**DESCRIPTION**
- F3 Made with Gallium Arsenide Infrared Emitting diodes

**FEATURES**
- 1.0 mm x 0.5 mm SMD LED, 0.5 mm thickness
- Mechanically and spectrally matched to the phototransistor
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

**APPLICATIONS**
- Infrared Illumination for cameras
- Machine vision systems
- Surveillance systems
- Industrial electronics
- IR data transmission
- Remote control

**PACKAGE DIMENSIONS**

**PACKAGING**
- **1.0 x 0.5 mm Infrared Emitting Diode**

**RECOMMENDED SOLDERING PATTERN**
(units: mm; tolerance: ± 0.1)

**SELECTION GUIDE**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Emitting Color (Material)</th>
<th>Lens Type</th>
<th>Po (mW/sr) @ 70mA [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>APHHS1005F3C-70MAV</td>
<td>Infrared (GaAs)</td>
<td>Water Clear</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*3</td>
<td>*5</td>
</tr>
</tbody>
</table>

**Notes:**
1. All dimensions are in millimeters (inches).
2. Radiant Intensity / luminous flux: ±1.5%.
3. Radiant intensity value is traceable to CIE127-2007 standards.
### ELECTRICAL / OPTICAL CHARACTERISTICS at TA=25°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 IF = 70mA</td>
<td>(\lambda_{\text{peak}})</td>
<td>Infrared</td>
<td>940</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Bandwidth at 50% (\Phi) REL MAX IF = 70mA</td>
<td>(\Delta\lambda)</td>
<td>Infrared</td>
<td>50</td>
<td>nm</td>
</tr>
<tr>
<td>Capacitance</td>
<td>C</td>
<td>Infrared</td>
<td>90</td>
<td>pF</td>
</tr>
<tr>
<td>Forward Voltage IF = 70mA</td>
<td>(V_F^{[1]})</td>
<td>Infrared</td>
<td>1.33</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current ((V_R = 5V))</td>
<td>(I_R)</td>
<td>Infrared</td>
<td>-</td>
<td>10</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>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Dissipation</td>
<td>(P_D)</td>
<td>133</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>(V_R)</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>(T_J)</td>
<td>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_{stg})</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>DC Forward Current</td>
<td>(I_F)</td>
<td>70</td>
<td>mA</td>
</tr>
<tr>
<td>Peak Forward Current</td>
<td>(I_{FM}^{[2]})</td>
<td>1200</td>
<td>mA</td>
</tr>
<tr>
<td>Electrostatic Discharge Threshold (HBM)</td>
<td>-</td>
<td>8000</td>
<td>V</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.
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

![Graph showing relative intensity vs. wavelength with peak at F3.]

Ta = 25 °C

SPATIAL DISTRIBUTION

![Graph showing spatial distribution with angles from -90° to 90° and Ta = 25 °C.]

INFRARED

Forward Current vs. Forward Voltage

![Graph showing forward current vs. forward voltage with Ta = 25 °C.]

Radiant Intensity vs. Forward Current

![Graph showing radiant intensity vs. forward current with Ta = 25 °C.]

Forward Current Derating Curve

![Graph showing forward current derating curve.]

Radiant Intensity vs. Ambient Temperature

![Graph showing radiant intensity vs. ambient temperature.]

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

![Graph showing reflow soldering profile with pre-heating, 150-200°C, 60-120s, 260°C max., 10s max., 3°C/s max., 6°C/s max., above 255°C, and above 217°C.]

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.

TAPE SPECIFICATIONS (units: mm)

![Diagram showing tape specifications with dimensions.]

REEL DIMENSION (units: mm)

![Diagram showing reel dimension with dimensions.]

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PACKING & LABEL SPECIFICATIONS

PRECAUTIONARY NOTES
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