**XHL-375-SD**

**TECHNICAL DATA**

**UV LED Array, SMD**

XML-375-SD is a high power multi emitter LED, utilizing 4 high power LED chip dies on a ceramic SMD submount. It complies with RoHS directive.

**Specifications**
- Structure: GaN
- Peak Wavelength: 375 - 380 nm
- Optical Output Power: typ. 95 mW
- Package: ceramic SMD, 4.2 x 4.2 x 1.3mm
- Built in Zener Diode

**Absolute Maximum Ratings (Ta=25°C)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Forward Current</td>
<td>$I_F$</td>
<td>100</td>
<td>mA</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>$P_D$</td>
<td>840</td>
<td>mW</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{OP}$</td>
<td>-30 ... +80</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>-30 ... +100</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering Temperature</td>
<td>$T_{SOL}$</td>
<td>260</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Specifications (If=80mA, $T_a$=25°C)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$U_F$</td>
<td>6.4</td>
<td>7.6</td>
<td>8.4</td>
<td>V</td>
</tr>
<tr>
<td>Optical Specification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical Power</td>
<td>$P_D$</td>
<td>-</td>
<td>95</td>
<td>-</td>
<td>mW</td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>$\lambda_P$</td>
<td>375</td>
<td>-</td>
<td>380</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Half Width (FWHM)</td>
<td>$\lambda$</td>
<td>10</td>
<td>-</td>
<td>20</td>
<td>nm</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>$\varphi$</td>
<td>120</td>
<td></td>
<td></td>
<td>deg.</td>
</tr>
</tbody>
</table>

* Note:
  1. measurement tolerance is ± 0.2 V
  2. measurement tolerance is ± 2 nm

**NOTE**
HIGH POWER LED MUST BE COOLED

**WARNING**
UV LEDs
High intensity ultraviolet light
Eye and skin hazard - avoid exposure to eyes/skin
Do not look directly at light - use eye protection
Use warning labels on systems containing UV LEDs
Typical Performance Characteristics

**Forward voltage vs. Forward current:**

- Forward current $I_F$ (mA)
- Forward voltage $V_F$ (V)

**Forward current vs. Relative output power:**

- Relative output power (a.u.)
- Forward current $I_F$ (mA)

**Ambient temp vs. Relative output power:**

- Relative output power (a.u.)
- Ambient temperature $T_a$ (°C)

**Ambient temp. vs. Forward voltage:**

- Forward voltage $V_F$ (V)
- Ambient temperature $T_a$ (°C)

**Ambient temp vs. Forward current:**

- Allowable forward current (mA)
- Ambient temperature $T_a$ (°C)

**Spectrum:**

- Relative output power (a.u.)
- Wavelength $\lambda$ (nm)
Outline Dimensions

[Diagram showing outline dimensions and internal circuit diagrams]
**Device Materials**

<table>
<thead>
<tr>
<th>Item</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>submount</td>
<td>ceramic</td>
</tr>
<tr>
<td>encapsulation</td>
<td>silicone</td>
</tr>
</tbody>
</table>

**Emission Pattern**

**Directivity**

![Directivity Diagram]

**Soldering Conditions**

**Temperature profile:**

- Pre-heat: 180°C and 200°C for 120 sec.
- 2~5 °C/sec.

**Recommended soldering pad design:**

![Soldering Pad Design]

[Unit: mm]
Precaution for Use

1. Cautions
   - This device is a UV LED, which radiates intense UV light during operation.
   - DO NOT look directly into the UV light or look through the optical system. To prevent inadequate exposure of UV radiation, wearing UV protective glasses is recommended.

2. Static Electricity
   - The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
   - All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.

3. Heat Generation
   - Thermal design of the end product is of paramount importance. Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of LED placement on the board, as well as other components. It is necessary to avoid intense heat generation and operate within the maximum ratings given in the specification.
   - The operating current should be desided after considering the ambient maximum temperature of LEDs.

4. Storage
   - The LEDs should be stored at 30°C or less and 70%RH or less after being shipped 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 nitrogen atmosphere and moisture absorbent material.
   - Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.