

Plastic Infrared Light Emitting Diode

QEE113

Description

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

Features

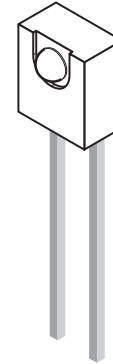
- $\lambda = 940 \text{ nm}$
- Package Type = Sidelooker
- Chip Material = GaAs
- Matched Photosensor: QSE113
- Medium Wide Emission Angle, 50°
- Package Material: Clear Epoxy
- High Output Power
- Gray Dot Marking on the Top Side
- This is a Pb-Free Device

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) (Note 2), (Note 3), (Note 4) | 240 for 5 s | $^\circ\text{C}$ |
| T_{SOL-F} | Soldering Temperature (Flow) (Note 2), (Note 3) | 260 for 10 s | $^\circ\text{C}$ |
| I_F | Continuous Forward Current | 50 | mA |
| V_R | Reverse Voltage | 5 | V |
| P_D | Power Dissipation (Note 1) | 100 | mW |

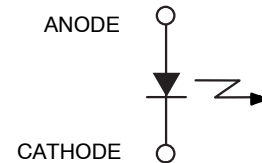
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$ above 25°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† |
|------------|------------------------------------|-----------------------------|
| QEE113 | SIDELOOKER EMITTER (Pb-Free) | 500 units / Bulk Bag |
| QEE113E3R0 | SIDELOOKER EMITTER (Pb-Free) | 2000 units / Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, [BRD8011/D](#).

QEE113

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|------------------------------------|--------------------------|---|-----|------|-----|-------|
| λ_{PE} | Peak Emission Wavelength | I _F = 20 mA | – | 945 | – | nm |
| TC _{λ} | Temperature Coefficient | | – | 0.3 | – | nm/°C |
| 2 $\theta^{1/2}$ | Emission Angle | I _F = 100 mA | – | 50 | – | ° |
| V _F | Forward Voltage | I _F = 100 mA, t _p = 20 ms | – | – | 1.5 | V |
| TC _{V_F} | Temperature Coefficient | | – | –2 | – | mV/°C |
| I _R | Reverse Current | V _R = 5 V | – | – | 10 | μA |
| I _E | Radiant Intensity | I _F = 100 mA, t _p = 20 ms | 3 | 7.5 | 12 | mW/sr |
| TC _{I_E} | Temperature Coefficient | | – | –0.7 | – | %/°C |
| t _r | Rise Time | I _F = 100 mA | – | 800 | – | ns |
| t _f | Fall Time | | – | 800 | – | ns |
| C _j | Junction Capacitance | V _R = 0 V | – | 14 | – | 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

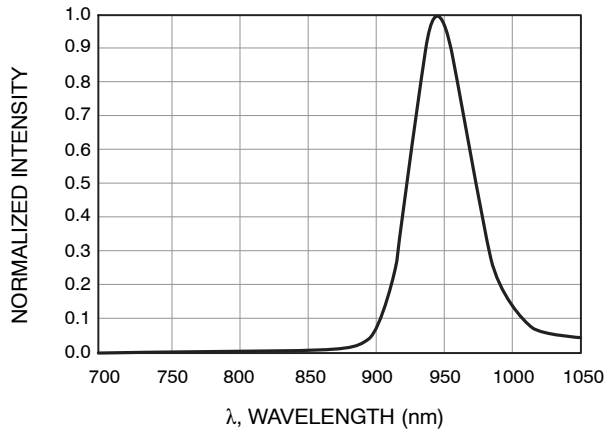


Figure 1. Normalized Intensity vs. Wavelength

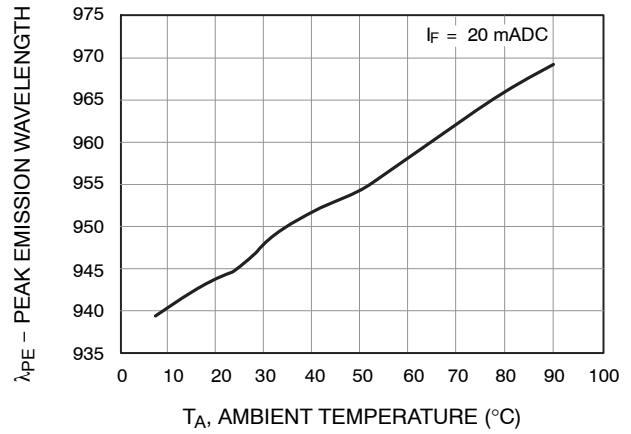


Figure 2. Peak Wavelength vs. Ambient Temperature

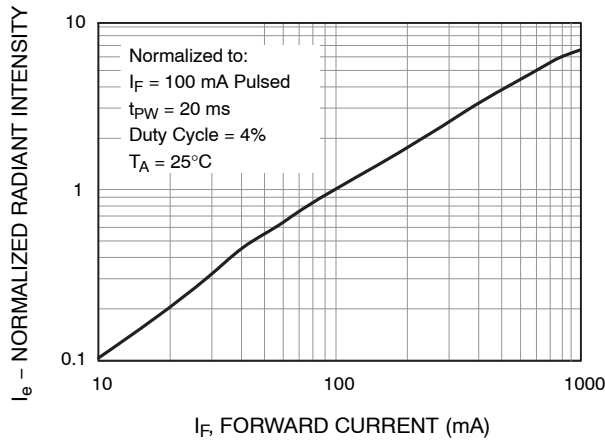


Figure 3. Normalized Radiant Intensity vs. Forward Current

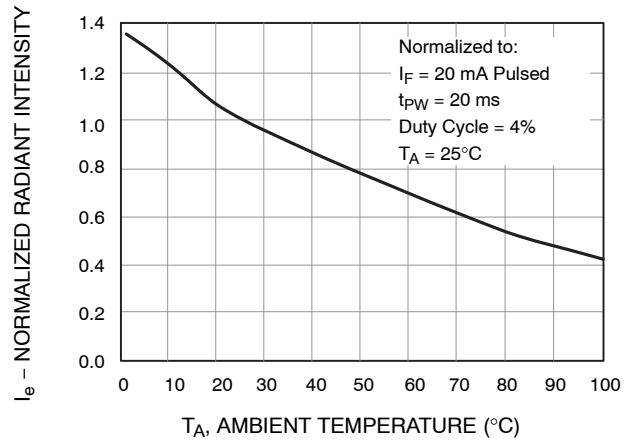


Figure 4. Normalized Radiant Intensity vs. Ambient Temperature

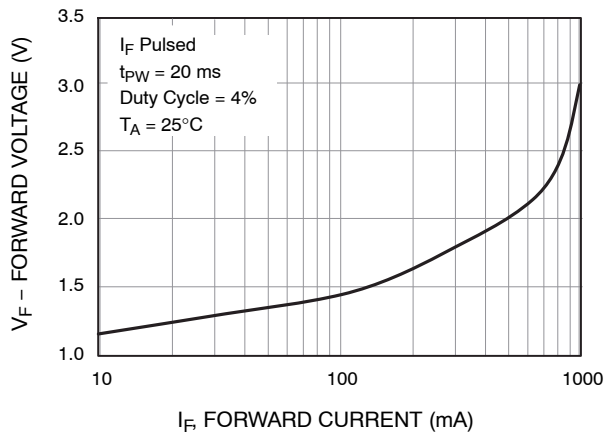


Figure 5. Forward Voltage vs. Forward Current

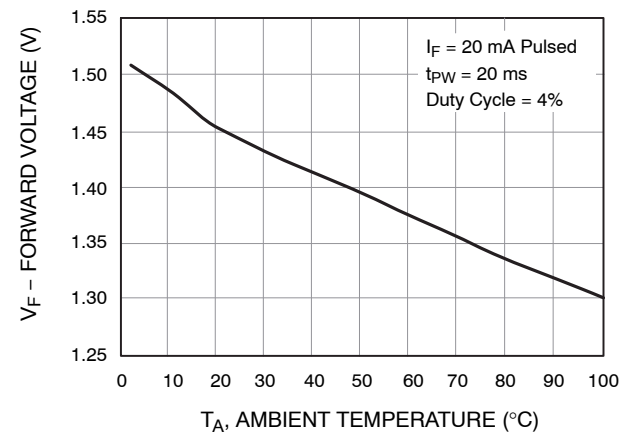


Figure 6. Forward Voltage vs. Ambient Temperature

QEE113

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

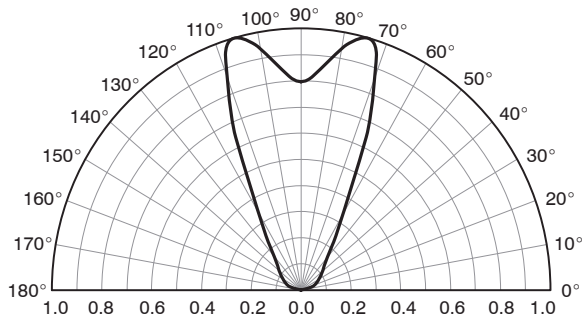


Figure 7. Radiation Diagram

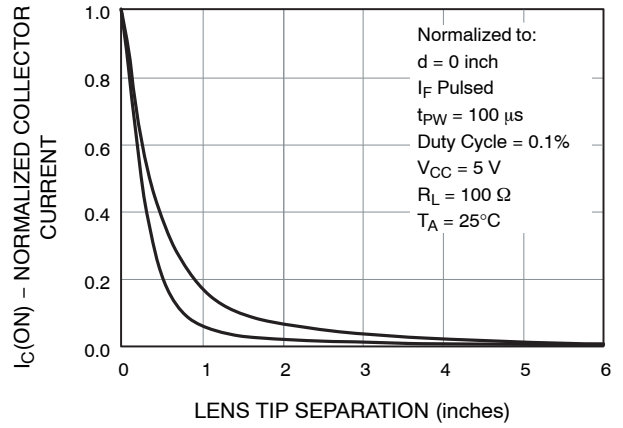
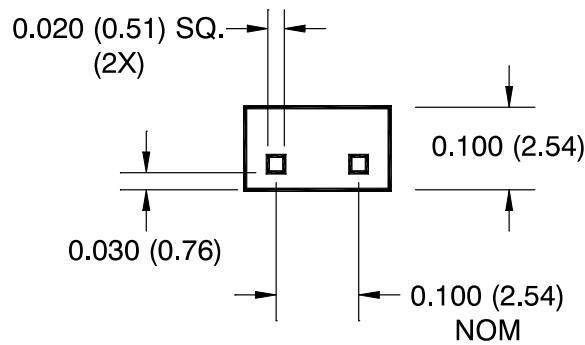
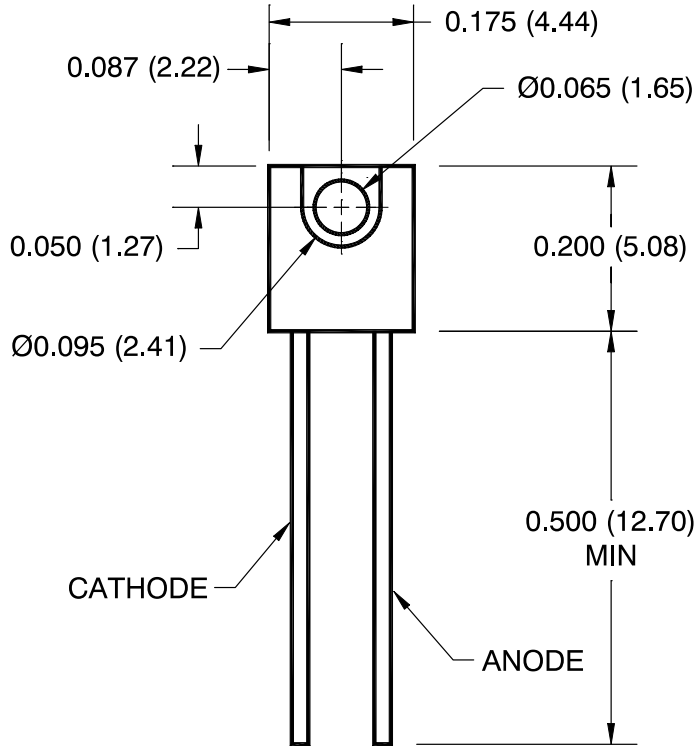


Figure 8. Coupling Characteristics of QEE113 and QSE113

SIDELOOKER EMITTER
CASE 100CJ
ISSUE O


DATE 30 NOV 2016



Notes:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± 0.010 (0.25) on all non-nominal dimensions unless otherwise specified.

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