**TECHNICAL DATA**

**High Power LED, SMD**

SMB3W-420/525/640-I are multi chip High Power LEDs, isolated mounted on a cooper heat sink with a 5x5 mm SMD package and molded with silicone resin. On forward bias, it emits a radiation at a peak wavelength of 420nm, 525nm and 640 nm.

**Specifications**

- **Structure**: InGaN and GaInAsP, 3x1W high power chip
- **Peak Wavelengths**: 420 nm, 525 nm, 640 nm
- **Optical Output Power**: 115 mW, 60 mW, 110 mW
- **Package**
  - SMD, PPA resin
  - Isolator: AlN ceramics
  - Lead frame die: silver plated on copper
  - Lens: silicone resin

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>420 nm</th>
<th>525 nm</th>
<th>640 nm</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation</td>
<td>P_D</td>
<td>1200 mW</td>
<td>1200 mW</td>
<td>1800 mW</td>
<td>mW</td>
</tr>
<tr>
<td>Forward Current</td>
<td>I_F</td>
<td>300 mA</td>
<td>300 mA</td>
<td>600 mA</td>
<td>mA</td>
</tr>
<tr>
<td>Pulse Forward Current</td>
<td>I_FP</td>
<td>1000 mA</td>
<td>1000 mA</td>
<td>2000 mA</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>V_R</td>
<td>5 V</td>
<td>9 K/W</td>
<td>6 K/W</td>
<td>K/W</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>R_th</td>
<td>9</td>
<td>9</td>
<td>6</td>
<td>K/W</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>T_J</td>
<td>100 °C</td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>T_opr</td>
<td>-30 ... +85 °C</td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>T_stg</td>
<td>-30 ... +100 °C</td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Soldering Temperature</td>
<td>T_sol</td>
<td>255 °C</td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

*1 duty = 1%, pulse width = 10 µs
*2 must be completed within 5 seconds

**Electro-Optical Characteristics**

<table>
<thead>
<tr>
<th>Item</th>
<th>Symbol</th>
<th>Condition</th>
<th>420</th>
<th>525</th>
<th>640</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Voltage</td>
<td>V_F</td>
<td>I_F = 300 mA</td>
<td>3.5</td>
<td>3.3</td>
<td>2.6</td>
<td>V</td>
</tr>
<tr>
<td>Total Radiated Power</td>
<td>P_o</td>
<td>I_F = 300 mA</td>
<td>115</td>
<td>60</td>
<td>110</td>
<td>mW</td>
</tr>
<tr>
<td>Radiant Intensity</td>
<td>I_E</td>
<td>I_F = 300 mA</td>
<td>30</td>
<td>20</td>
<td>35</td>
<td>mW/sr</td>
</tr>
<tr>
<td>Half Width</td>
<td>Δλ</td>
<td>I_F = 50 mA</td>
<td>12</td>
<td>20</td>
<td>13</td>
<td>nm</td>
</tr>
<tr>
<td>Viewing Half Angle</td>
<td>Θ_{1/2}</td>
<td>I_F = 50 mA</td>
<td>±62</td>
<td></td>
<td></td>
<td>deg.</td>
</tr>
</tbody>
</table>

Total Radiated Power is measured by S3584-08
Radiant Intensity is measured by Tektronix J-6512

**Notes**

- Do not view directly into the emitting area of the LED during operation!
- The above specifications are for reference purpose only and subjected to change without prior notice.
Package Dimensions

Unit:mm

[Diagram showing package dimensions with labels for anode, cathode, heatsink, and land pattern for solder.]
Typical Performance Curves, 420 nm

Forward Current – Forward Voltage

Relative Radiant Intensity – Pulsed Forward Current

Peak Wavelength

Ta = 25°C
Typical Performance Curves, 525 nm

- **Forward Current – Forward Voltage**
  - Ta = 25°C, tw = 10μs, Duty = 1%

- **Relative Radiant Intensity – PulsedForward Current**
  - (Ta = 25°C, tw = 10μs, Duty = 1%) 100mA standard

- **Peak Wavelength**
  - Ta = 25°C

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SMB3W-420/525/640-I
Typical Performance Curves, 640 nm

- **Forward Current – Forward Voltage**
  
  $Ta = 25^\circ C$, $tw = 10\text{us}$, Duty $= 1\%$

- **Relative Radiant Intensity – Pulsed Forward Current**
  
  $(Ta = 25^\circ C$, $tw = 10\text{us}$, Duty $= 1\%)$
  
  100mA standard

- **Peak Wavelength**
  
  $Ta = 25^\circ C$
1. **Soldering Conditions**
   - DO NOT apply any stress to the lead particularly when heat.
   - After soldering the LEDs should be protected from mechanical shock or vibration until the LEDs return to room temperature.
   - When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.

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.

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**ATTENTION**

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES