**DESCRIPTIONS**
- The Hyper Red device is based on light emitting diode chip made from AlGaInP.
- 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.

**FEATURES**
- 3.2 mm x 1.6 mm SMD LED, 0.75 mm thickness
- Low power consumption
- Wide viewing angle
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

**APPLICATIONS**
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

**ATTENTION**
Observe precautions for handling electrostatic discharge sensitive devices

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**PACKAGE DIMENSIONS**

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**RECOMMENDED SOLDERING PATTERN**

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**SELECTION GUIDE**

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**Notes:**
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.2(0.008") 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.
## ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Emitting Color</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength at Peak Emission $I_F = 20mA$</td>
<td>$\lambda_{\text{peak}}$</td>
<td>Hyper Red</td>
<td>640 nm</td>
<td>nm</td>
</tr>
<tr>
<td>Dominant Wavelength $I_F = 20mA$</td>
<td>$\lambda_{\text{dom}}$</td>
<td>Hyper Red</td>
<td>625 nm</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Bandwidth at 50% $\Phi_{\text{REL MAX}}$ $I_F = 20mA$</td>
<td>$\Delta\lambda$</td>
<td>Hyper Red</td>
<td>20 nm</td>
<td>nm</td>
</tr>
<tr>
<td>Capacitance</td>
<td>$C$</td>
<td>Hyper Red</td>
<td>27 pF</td>
<td>pF</td>
</tr>
<tr>
<td>Forward Voltage $I_F = 20mA$</td>
<td>$V_F$</td>
<td>Hyper Red</td>
<td>2.2 V</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current ($V_R = 5V$)</td>
<td>$I_R$</td>
<td>Hyper Red</td>
<td>- 10 µA</td>
<td>µA</td>
</tr>
</tbody>
</table>

**Notes:**
1. The dominant wavelength ($\lambda_d$) above is the setup value of the sorting machine. (Tolerance $\lambda_d$ : ±1nm.)
2. Forward voltage: ±0.1V.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

## ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation</td>
<td>$P_D$</td>
<td>84 mW</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>5 V</td>
<td>V</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_j$</td>
<td>115 °C</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{op}$</td>
<td>-40 to +85 °C</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{stg}$</td>
<td>-40 to +85 °C</td>
<td>°C</td>
</tr>
<tr>
<td>DC Forward Current</td>
<td>$I_F$</td>
<td>30 mA</td>
<td>mA</td>
</tr>
<tr>
<td>Peak Forward Current</td>
<td>$I_{FM}$</td>
<td>150 mA</td>
<td>mA</td>
</tr>
<tr>
<td>Electrostatic Discharge Threshold (HBM)</td>
<td>-</td>
<td>3000 V</td>
<td>V</td>
</tr>
</tbody>
</table>

**Notes:**
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

SPATIAL DISTRIBUTION

HYPER RED

Forward Current vs. Forward Voltage

Luminous Intensity vs. Forward Voltage

Forward Current Derating Curve

Luminous Intensity vs. Ambient Temperature

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

TAPE SPECIFICATIONS (units : mm)

REEL DIMENSION (units : mm)

Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times.
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.
PACKING & LABEL SPECIFICATIONS

PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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