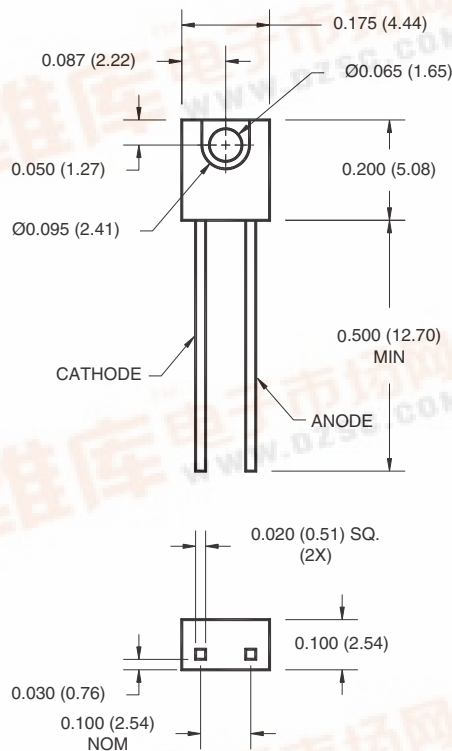


**FAIRCHILD**  
SEMICONDUCTOR®

# PLASTIC INFRARED LIGHT EMITTING DIODE

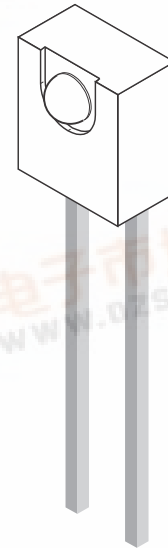
**QEE113**

## PACKAGE DIMENSIONS

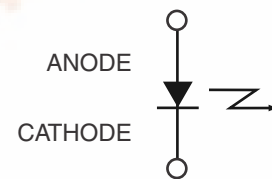


### NOTES:

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



## SCHEMATIC



## DESCRIPTION

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

## FEATURES

- $\lambda = 940$  nm
- Package Type = Sidelooker
- Chip Material = GaAs
- Matched Photosensor: QSE113
- Medium Wide Emission Angle,  $50^\circ$
- Package Material: Clear Epoxy
- High Output Power
- Gray stripes on the top side



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

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

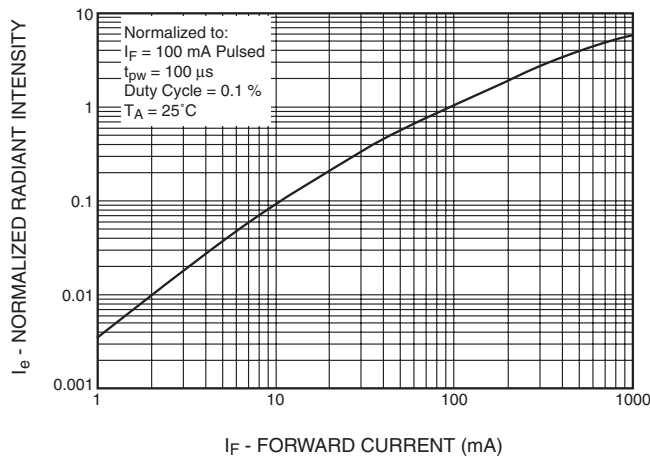
#### NOTES:

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" (1.6 mm) minimum from housing.

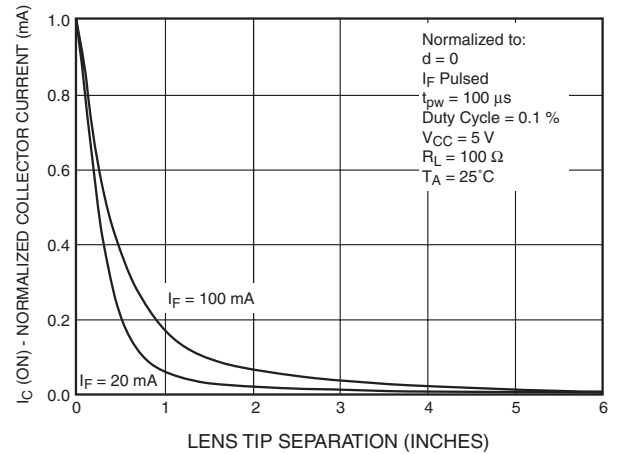
### ELECTRICAL / OPTICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Emission Wavelength	$I_F = 100\text{ mA}$	$\lambda_{PE}$	—	940	—	nm
Emission Angle	$I_F = 100\text{ mA}$	$2\theta_{1/2}$	—	50	—	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	$\mu\text{A}$
Radiant Intensity	$I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$	$I_E$	3	—	12	mW/sr
Rise Time	$I_F = 100\text{ mA}$	$t_r$	—	1000	—	ns
Fall Time		$t_f$	—	1000	—	ns

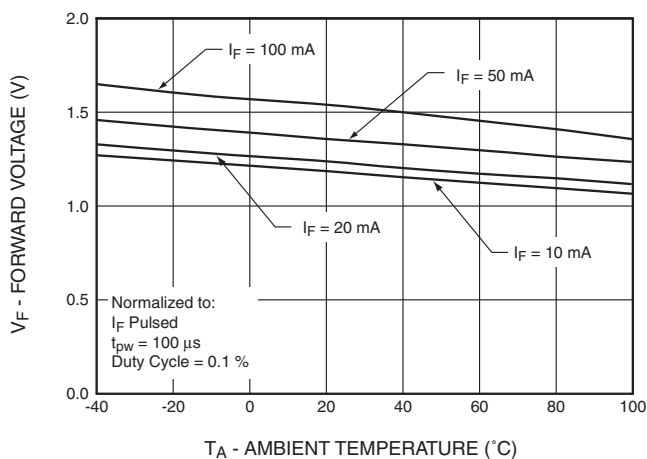
**Fig.1 Normalized Radiant Intensity vs. Forward Current**



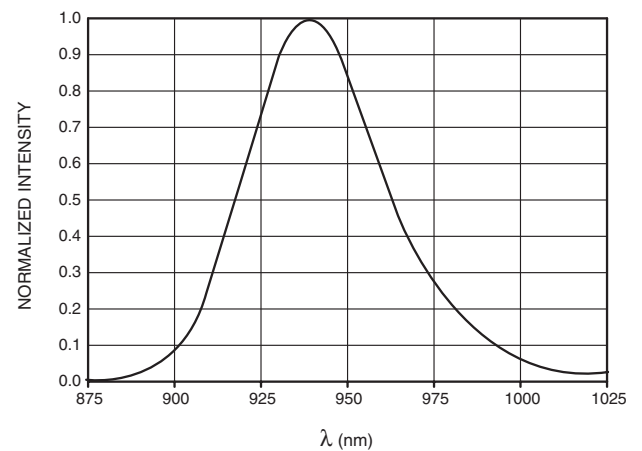
**Fig.2 Coupling Characteristics of QEE113 And QSE113**



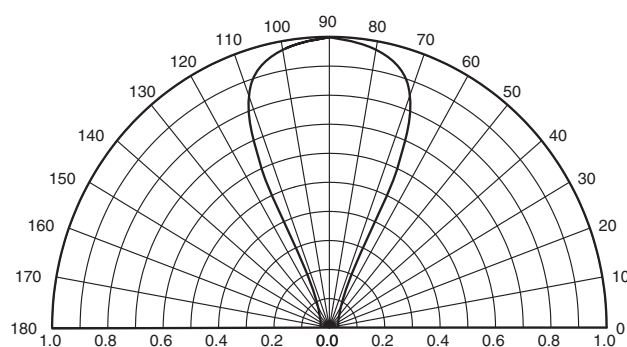
**Fig.3 Forward Voltage vs. Ambient Temperature**



**Fig. 4 Normalized Intensity vs. Wavelength**



**Fig. 5 Radiation Diagram**



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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.