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

Descriptions:
- The series is specially designed for application requiring higher brightness.

Applications:
- Backlight
- Monitor
- Traffic light

Notes:
1. All dimension units are millimeters.
2. All dimension tolerance is ±0.2mm unless otherwise noted.
3. An epoxy meniscus may extend about 1.5mm down the leads.
4. Burr around bottom of epoxy may be 0.5mm max.
### Chip

<table>
<thead>
<tr>
<th>Material</th>
<th>Emitting Color</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>InGaN</td>
<td>White</td>
<td>White diffused</td>
</tr>
</tbody>
</table>

#### Absolute Maximum Ratings at Ta=25 °C

<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>20</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Topr</td>
<td>-25 to +80</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</td>
<td>°C</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>Pd</td>
<td>50</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>18000</td>
<td>20000</td>
<td>mcd</td>
<td>If=20mA</td>
<td></td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>20½</td>
<td>/</td>
<td>40</td>
<td>/</td>
<td>deg</td>
<td>If=20mA</td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>λp</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>nm</td>
<td>If=20mA</td>
</tr>
<tr>
<td>Color Temperature</td>
<td>λd</td>
<td>6000</td>
<td>6500</td>
<td>K</td>
<td>If=20mA</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>Vf</td>
<td>3.0</td>
<td>3.2</td>
<td>3.4</td>
<td>V</td>
<td>If=20mA</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>Ir</td>
<td>/</td>
<td>/</td>
<td>10</td>
<td>μA</td>
<td>VR=5V</td>
</tr>
</tbody>
</table>
Suggestions to customers

1. Soldering Bath at 260°C ±5°C with in 3 seconds.(Dip depth should under 6mm below seating plane.)

2. Soldering Iron-Under 40W with 3 seconds.(Tip temperature: 205°C ±5°C)

3. The neutrality flux must be used before soldering.

CLEANING

Do not use unspecified chemical liquid to clean LED. They could harm it if cleaning is necessary, wipe the pin out with alcohol, Freon TE or Chlorosen at normal temperature for less than 1 minute or wipe the surface with alcohol.

METHODS AGAINST STATIC ELECTRICITY

Static electricity is the enemy of lamps emitting blue and green. Workers must put on working rings, gloves clothes that protect static electricity while working. Wires of the rings keep well together with the floor and there must be wires to connect the irons and the floor.

PREVENTING OVERCURRENT

1. Be not overcurrent.

2. In order to cooperate LEDs under stable conditions, put protective resistor in series. Resistor values can be determined by supplying voltage or current for the LEDs. Recommended current is in the range of forward current 5mA-20mA.

3. Circuit must be designed so that overvoltage is not applied the LED during on/off switching. Transient or pulse current will damage junction of LED die.
## Reliability Performance

### (1) TEST ITEMS AND RESULTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Test Item</th>
<th>REF Standard</th>
<th>Test Conditions</th>
<th>Note</th>
<th>Number of Damaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sequence</td>
<td>Resistance to Soldering Heat (Reflow Soldering)</td>
<td>JIS C 7021 (1977)A-4</td>
<td>Tsld=230℃,10sec</td>
<td>2times</td>
<td>0/22</td>
</tr>
<tr>
<td></td>
<td>Temperature cycle</td>
<td>JIS C 7021</td>
<td>-20℃ 30min</td>
<td>100 cycle</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>Temperature Humidity Storage</td>
<td>JIS C 7021</td>
<td>Ta=80℃</td>
<td>1000hrs</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>Low Temperature Storage</td>
<td>JIS C 7021</td>
<td>Ta=30℃</td>
<td>1000hrs</td>
<td>0/100</td>
</tr>
<tr>
<td>Operation Sequence</td>
<td>Life Test</td>
<td>JIS C 7035 (1985)</td>
<td>Ta=25℃ IF=20mA</td>
<td>1000hrs</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>High Humidity Heat Life Test</td>
<td></td>
<td>60℃ RH=90% IF=20mA</td>
<td>500hrs</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>Low Temperature Life Test</td>
<td></td>
<td>Ta=20℃ IF=20mA</td>
<td>1000hrs</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>Drop</td>
<td></td>
<td>75cm 3times</td>
<td>0/10</td>
<td></td>
</tr>
</tbody>
</table>

### (2) Criteria for Judging The Damage

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Criteria for Judgment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>VF</td>
<td>IF=20mA</td>
<td>U.S.K*1.2</td>
</tr>
<tr>
<td>Reverse current</td>
<td>IR</td>
<td>VR=5V</td>
<td>U.S.L*2.2</td>
</tr>
<tr>
<td>Luminous Intensity</td>
<td>IV</td>
<td>IF=20mA</td>
<td>L.S.L**x0.7</td>
</tr>
</tbody>
</table>

U.S.L*: Upper Standard Level  
L.S.L**: Lower Standard Level
Optical characteristics curves

- Emission spectra
- Temperature characters
- Forward Voltage vs. Forward Current
- Relative Intensity vs. Forward Current