ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features
- White SMD package, silicone resin.
- Low thermal resistance.
- Compatible with IR-reflow processes.
- ESD protection.
- Moisture sensitivity level : level 2a.
- RoHS compliant.

Descriptions
- The Hyper Orange device is made with TS AlGaInP light emitting diode.
- Electrostatic discharge and power surge could damage the LEDs.
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
- All devices, equipments and machineries must be electrically grounded.

Applications
- Signal and symbol luminaire for orientation.
- Marker lights (e.g. steps, exit ways, etc).
- Decorative and entertainment lighting.
- Commercial and residential lighting.
- Automotive interior lighting.

Package Dimensions

Recommended Soldering Pattern
(Units : mm; Tolerance: ±0.1)

Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.
Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Handle the component along the side surfaces by using forceps or appropriate tools.

2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.

3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.

4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.

4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.

4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.

5. As silicone encapsulation is permeable to gases, some corrosive substances such as H₂S might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.
### Absolute Maximum Ratings at T_A=25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation</td>
<td>PD</td>
<td>510</td>
<td>mW</td>
</tr>
<tr>
<td>Junction Temperature [1]</td>
<td>TJ</td>
<td>130</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Top</td>
<td>-40 To +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tstg</td>
<td>-40 To +85</td>
<td>°C</td>
</tr>
<tr>
<td>DC Forward Current [1]</td>
<td>IF</td>
<td>150</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>VR</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Peak Forward Current [2]</td>
<td>IFM</td>
<td>270</td>
<td>mA</td>
</tr>
<tr>
<td>Thermal Resistance [1]</td>
<td>Rth,j-a</td>
<td>240</td>
<td>°C/W</td>
</tr>
<tr>
<td>Thermal Resistance [1]</td>
<td>Rth,j-S</td>
<td>100</td>
<td>°C/W</td>
</tr>
<tr>
<td>Electrostatic Discharge Threshold (HBM)</td>
<td></td>
<td>8000</td>
<td>V</td>
</tr>
</tbody>
</table>

### Electrical / Optical Characteristics at T_A=25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength at peak emission Φ=150mA [Typ.]</td>
<td>λ peak</td>
<td>630</td>
<td>nm</td>
</tr>
<tr>
<td>Dominant Wavelength Φ=150mA [Typ.]</td>
<td>λ dom [1]</td>
<td>618</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Line Half-width Φ=150mA [Typ.]</td>
<td>Δλ</td>
<td>20</td>
<td>nm</td>
</tr>
<tr>
<td>Forward Voltage Φ=150mA [Min.]</td>
<td>VF [2]</td>
<td>2.9</td>
<td>V</td>
</tr>
<tr>
<td>Allowable Reverse Current Φ=150mA [Max.]</td>
<td>IR</td>
<td>85</td>
<td>mA</td>
</tr>
<tr>
<td>Temperature coefficient of λ peak Φ=150mA, -10 °C ≤ T ≤ 100 °C [Typ.]</td>
<td>TCλ peak</td>
<td>0.11</td>
<td>nm/°C</td>
</tr>
<tr>
<td>Temperature coefficient of λ dom Φ=150mA, -10 °C ≤ T ≤ 100 °C [Typ.]</td>
<td>TCλ dom</td>
<td>0.09</td>
<td>nm/°C</td>
</tr>
<tr>
<td>Temperature coefficient of VF Φ=150mA, -10 °C ≤ T ≤ 100 °C [Typ.]</td>
<td>TCVF</td>
<td>-3.6</td>
<td>mV/°C</td>
</tr>
</tbody>
</table>

Notes:
1. Results from mounting on PC board FR4 (pad size ≥ 70mm²), mounted on pc board-metal core PCB is recommend for lowest thermal Resistance.
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
Reflow soldering is recommended and the soldering profile is shown below. Other soldering methods are not recommended as they might cause damage to the product.

**Tape Specifications**

(Units: mm)

- **Reel Specification**
- **Tape**

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**NOTES:**
1. We recommend the reflow temperature 240°C (±5°C). The maximum soldering temperature should be limited to 380°C.
2. Surface mount components are added to the epoxy resin while it is supposed to be at high temperature.
3. Number of reflow process shall be 2 times or less.
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