**PACKAGE OUTLINES**

Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (0.01") unless otherwise noted.
3. Specifications are subject to change without notice.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Chip Material</th>
<th>Color of Emission</th>
<th>Lens Type</th>
<th>Viewing Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS63CR5C2MA</td>
<td>InGaAlP</td>
<td>Red</td>
<td>Water Clear</td>
<td>130°</td>
</tr>
</tbody>
</table>
### ABSOLUTE MAXIMUM RATINGS (TA=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Max Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current</td>
<td>If</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Current @ 5V</td>
<td>Ir</td>
<td>10</td>
<td>μA</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>Pd</td>
<td>78</td>
<td>mW</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>Top</td>
<td>-40~+85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>Tstg</td>
<td>-40~+100</td>
<td>°C</td>
</tr>
<tr>
<td>Peak Pulsing Current (1/10 duty f = 10KHz)</td>
<td>Ifp</td>
<td>60</td>
<td>mA</td>
</tr>
<tr>
<td>Soldering Temperature</td>
<td>Tsol</td>
<td>Max 260°C for 10 sec</td>
<td>Max</td>
</tr>
</tbody>
</table>

### OPTICAL-ELECTRICAL CHARACTERISTICS (TA=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Test Condition</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous Intensity</td>
<td>Iv</td>
<td>If = 2mA</td>
<td>12</td>
<td>32</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>Vf</td>
<td>If = 2mA</td>
<td>-</td>
<td>2.1</td>
</tr>
<tr>
<td>Reverse Leakage Current</td>
<td>Ir</td>
<td>VR = 5V</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Viewing Angle at 50% Iv</td>
<td>201/2</td>
<td>If = 2mA</td>
<td>-</td>
<td>130</td>
</tr>
<tr>
<td>Peak Wavelength</td>
<td>λp</td>
<td>If = 2mA</td>
<td>-</td>
<td>633</td>
</tr>
<tr>
<td>Dominant Wavelength</td>
<td>λd</td>
<td>If = 2mA</td>
<td>-</td>
<td>625</td>
</tr>
</tbody>
</table>

*Tolerance of viewing angle: -10 / +5 deg.*
OPTICAL CHARACTERISTIC CURVES

Fig. 1 Forward current vs. Forward Voltage

Fig. 2 Luminous Intensity vs. Forward Current

Fig. 3 Forward Voltage vs. Temperature

Fig. 4 Luminous Intensity vs. Temperature

Fig. 5 Relative Intensity vs. Wavelength

Fig. 6 Directive Radiation

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Dimensions of Tape (Unit: mm)

Notes:
1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole.
4. 4,000pcs/Reel

REEL DIMENSIONS
SOLDERING CONDITIONS

1. Hand Solder
   Basic spec is $\leq 280^\circ C$ 3 sec one time only.

2. Wave Solder

   ![Wave Solder Diagram]
   Soldering heat Max. 280°C
   245±5°C within 5 sec
   120 ~ 150°C
   Preheat
   120 ~ 180 sec

3.1 LEAD Reflow Solder

   ![LEAD Reflow Solder Diagram]
   Temp. (°C)
   240
   Rising +5°C/sec
   150
   Cooling -5°C/sec
   Preheat
   00 ~ 120 sec
   5 sec
   Time

3.2 Pb-Free Reflow Solder

   ![Pb-Free Reflow Solder Diagram]
   1-5°C/sec
   260°C Max.
   10 sec Max.
   Preheat 180~200°C
   Above 220°C
   60 sec Max.
   120 sec Max.

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