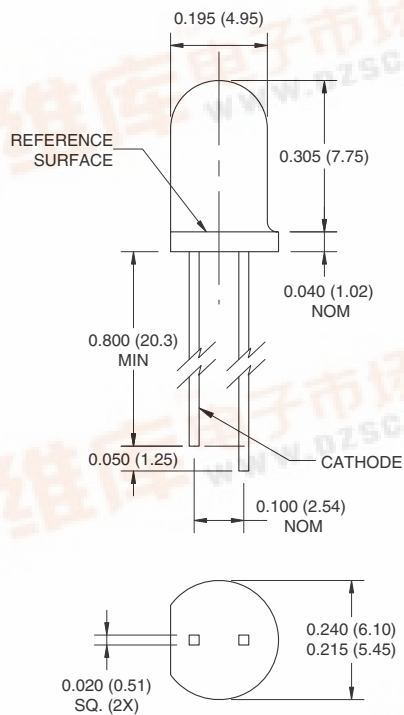


FAIRCHILD
SEMICONDUCTOR®

PLASTIC INFRARED LIGHT EMITTING DIODE

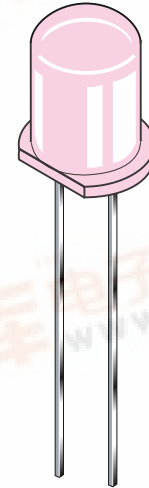
QED123UL

PACKAGE DIMENSIONS

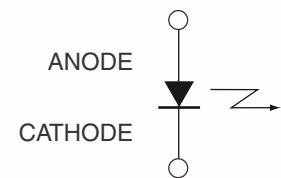


NOTES:

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



SCHEMATIC



FEATURES

- UL217 Approved
- $\lambda = 880 \text{ nm}$
- Chip material = AlGaAs
- Package type: T-1 3/4 (5mm lens diameter)
- Matched Photosensor: QSB34
- Narrow Emission Angle, 18°
- High Output Power
- Package material and color: Clear, peach

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) ^(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	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation ⁽¹⁾	P_D	200	mW

NOTES:

1. Derate power dissipation linearly 2.67 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

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

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Emission Wavelength	$I_F = 20\text{ mA}$	λ_{PE}	—	880	—	nm
Emission Angle	$I_F = 100\text{ mA}$	$2\theta^{1/2}$	—	18	—	Deg.
Forward Voltage	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	V_F	—	—	1.7	V
Reverse Current	$V_R = 5\text{ V}$	I_R	—	—	10	μA
Radiant Intensity QED121	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	I_E	16	—	40	mW/sr
Rise Time	$I_F = 100\text{ mA}$	t_r	—	800	—	ns
Fall Time		t_f	—	800	—	ns

Typical Performance Characteristics

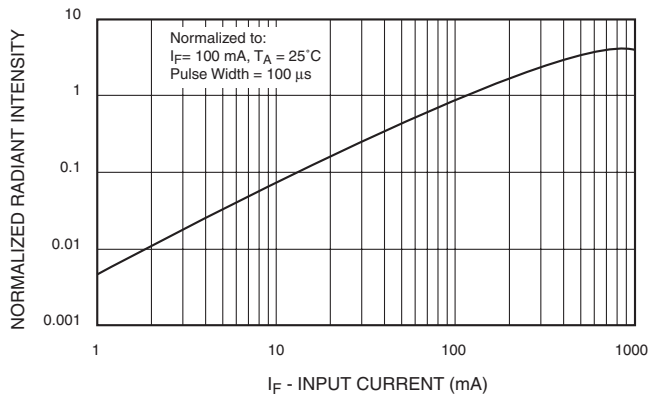


Fig. 1 Normalized Radiant Intensity vs. Input Current

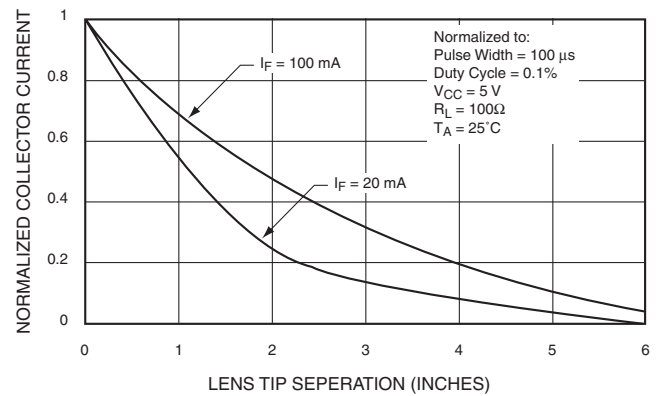


Fig. 2 Coupling Characteristics of QED12X and QSD12X

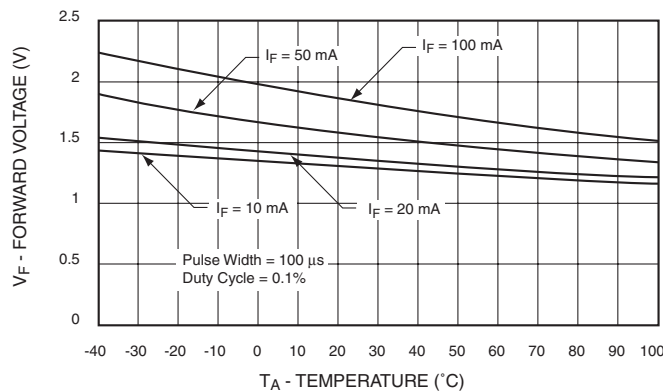


Fig. 3 Forward Voltage vs. Temperature

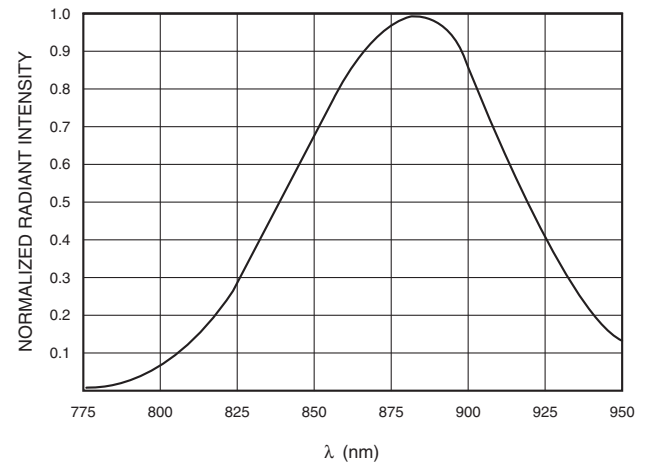


Fig. 4 Normalized Radiant Intensity vs. Wavelength

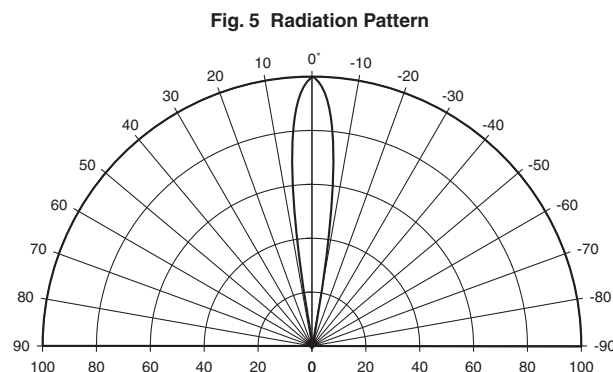


Fig. 5 Radiation Pattern

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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.