INFRARED EMITTING DIODE

Part Number: AM2520F3C03

Features

- Subminiature package.
- Mechanically and spectrally matched to the phototransistor.
- Gull wing lead.
- Long life - solid state reliability.
- Low package profile.
- Package: 1000pcs / reel.
- Moisture sensitivity level: level 3.
- RoHS compliant.

Description

F3 Made with Gallium Arsenide Infrared Emitting diodes.

Package Dimensions

Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
5. The device has a single mounting surface. The device must be mounted according to the specifications.
## Selection Guide

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Emitting Color (Material)</th>
<th>Lens Type</th>
<th>$P_0$ (mW/sr) [2] $[@ 20mA]$</th>
<th>$P_0$ (mW/sr) [2] $[@ 50mA]$</th>
<th>Viewing Angle [1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM2520F3C03</td>
<td>Infrared (GaAs)</td>
<td>Water Clear</td>
<td><img src="" alt="Image of the table content" /></td>
<td><img src="" alt="Image of the table content" /></td>
<td>281/2</td>
</tr>
</tbody>
</table>

Notes:
1. 81/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Radiant Intensity / luminous flux: +/-15%.
3. Radiant intensity value is traceable to CIE127-2007 standards.

## Electrical / Optical Characteristics at $TA=25°C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Emitting Color</th>
<th>Symbol</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
<th>Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Voltage [1]</td>
<td>F3</td>
<td>$V_r$</td>
<td>1.2</td>
<td>1.6</td>
<td>V</td>
<td>$I_r=20mA$</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>F3</td>
<td>$I_r$</td>
<td>10</td>
<td></td>
<td>$V_r=5V$</td>
<td></td>
</tr>
<tr>
<td>Capacitance</td>
<td>F3</td>
<td>C</td>
<td>90</td>
<td></td>
<td>pF</td>
<td>$V_f=0V; f=1MHz$</td>
</tr>
<tr>
<td>Peak Spectral Wavelength</td>
<td>F3</td>
<td>$\lambda$</td>
<td>940</td>
<td></td>
<td>nm</td>
<td>$I_r=20mA$</td>
</tr>
<tr>
<td>Spectral Bandwidth</td>
<td>F3</td>
<td>$\Delta\lambda/2$</td>
<td>50</td>
<td></td>
<td>nm</td>
<td>$I_r=20mA$</td>
</tr>
</tbody>
</table>

Notes:
1. Forward Voltage: +/-0.1V.
2. Wavelength value is traceable to CIE127-2007 standards.
3. Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

## Absolute Maximum Ratings at $TA=25°C$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Values</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power dissipation</td>
<td>$P_d$</td>
<td>80</td>
<td>mW</td>
</tr>
<tr>
<td>DC Forward Current</td>
<td>$I_f$</td>
<td>50</td>
<td>mA</td>
</tr>
<tr>
<td>Peak Forward Current [1]</td>
<td>$i_{fs}$</td>
<td>1.2</td>
<td>A</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>$V_r$</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>$T_A$</td>
<td>-40 To +85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{STG}$</td>
<td>-40 To +85</td>
<td>°C</td>
</tr>
</tbody>
</table>

Notes:
1. 1/100 Duty Cycle, 10μs 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.
The Kingbright AM2520F3C03 datasheet includes graphs for various parameters:

1. **Relative Intensity vs. Wavelength**
   - A graph showing the relative intensity of the LED versus wavelength, with a peak at approximately 880 nm and a temperature of 25°C.

2. **Forward Current vs. Forward Voltage**
   - A graph showing the relationship between forward current and forward voltage, with values ranging from 0 to 50 mA and 0 to 2 V.

3. **Radiant Intensity vs. Forward Current**
   - A graph illustrating how radiant intensity changes with forward current, with values up to 2.5 at 0 mA.

4. **Radiant Intensity vs. Ambient Temperature**
   - A graph depicting the radiant intensity variation with ambient temperature, ranging from -40°C to 60°C.

5. **Spatial Distribution**
   - A graph showing the spatial distribution of radiant intensity over a range of angles from 0° to 90°.
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.

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

Reel Dimension

Tape Specifications
(Units: mm)
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