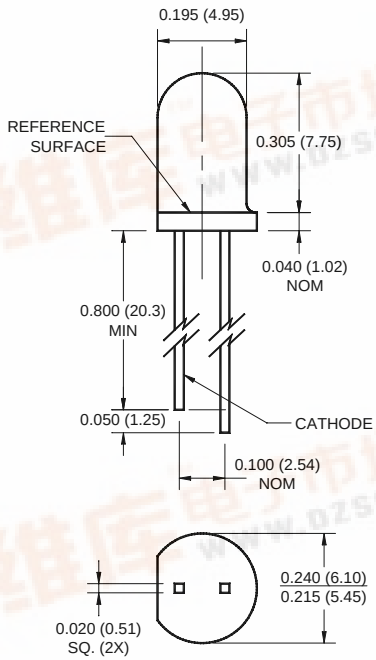
FAIRCHILD
SEMICONDUCTOR®

PLASTIC INFRARED LIGHT EMITTING DIODE

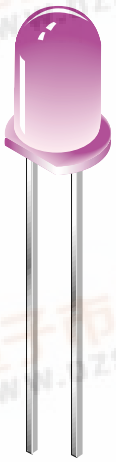
QED221 QED222 QED223

PACKAGE DIMENSIONS

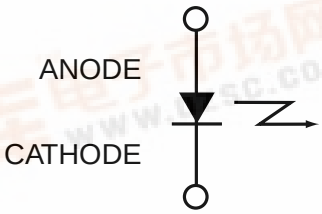


NOTES:

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 QED22X is an 880nm AlGaAs LED encapsulated in clear, purple tinted, plastic T-1 3/4 package.

FEATURES

- λ= 880 nm
- Chip material = AlGaAs
- Package type: T-1 3/4 (5mm lens diameter)
- Matched Photosensor: QSD122/123/124
- Medium Wide Emission Angle, 40°
- High Output Power
- Package material and color: Clear, purple 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	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation (1)	P_D	200	mW
Peak Forward Current (5)	$I_{F(Peak)}$	1.5	A

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Emission Wavelength	I_F = 100 mA	λ_{PE}	—	880	—	nm
Emission Angle	I_F = 100 mA	Θ	—	±20	—	Deg.
Forward Voltage	I_F = 100 mA, tp = 20 ms	V_F	—	—	1.7	V
Reverse Current	V_R = 5 V	I_R	—	—	10	µA
Radiant Intensity QED221	I_F = 100 mA, tp = 20 ms	I_E	10	—	20	mW/sr
Radiant Intensity QED222	I_F = 100 mA, tp = 20 ms	I_E	16	—	32	mW/sr
Radiant Intensity QED223	I_F = 100 mA, tp = 20 ms	I_E	25	—	—	mW/sr
Rise Time	I_F = 100 mA	t_r	—	800	—	ns
Fall Time		t_f	—	800	—	ns

1. Derate power dissipation linearly 2.67 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.
5. Pulse conditions; tp = 100 µS, T = 10 ms.

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Fig. 1 Normalized Radiant Intensity vs. Input Current

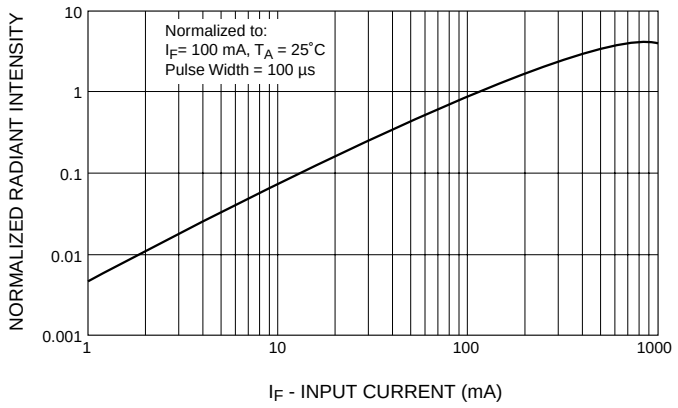


Fig. 2 Coupling Characteristics of QED22X with QSD12X

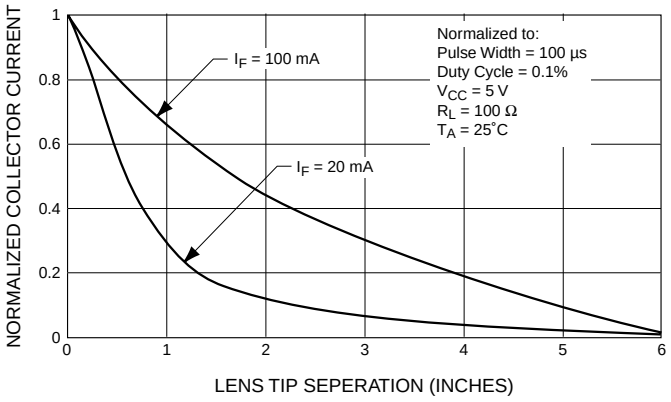


Fig. 3 Forward Voltage vs. Temperature

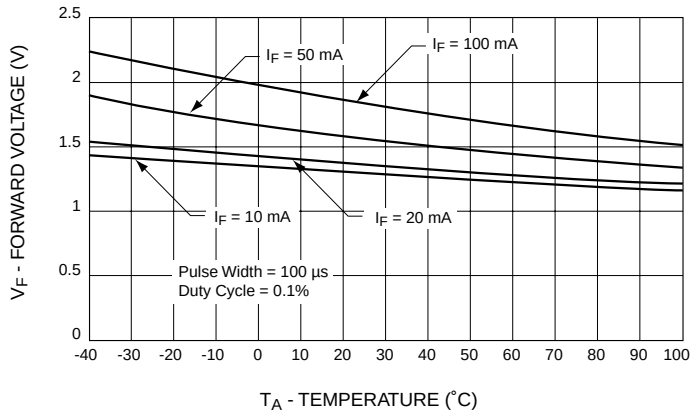


Fig. 4 Normalized Radiant Intensity vs. Wavelength

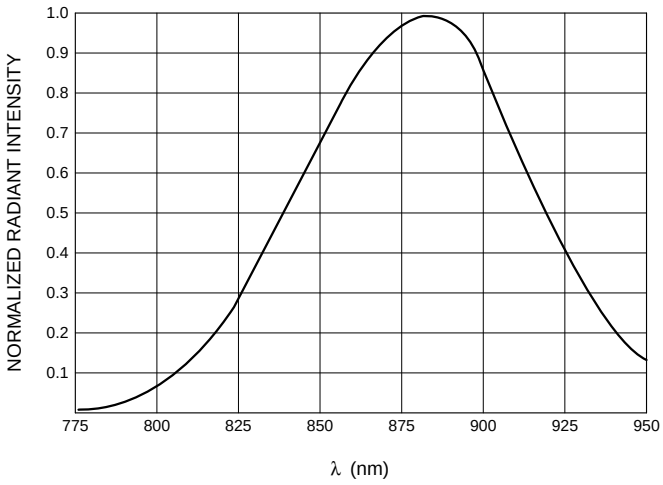


Fig. 5 Forward Current vs. Forward Voltage

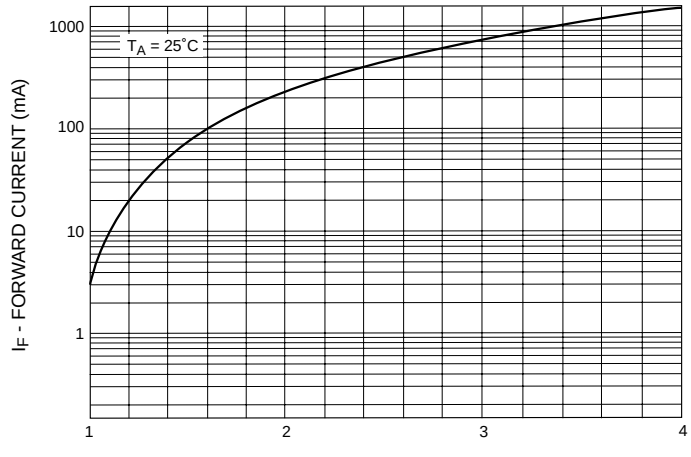
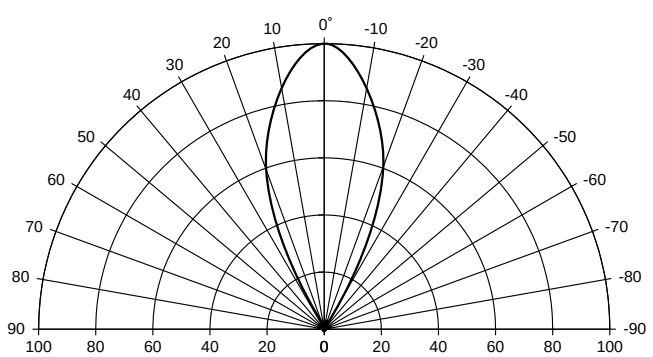


Fig. 6 Radiation Pattern



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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.