

QEC112, QEC113 Plastic Infrared Light Emitting Diode

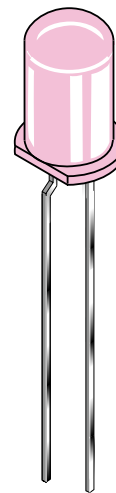
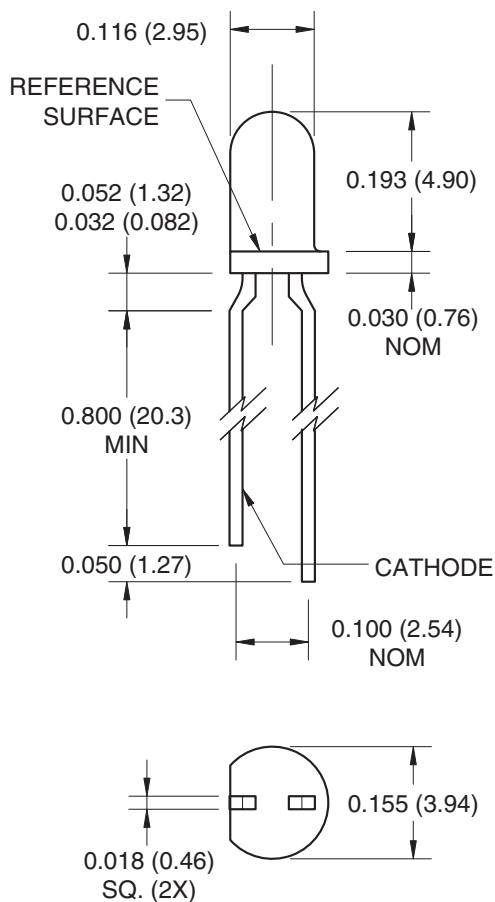
Features

- $\lambda = 940 \text{ nm}$
- Chip material = GaAs
- Package type: T-1 (3 mm)
- Can be used with QSCXXX Photosensor
- Narrow Emission Angle, 24°
- High Output Power
- Package material and color: Clear, peach tinted plastic

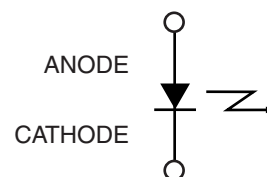
Description

The QEC11X is an 940 nm GaAs LED encapsulated in a clear peach tinted, plastic T-1 package.

Package Dimensions



Schematic



Notes:

1. Dimensions of all drawings are in inches (mm).
2. Tolerance is ± 0.10 (.25) on all non-nominal dimensions unless otherwise specified.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

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

1. Derate power dissipation linearly 1.33 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" (1.6mm) minimum from housing.

Electrical / Optical Characteristics ($T_A = 25^\circ\text{C}$)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Emission Wavelength	$I_F = 100\text{ mA}$	λ_{PE}	–	940	–	nm
Emission Angle	$I_F = 100\text{ mA}$	$2\theta^{1/2}$	–	24	–	Deg.
Forward Voltage	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	V_F	–	–	1.5	V
Reverse Current	$V_R = 5\text{ V}$	I_R	–	–	10	μA
Radiant Intensity QEC112	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	I_E	6	–	30	mW/sr
Radiant Intensity QEC113	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	I_E	14	–	–	mW/sr
Rise Time	$I_F = 100\text{ mA}$	t_r	–	1000	–	ns
Fall Time		t_f	–	1000	–	ns

Typical Performance Curves

Fig. 1 Normalized Radiant Intensity vs. Forward Current

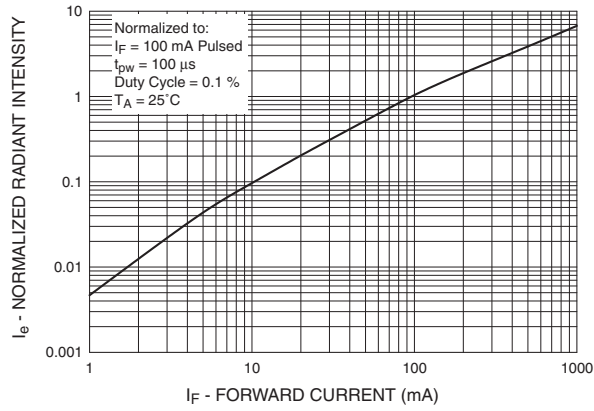


Fig. 2 Coupling Characteristics of QEC11X And QSC11X

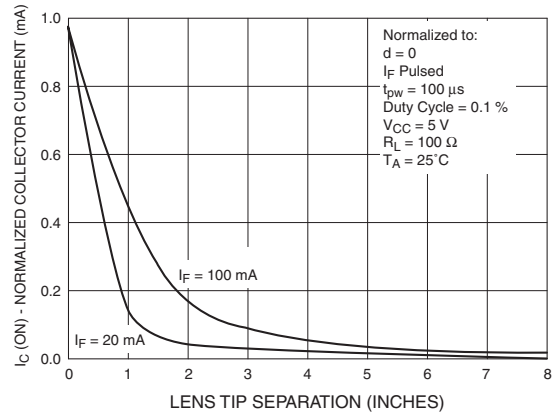


Fig. 3 Forward Voltage vs. Ambient Temperature

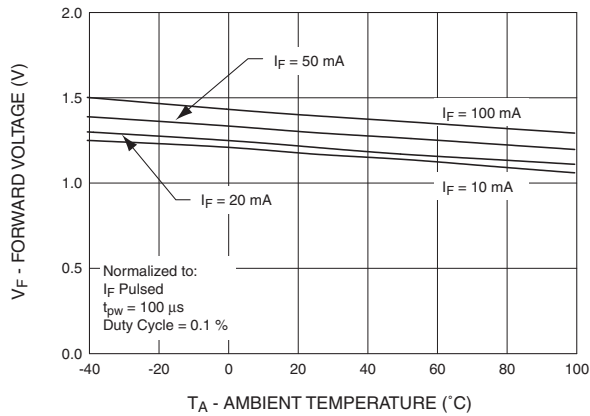


Fig. 4 Normalized Intensity vs. Wavelength

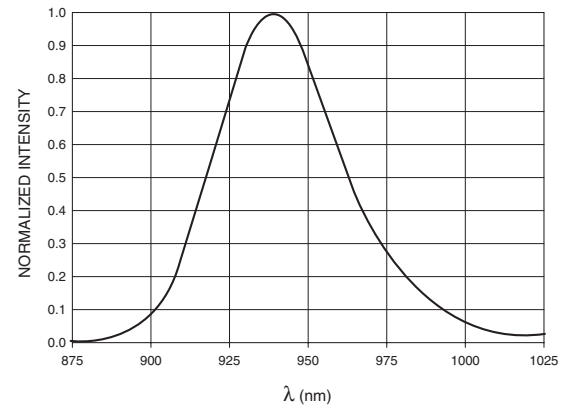
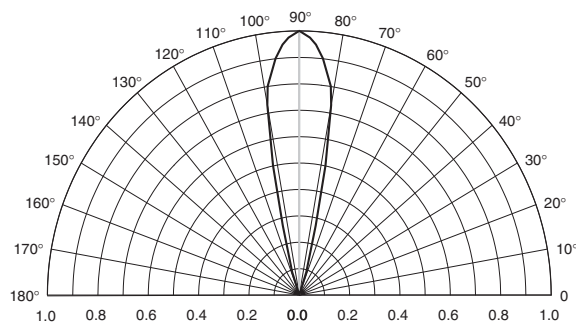


Fig. 5 Radiation Diagram



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