV* 110</th>
<th>UNITS</th>
<th>TEST CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous Intensity</td>
<td>min.</td>
<td>I₀</td>
<td>2.0</td>
<td>4.0</td>
<td>12</td>
<td>20</td>
<td>0.8*</td>
<td>mcd Lᵦ=10 mA</td>
</tr>
<tr>
<td></td>
<td>typ.</td>
<td></td>
<td>3.5</td>
<td>7.0</td>
<td>18</td>
<td>35</td>
<td>3.0*</td>
<td>mcd Lᵦ=10 mA</td>
</tr>
<tr>
<td>Forward voltage</td>
<td>max.</td>
<td>Vᵦ</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>2.0</td>
<td>V Lᵦ=10 mA</td>
</tr>
<tr>
<td></td>
<td>typ.</td>
<td></td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
<td>1.6</td>
<td>V Lᵦ=10 mA</td>
</tr>
<tr>
<td>Peak wavelength</td>
<td>typ.</td>
<td>λₚ</td>
<td>635</td>
<td>635</td>
<td>635</td>
<td>635</td>
<td>665</td>
<td>nm Lᵦ=10 mA</td>
</tr>
<tr>
<td>Capacitance</td>
<td>typ.</td>
<td>C</td>
<td>45</td>
<td>45</td>
<td>45</td>
<td>45</td>
<td>30</td>
<td>pF V=0, f=1 MHz</td>
</tr>
<tr>
<td>Reverse breakdown</td>
<td>min.</td>
<td>Vₚ</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>V Lᵦ=100µA</td>
</tr>
<tr>
<td>voltage</td>
<td>typ.</td>
<td></td>
<td>28°½</td>
<td>65</td>
<td>65</td>
<td>35</td>
<td>35</td>
<td>degrees</td>
</tr>
</tbody>
</table>

*For FLV110 Test Iᵦ=20 mA

## ABSOLUTE MAXIMUM RATINGS (Tᵦ=25°C Unless Otherwise Specified)

- Power dissipation: 135 mW
- Derate linearly from 25°C: 1.8 mW/°C
- Storage and operating temperatures: -55°C to +100°C
- Lead soldering time @ 260°C (See Note 1): 5 sec.
- Continuous forward current: 30 mA
- Peak forward current (1 µsec pulse, 0.3% duty cycle) (FLV110 1 amp): 90 mA
- Reverse voltage: 5.0 V

## NOTES

1. From a point minimum 1/16 inch (1.6 mm) from the bottom of the lamp.
TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES
(25°C Free Air Temperature Unless Otherwise Specified)

Fig. 1. Forward Current vs. Forward Voltage

Fig. 2. Spectral Distribution

Fig. 3. Luminous Intensity vs. Duty Cycle
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Datasheets for electronics components.