DESCRIPTIONS
- The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode
- The Super Bright Yellow device is made with AlGaInP (on GaAs substrate) light emitting diode chip
- The Green source color devices are made with AlGaInP on GaAs substrate 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

FEATURES
- Pre-trimmed leads for pc mounting
- Black case enhances contrast ratio
- High reliability life measured in years
- Housing UL rating: 94V-0
- Housing material: Type 66 nylon
- RoHS compliant

APPLICATIONS
- Status indicator
- Illuminator
- Signage applications
- Decorative and entertainment lighting
- Commercial and residential architectural lighting

ATTENTION
Observe precautions for handling electrostatic discharge sensitive devices

PACKAGE DIMENSIONS

SELECTION GUIDE

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Emitting Color (Material)</th>
<th>Lens Type</th>
<th>Iv (mcd) @ 20mA [2]</th>
<th>Viewing Angle [1]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min.</td>
<td>Typ.</td>
</tr>
<tr>
<td>L-7104SA/1SR1SAK1CGKD</td>
<td>■ Super Bright Red (GaAlAs)</td>
<td>Red Diffused</td>
<td>150</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>■ Super Bright Yellow (AlGaInP)</td>
<td>Amber Diffused</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>■ Green (AlGaInP)</td>
<td>Green Diffused</td>
<td>80</td>
<td>250</td>
</tr>
</tbody>
</table>

Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity / luminous flux: +/-15%.
3. Luminous intensity value is traceable to CIE127-2007 standards.
### 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>$\lambda_{peak}$</td>
<td>Super Bright Red Green</td>
<td>655 574</td>
<td>nm</td>
</tr>
<tr>
<td>Dominant Wavelength $I_F = 20mA$</td>
<td>$\lambda_{dom}$ [1]</td>
<td>Super Bright Red Green</td>
<td>640 570</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Bandwidth at 50% $\Phi$ REL MAX $I_F = 20mA$</td>
<td>$\Delta\lambda$</td>
<td>Super Bright Red Green</td>
<td>20 20</td>
<td>nm</td>
</tr>
<tr>
<td>Capacitance $I_F = 20mA$</td>
<td>$C$</td>
<td>Super Bright Red Yellow Green</td>
<td>45 20 15</td>
<td>pF</td>
</tr>
<tr>
<td>Forward Voltage $I_F = 20mA$</td>
<td>$V_F$ [2]</td>
<td>Super Bright Red Yellow Green</td>
<td>1.85 2.1 2.5</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current $(V_R = 5V)$</td>
<td>$I_R$</td>
<td>Super Bright Red Yellow Green</td>
<td>- 10 10</td>
<td>uA</td>
</tr>
</tbody>
</table>

**Notes:**
1. The dominant wavelength ($\lambda_d$) above is the setup value of the sorting machine. (Tolerance $\lambda_d : \pm 1$nm.)
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>75 75 75</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>5 5 5</td>
<td>V</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>$T_J$</td>
<td>115 115 115</td>
<td>°C</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_{op}$</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{slg}$</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>DC Forward Current</td>
<td>$I_F$</td>
<td>30 30 30</td>
<td>mA</td>
</tr>
<tr>
<td>Peak Forward Current</td>
<td>$I_{FM}$ [1]</td>
<td>155 175 150</td>
<td>mA</td>
</tr>
<tr>
<td>Electrostatic Discharge Threshold (HBM)</td>
<td></td>
<td>3000 3000 3000</td>
<td>V</td>
</tr>
<tr>
<td>Lead Solder Temperature [2]</td>
<td></td>
<td>260°C For 3 Seconds</td>
<td></td>
</tr>
<tr>
<td>Lead Solder Temperature [2]</td>
<td></td>
<td>260°C For 5 Seconds</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. 5mm below package base.
4. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref.JEDEC/ESD625-A and JEDEC/STD-033.
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

SUPER BRIGHT RED

Forward Current vs. Forward Voltage

Luminous Intensity vs. Forward Current

Forward Current Derating Curve

Luminous Intensity vs. Ambient Temperature

SUPER BRIGHT YELLOW

Forward Current vs. Forward Voltage

Luminous Intensity vs. Forward Current

Forward Current Derating Curve

Luminous Intensity vs. Ambient Temperature

GREEN

Forward Current vs. Forward Voltage

Luminous Intensity vs. Forward Current

Forward Current Derating Curve

Luminous Intensity vs. Ambient Temperature
RECOMMENDED WAVE SOLDERING PROFILE

Notes:
1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C.
2. Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.

PRECAUTIONS
Storage Conditions
1. Avoid continued exposure to the condensing moisture environment and keep the product away from rapid transitions in ambient temperature.
2. LEDs should be stored with temperature ≤ 30°C and relative humidity < 60%.
3. Product in the original sealed package is recommended to be assembled within 72 hours of opening.
   Product in opened package for more than a week should be baked for 30 (+10/-0) hours at 85 ~ 100°C.

LED Mounting Method
1. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement.
   Lead-forming may be required to insure the lead pitch matches the hole pitch.
   Refer to the figure below for proper lead forming procedures.
   Note 1-3: Do not route PCB trace in the contact area between the leadframe and the PCB to prevent short-circuits.

Lead Forming Procedures
1. During soldering, component covers and holders should leave clearance to avoid placing damaging stress on the LED during soldering.
2. The tip of the soldering iron should never touch the lens epoxy.
3. Through-hole LEDs are incompatible with reflow soldering.
4. If the LED will undergo multiple soldering passes or face other processes where the part may be subjected to intense heat, please check with Kingbright for compatibility.
PACKING & LABEL SPECIFICATIONS

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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