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May 2015

QEE113 — Plastic Infrared Light Emitting Diode

QEE113 Plastic Infrared Light Emitting Diode

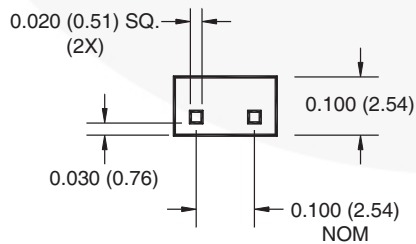
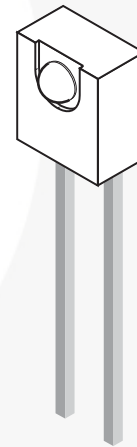
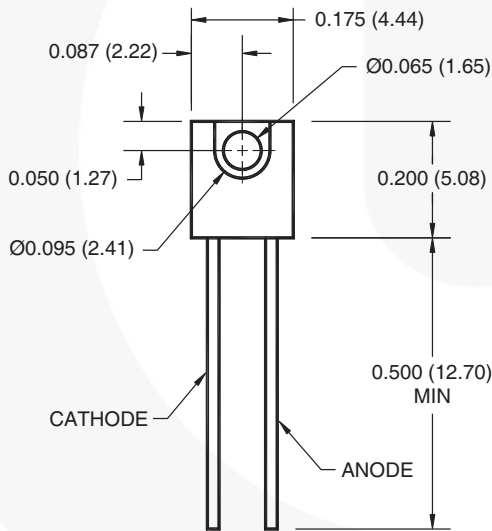
Features

- $\lambda = 940 \text{ nm}$
- 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

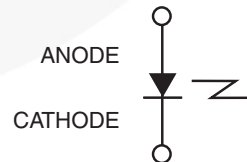
Description

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

Package Dimensions^(1, 2)



Schematic



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.

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
T_{OPR}	Operating Temperature	-40 to +100	$^\circ\text{C}$
T_{STG}	Storage Temperature	-40 to +100	$^\circ\text{C}$
$T_{\text{SOL-I}}$	Soldering Temperature (Iron) ^(4, 5, 6)	240 for 5 sec	$^\circ\text{C}$
$T_{\text{SOL-F}}$	Soldering Temperature (Flow) ^(4, 5)	260 for 10 sec	$^\circ\text{C}$
I_F	Continuous Forward Current	50	mA
V_R	Reverse Voltage	5	V
P_D	Power Dissipation ⁽³⁾	100	mW

Notes:

- Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$ above 25°C .
- RMA flux is recommended.
- Methanol or isopropyl alcohols are recommended as cleaning agents.
- Soldering iron 1/16" (1.6mm) minimum from housing.

Electrical / Optical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
λ_{PE}	Peak Emission Wavelength	$I_F = 20 \text{ mA}$		945		nm
TC_λ	Temperature Coefficient			0.3		nm/ $^\circ\text{C}$
$2\theta^{1/2}$	Emission Angle	$I_F = 100 \text{ mA}$		50		$^\circ$
V_F	Forward Voltage	$I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$			1.5	V
TC_{V_F}	Temperature Coefficient			-2		mV/ $^\circ\text{C}$
I_R	Reverse Current	$V_R = 5 \text{ V}$			10	μA
I_E	Radiant Intensity	$I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$	3	7.5	12	mW/sr
TC_{I_E}	Temperature Coefficient			-0.7		%/ $^\circ\text{C}$
t_r	Rise Time	$I_F = 100 \text{ mA}$		800		ns
t_f	Fall Time			800		ns
C_j	Junction Capacitance	$V_R = 0 \text{ V}$		14		pF

Typical Performance Characteristics

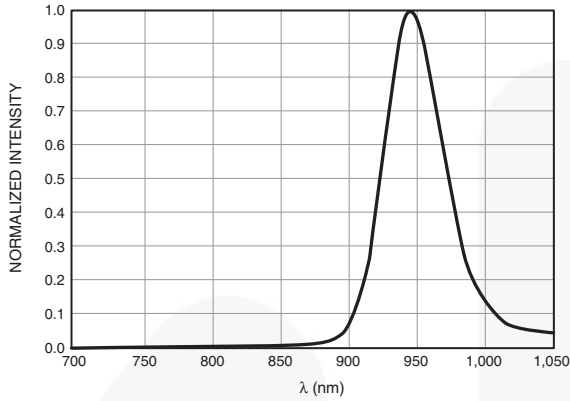


Figure 1. Normalized Intensity vs. Wavelength

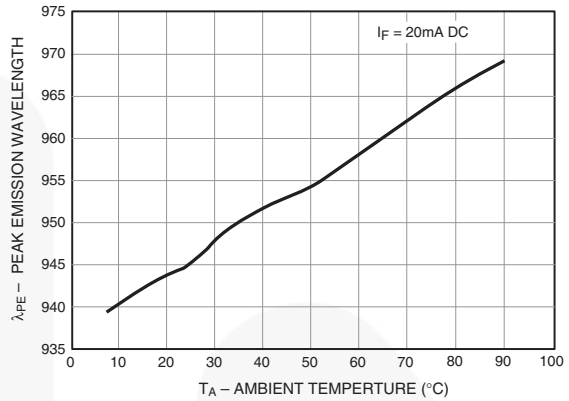


Figure 2. Peak Wavelength vs. Ambient Temperature

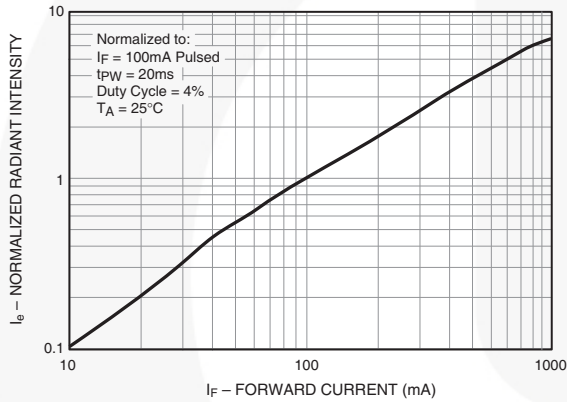


Figure 3. Normalized Radiant Intensity vs. Forward Current

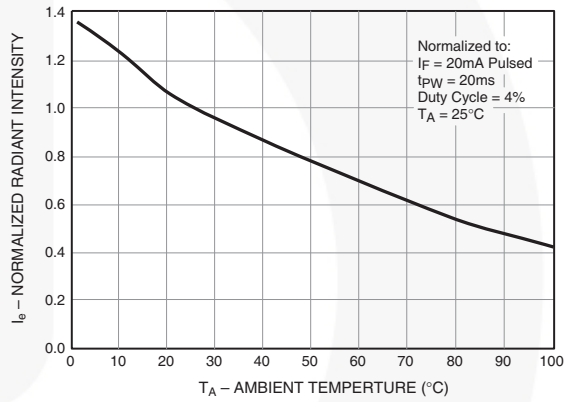


Figure 4. Normalized Radiant Intensity vs. Ambient Temperature

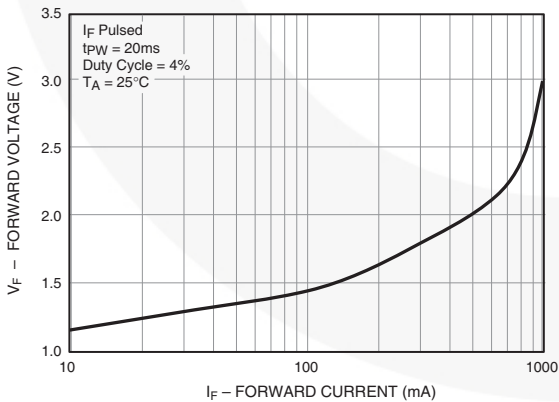


Figure 5. Forward Voltage vs. Forward Current

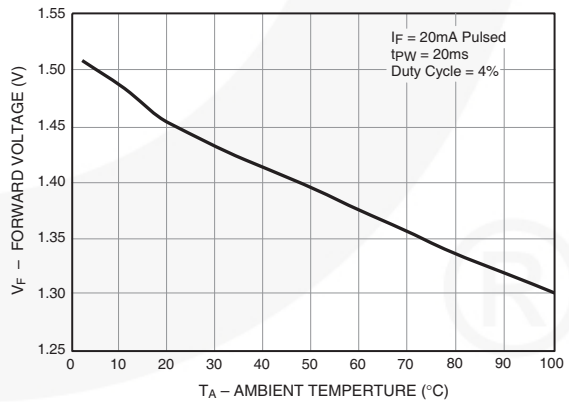


Figure 6. Forward Voltage vs. Ambient Temperature

Typical Performance Characteristics (Continued)

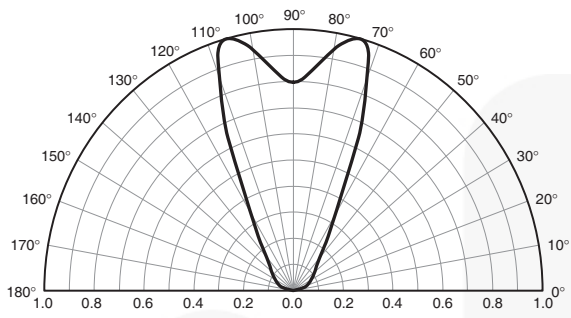


Figure 7. Radiation Diagram

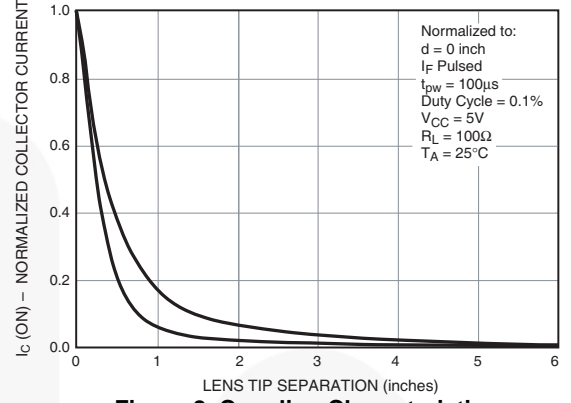







Figure 8. Coupling Characteristics of QEE113 and QSE113



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