

# Plastic Infrared Light Emitting Diode

## QEE122, QEE123

### Description

The QEE12X is a 880 nm AlGaAs LED encapsulated in a medium wide angle, plastic sidelooker package.

### Features

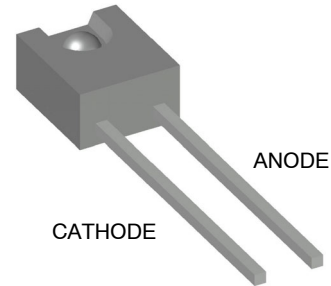
- $\lambda = 880 \text{ nm}$
- Package Type = Sidelooker
- Chip Material = AlGaAs
- Matched Photosensor: QSE113
- Medium Wide Emission Angle,  $50^\circ$
- Package Material: Clear Epoxy
- High Output Power
- Orange Dot Marking on the Top Side
- This is a Pb-Free Device

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

| Symbol      | Parameter                                                    | Value        | Unit             |
|-------------|--------------------------------------------------------------|--------------|------------------|
| $T_{OPR}$   | Operating Temperature                                        | -40 to +100  | $^\circ\text{C}$ |
| $T_{STG}$   | Storage Temperature                                          | -40 to +100  | $^\circ\text{C}$ |
| $T_{SOL-I}$ | Soldering Temperature (Iron)<br>(Note 2), (Note 3), (Note 4) | 240 for 5 s  | $^\circ\text{C}$ |
| $T_{SOL-F}$ | Soldering Temperature (Flow)<br>(Note 2), (Note 3)           | 260 for 10 s | $^\circ\text{C}$ |
| $I_F$       | Continuous Forward Current                                   | 100          | mA               |
| $V_R$       | Reverse Voltage                                              | 5            | V                |
| $P_D$       | Power Dissipation (Note 1)                                   | 100          | mW               |

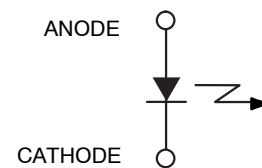
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Derate power dissipation linearly 2.67 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
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.



SIDELOOKER EMITTER  
CASE 100CJ

### SCHEMATIC



### ORDERING INFORMATION

| Device | Package                            | Shipping                |
|--------|------------------------------------|-------------------------|
| QEE122 | SIDELOOKER<br>EMITTER<br>(Pb-Free) | 500 units /<br>Bulk Bag |
| QEE123 | SIDELOOKER<br>EMITTER<br>(Pb-Free) | 500 units /<br>Bulk Bag |

## QEE122, QEE123

### ELECTRICAL / OPTICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

| Symbol                             | Parameter                | Conditions                                      | Min | Typ  | Max | Unit  |
|------------------------------------|--------------------------|-------------------------------------------------|-----|------|-----|-------|
| $\lambda_{PE}$                     | Peak Emission Wavelength | I <sub>F</sub> = 20 mA                          | –   | 890  | –   | nm    |
| TC <sub><math>\lambda</math></sub> | Temperature Coefficient  |                                                 | –   | 0.2  | –   | nm/°C |
| 2 $\Theta^{1/2}$                   | Emission Angle           | I <sub>F</sub> = 100 mA                         | –   | 50   | –   | °     |
| V <sub>F</sub>                     | Forward Voltage          | I <sub>F</sub> = 100 mA, t <sub>p</sub> = 20 ms | –   | –    | 1.7 | V     |
| TC <sub>V<sub>F</sub></sub>        | Temperature Coefficient  |                                                 | –   | –6   | –   | mV/°C |
| I <sub>R</sub>                     | Reverse Current          | V <sub>R</sub> = 5 V                            | –   | –    | 10  | μA    |
| I <sub>E</sub>                     | Radiant Intensity QEE122 | I <sub>F</sub> = 100 mA, t <sub>p</sub> = 20 ms | 4   | 9    | 16  | mW/sr |
|                                    | Radiant Intensity QEE123 |                                                 | 8   | 9    | –   |       |
| TC <sub>I<sub>E</sub></sub>        | Temperature Coefficient  |                                                 | –   | –0.3 | –   | %/°C  |
| t <sub>r</sub>                     | Rise Time                | I <sub>F</sub> = 100 mA                         | –   | 900  | –   | ns    |
| t <sub>f</sub>                     | Fall Time                |                                                 | –   | 800  | –   | ns    |
| C <sub>j</sub>                     | Junction Capacitance     | V <sub>R</sub> = 0 V                            | –   | 11   | –   | pF    |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL PERFORMANCE CHARACTERISTICS

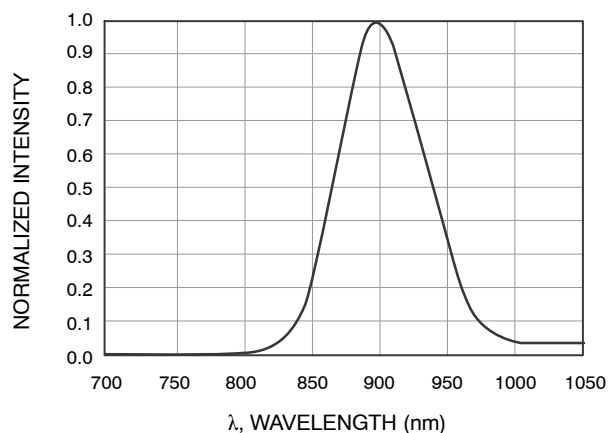


Figure 1. Normalized Intensity vs. Wavelength

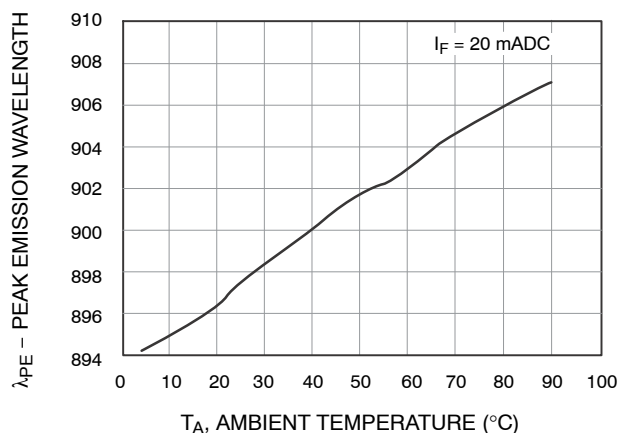


Figure 2. Peak Wavelength vs. Ambient Temperature

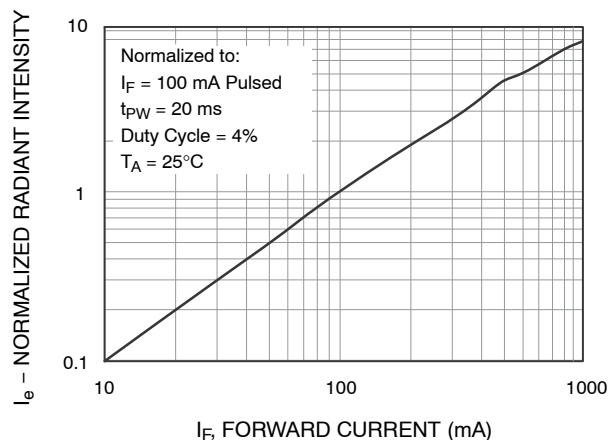


Figure 3. Normalized Radiant Intensity vs. Forward Current

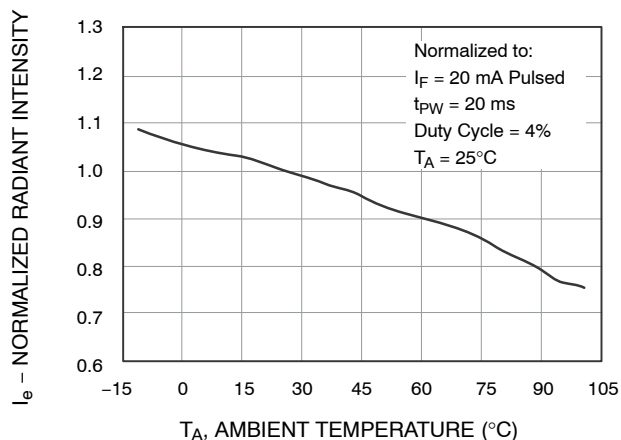


Figure 4. Normalized Radiant Intensity vs. Ambient Temperature

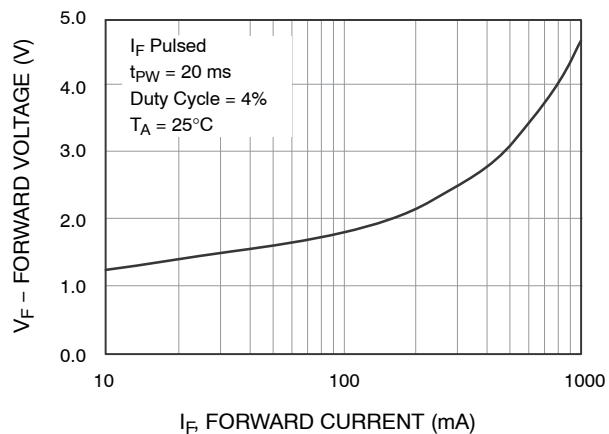


Figure 5. Forward Voltage vs. Forward Current

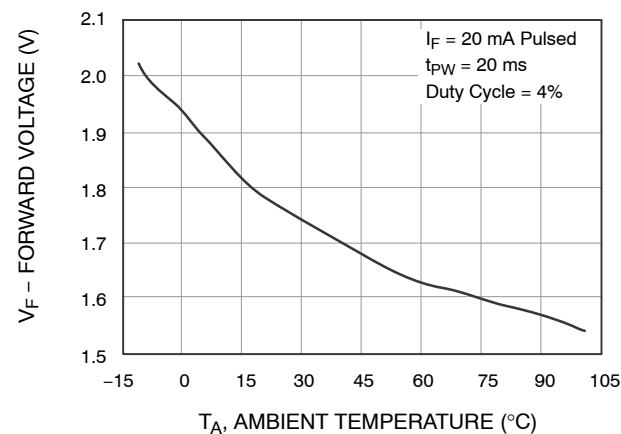


Figure 6. Forward Voltage vs. Ambient Temperature

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

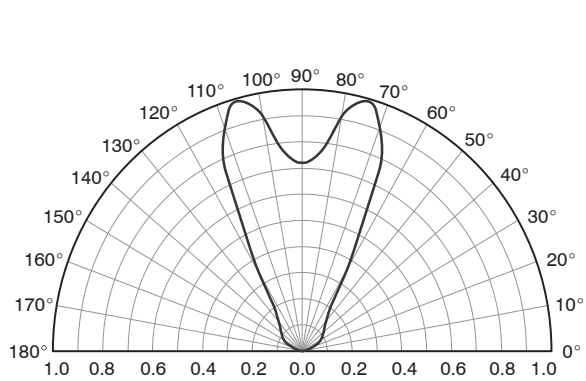


Figure 7. Radiation Diagram

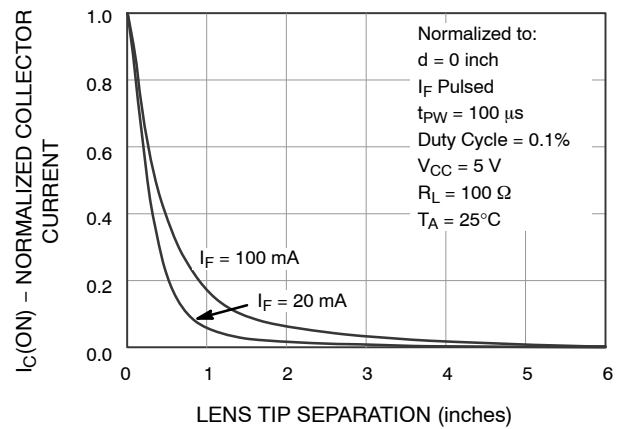
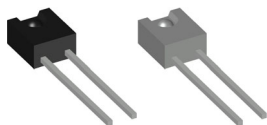
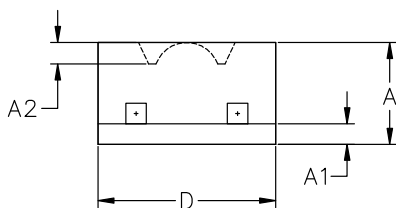


Figure 8. Coupling Characteristics of QEE122 and QSE113

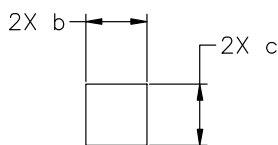


**SIDELOOKER 4.44x5.08x2.54, 2.54P**  
CASE 100CJ  
ISSUE A

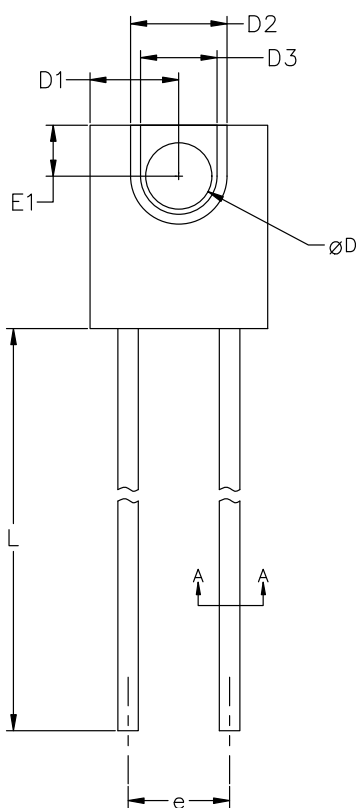
DATE 26 FEB 2024



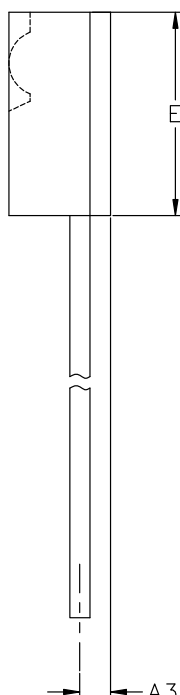
END VIEW



Section "A-A"  
Scale 3:1



TOP VIEW



SIDE VIEW

| DIMENSION (MILLIMETERS) |       |       |      |
|-------------------------|-------|-------|------|
|                         | MIN   | NOM   | MAX  |
| A                       | 2.41  | 2.54  | 2.67 |
| A1                      | 0.38  | 0.51  | 0.64 |
| A2                      | 0.48  | 0.53  | 0.58 |
| A3                      | 0.64  | 0.76  | 0.89 |
| b                       | 0.51  | 0.57  | 0.61 |
| c                       | 0.51  | 0.57  | 0.61 |
| D                       | 4.32  | 4.44  | 4.57 |
| D1                      | 2.16  | 2.21  | 2.29 |
| D2                      | 2.29  | 2.41  | 2.54 |
| D3                      | 1.78  | 1.91  | 2.03 |
| E                       | 4.83  | 5.08  | 5.33 |
| E1                      | 1.14  | 1.27  | 1.40 |
| e                       | 2.41  | 2.54  | 2.67 |
| øD                      | 1.52  | 1.65  | 1.78 |
| L                       | 12.70 | 13.46 | ---  |

NOTES:

1. DIMENSIONING AND TOLERANCING AS PER ASMEY14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.

|                         |                                         |                                                                                                                                                                                     |
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| <b>DESCRIPTION:</b>     | <b>SIDELOOKER 4.44x5.08x2.54, 2.54P</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                                  |

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