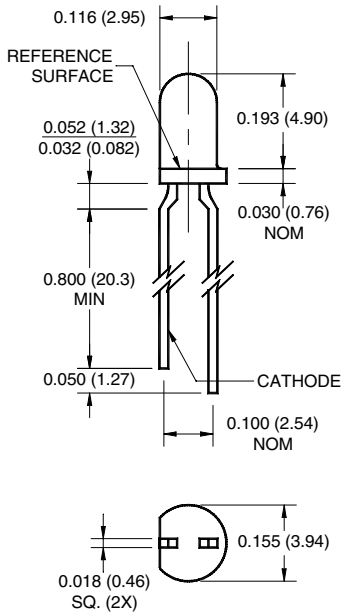
FAIRCHILD
SEMICONDUCTOR®

PLASTIC INFRARED LIGHT EMITTING DIODE

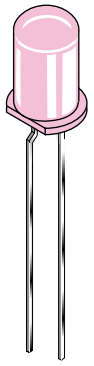
QEC112 QEC113

PACKAGE DIMENSIONS

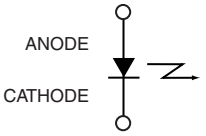


NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± .010 (.25) on all non-nominal dimensions unless otherwise specified.



SCHEMATIC



DESCRIPTION

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

FEATURES

- λ= 940 nm
- Chip material = GaAs
- Package type: T-1 (3mm)
- Matched Photosensor: QSC112
- Narrow Emission Angle, 24°
- High Output Power
- Package material and color: Clear, peach tinted plastic

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-40 to +100	°C
Storage Temperature	T_{STG}	-40 to +100	°C
Soldering Temperature (Iron)(2,3,4)	T_{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow)(2,3)	T_{SOL-F}	260 for 10 sec	°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/°C above 25°C.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6mm) minimum from housing.

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Emission Wavelength	I_F = 100 mA	λ_{PE}	—	940	—	nm
Emission Angle	I_F = 100 mA	$2\Theta_{1/2}$		24		Deg.
Forward Voltage	I_F = 100 mA, tp = 20 ms	V_F	—	—	1.5	V
Reverse Current	V_R = 5 V	I_R	—	—	10	µA
Radiant Intensity QEC112	I_F = 100 mA, tp = 20 ms	I_E	6	—	30	mW/sr
Radiant Intensity QEC113	I_F = 100 mA, tp = 20 ms	I_E	14	—	—	mW/sr
Rise Time	I_F = 100 mA	t_r	—	1000	—	ns
Fall Time		t_f	—	1000	—	ns

TYPICAL PERFORMANCE CURVES

Fig.1 Normalized Radiant Intensity vs. Forward Current

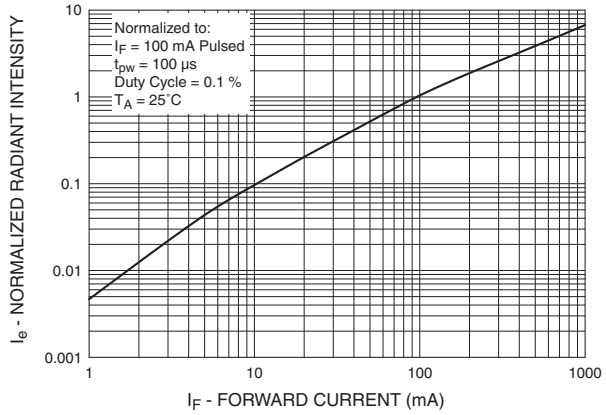


Fig.2 Coupling Characteristics of QEC11X And QSC11X

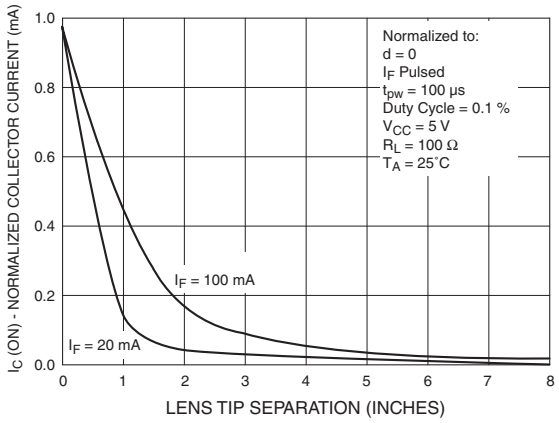


Fig.3 Forward Voltage vs. Ambient Temperature

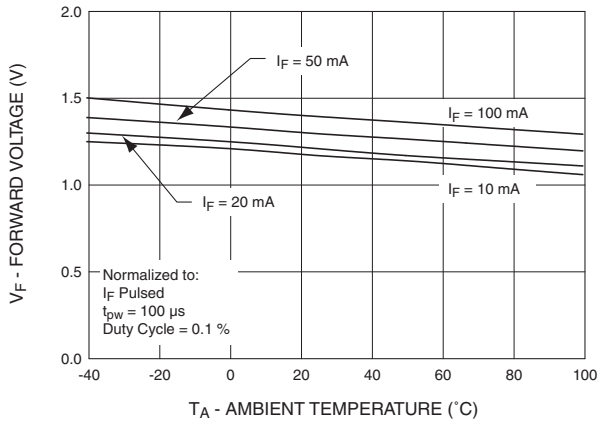


Fig. 4 Normalized Intensity vs. Wavelength

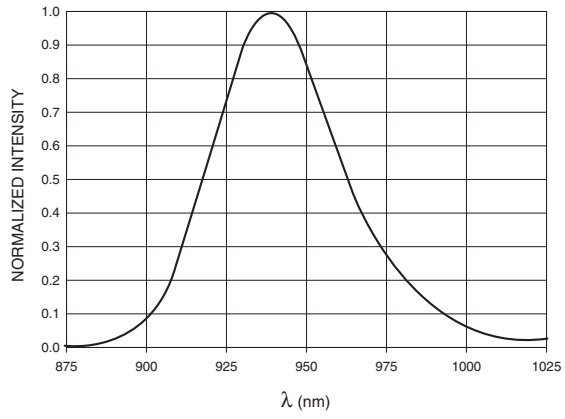
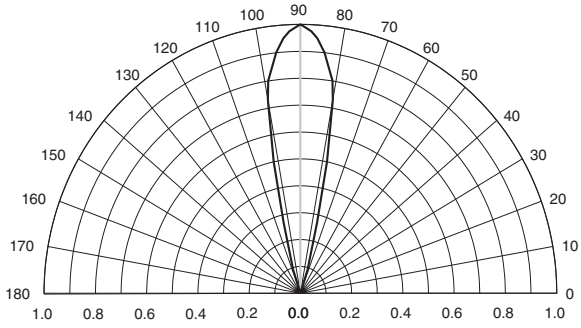


Fig. 5 Radiation Diagram



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