DESCRIPTION
The QEE113 is a 940 nm GaAs LED encapsulated in a medium wide angle, plastic sidelooker package.

FEATURES
- $\lambda = 940$ nm
- Package Type = Sidelooker
- Chip Material = GaAs
- Matched Photosensor: QSE113
- Medium Wide Emission Angle, 50°
- Package Material: Clear Epoxy
- High Output Power
- Gray stripe on the top side
PLASTIC INFRARED LIGHT EMITTING DIODE

QEE113

ABSOLUTE MAXIMUM RATINGS \((T_A = 25^\circ C \text{ unless otherwise specified})\)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>(T_{OPR})</td>
<td>-40 to +100</td>
<td>(^\circ C)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>(T_{STG})</td>
<td>-40 to +100</td>
<td>(^\circ C)</td>
</tr>
<tr>
<td>Soldering Temperature (Iron (^{(2,3,4)}))</td>
<td>(T_{SOL-I})</td>
<td>240 for 5 sec</td>
<td>(^\circ C)</td>
</tr>
<tr>
<td>Soldering Temperature (Flow (^{(2,3)}))</td>
<td>(T_{SOL-F})</td>
<td>260 for 10 sec</td>
<td>(^\circ C)</td>
</tr>
<tr>
<td>Continuous Forward Current</td>
<td>(I_F)</td>
<td>50</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>(V_R)</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Power Dissipation (^{(1)})</td>
<td>(P_D)</td>
<td>100</td>
<td>mW</td>
</tr>
</tbody>
</table>

NOTES:
1. Derate power dissipation linearly 1.33 mW/\(^\circ C\) above 25\(^\circ C\).
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6 mm) minimum from housing.

ELECTRICAL / OPTICAL CHARACTERISTICS \((T_A = 25^\circ C)\)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Emission Wavelength</td>
<td>(I_F = 100 \text{ mA})</td>
<td>(\lambda_{PE})</td>
<td>—</td>
<td>940</td>
<td>—</td>
<td>nm</td>
</tr>
<tr>
<td>Emission Angle</td>
<td>(I_F = 100 \text{ mA})</td>
<td>2(\theta_{1/2})</td>
<td>—</td>
<td>50</td>
<td>—</td>
<td>Deg.</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>(I_F = 100 \text{ mA, } tp = 20 \text{ ms})</td>
<td>(V_F)</td>
<td>—</td>
<td>—</td>
<td>1.5</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>(V_R = 5 \text{ V})</td>
<td>(I_R)</td>
<td>—</td>
<td>—</td>
<td>10</td>
<td>(\mu A)</td>
</tr>
<tr>
<td>Radiant Intensity</td>
<td>(I_F = 100 \text{ mA, } tp = 20 \text{ ms})</td>
<td>(I_E)</td>
<td>3</td>
<td>—</td>
<td>12</td>
<td>mW/sr</td>
</tr>
<tr>
<td>Rise Time</td>
<td>(I_F = 100 \text{ mA})</td>
<td>(t_r)</td>
<td>—</td>
<td>1000</td>
<td>—</td>
<td>ns</td>
</tr>
<tr>
<td>Fall Time</td>
<td>(I_F = 100 \text{ mA})</td>
<td>(t_f)</td>
<td>—</td>
<td>1000</td>
<td>—</td>
<td>ns</td>
</tr>
</tbody>
</table>
PLASTIC INFRARED LIGHT Emitting Diode

QEE113

Fig. 1 Normalized Radiant Intensity vs. Forward Current

Fig. 2 Coupling Characteristics of QEE113 and QSE113

Fig. 3 Forward Voltage vs. Ambient Temperature

Fig. 4 Normalized Intensity vs. Wavelength

Fig. 5 Radiation Diagram

Normalized to:
IF = 100 mA Pulsed
tpw = 100 µs
Duty Cycle = 0.1 %
TA = 25°C

Normalized to:
IF = 100 mA

Normalized to:
IF = 20 mA

Normalized to:
IF = 10 mA

Normalized to:
IF = 50 mA

Normalized to:
d = 0
IF Pulsed
tpw = 100 µs
Duty Cycle = 0.1 %
VCC = 5 V
RL = 100 Ω
TA = 25°C

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