DESCRIPTION

The QED22X is an 880nm AlGaAs LED encapsulated in clear, purple tinted, plastic T-1 3/4 package.

FEATURES

- $\lambda$ = 880 nm
- Chip material = AlGaAs
- Package type: T-1 3/4 (5mm lens diameter)
- Matched Photosensor: QSD122/123/124
- Medium Wide Emission Angle, 40°
- High Output Power
- Package material and color: Clear, purple tinted, plastic
## ABSOLUTE MAXIMUM RATINGS \( (T_A = 25\degree C \text{ unless otherwise specified})\)

<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>(\degree C)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>(T_{STG})</td>
<td>-40 to +100</td>
<td>(\degree C)</td>
</tr>
<tr>
<td>Soldering Temperature (Iron) ((2,3,4))</td>
<td>(T_{SOL-I})</td>
<td>240 for 5 sec</td>
<td>(\degree C)</td>
</tr>
<tr>
<td>Soldering Temperature (Flow) ((2,3))</td>
<td>(T_{SOL-F})</td>
<td>260 for 10 sec</td>
<td>(\degree C)</td>
</tr>
<tr>
<td>Continuous Forward Current</td>
<td>(I_F)</td>
<td>100</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>200</td>
<td>mW</td>
</tr>
<tr>
<td>Peak Forward Current ((5))</td>
<td>(I_{F(Peak)})</td>
<td>1.5</td>
<td>A</td>
</tr>
</tbody>
</table>

## ELECTRICAL / OPTICAL CHARACTERISTICS \( (T_A = 25\degree C)\)

### TEST CONDITIONS

- \(I_F = 100\ mA\)
- \(V_R = 5\ V\)
- \(I_F = 100\ mA, tp = 20\ ms\)
- \(I_F = 100\ mA, tp = 20\ ms\)
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<tr>
<th>PARAMETER</th>
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<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Emission Wavelength</td>
<td>(\lambda_{PE})</td>
<td>—</td>
<td>880</td>
<td>—</td>
<td>nm</td>
</tr>
<tr>
<td>Emission Angle</td>
<td>(\Theta)</td>
<td>—</td>
<td>±20</td>
<td>—</td>
<td>Deg.</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>(V_F)</td>
<td>—</td>
<td>—</td>
<td>1.7</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>(I_R)</td>
<td>—</td>
<td>—</td>
<td>10</td>
<td>(\mu A)</td>
</tr>
<tr>
<td>Radiant Intensity QED221</td>
<td>(I_E)</td>
<td>10</td>
<td>—</td>
<td>20</td>
<td>mW/sr</td>
</tr>
<tr>
<td>Radiant Intensity QED222</td>
<td>(I_E)</td>
<td>16</td>
<td>—</td>
<td>32</td>
<td>mW/sr</td>
</tr>
<tr>
<td>Radiant Intensity QED223</td>
<td>(I_E)</td>
<td>25</td>
<td>—</td>
<td>—</td>
<td>mW/sr</td>
</tr>
<tr>
<td>Rise Time</td>
<td>(t_r)</td>
<td>—</td>
<td>800</td>
<td>—</td>
<td>ns</td>
</tr>
<tr>
<td>Fall Time</td>
<td>(t_f)</td>
<td>—</td>
<td>800</td>
<td>—</td>
<td>ns</td>
</tr>
</tbody>
</table>

1. Derate power dissipation linearly 2.67 mW/\(\degree C\) above 25\degree C.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron \(1/16\)" (1.6mm) minimum from housing.
5. Pulse conditions; \(tp = 100\ \mu S, T = 10\ ms\).
PLASTIC INFRARED LIGHT EMITTING DIODE

QED221  QED222  QED223

Fig. 1 Normalized Radiant Intensity vs. Input Current

Normalized to:
IF = 100 mA, TA = 25°C
Pulse Width = 100 µs

IF - INPUT CURRENT (mA)

Normalized Radiant Intensity

Fig. 2 Coupling Characteristics of QED22X with QSD12X

Normalized to:
Pulse Width = 100 µs
Duty Cycle = 0.1%
VCC = 5 V
Rl = 100 Ω
TA = 25°C

IF = 100 mA
IF = 20 mA

LENSES TIP SEPARATION (INCHES)

Fig. 3 Forward Voltage vs. Temperature

Normalized Radiant Intensity

Fig. 4 Normalized Radiant Intensity vs. Wavelength

IF = 10 mA
IF = 100 mA
IF = 20 mA
IF = 50 mA

Pulse Width = 100 µs
Duty Cycle = 0.1%

V F - FORWARD VOLTAGE (V)

T A - TEMPERATURE (°C)

Fig. 5 Forward Current vs. Forward Voltage

IF - FORWARD CURRENT (mA)

V F - FORWARD VOLTAGE (V)

Fig. 6 Radiation Pattern

IF = 10 mA
IF = 100 mA
IF = 20 mA
IF = 50 mA

Radiation Pattern
PLASTIC INFRARED LIGHT EMISSING DIODE

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