Plastic Infrared Light Emitting Diode

QED123

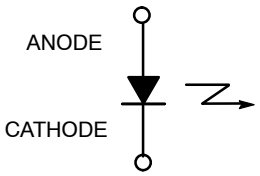
Description

The QED123 is 880 nm AlGaAs LEDs encapsulated in a clear peach tinted, plastic T−1 3/4 package.

Features

- λ = 880 nm
- Chip Material = AlGaAs
- Package Type: T−1 3/4 (5 mm lens diameter)
- Matched Photosensor: QSD123/QSD124
- Narrow Emission Angle, 16°
- High Output Power
- Package Material and Color: Clear, Peach Tinted, Plastic

SCHEMATIC



T−1 3/4, 5MM LED
CASE 100CC

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

Symbol	Parameter	Value	Unit
T_{OPR}	Operating Temperature	−40 to +100	°C
T_{STG}	Storage Temperature	−40 to +100	°C
T_{SOL-I}	Soldering Temperature (Iron) (Notes 2, 3, 4)	240 for 5 s	°C
T_{SOL-F}	Soldering Temperature (Flow) (Notes 2, 3)	260 for 10 s	°C
I_F	Continuous Forward Current	100	mA
V_R	Reverse Voltage	5	V
P_D	Power Dissipation (Note 1)	200	mW

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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 tip 1/16” (1.6 mm) minimum from housing.

ORDERING INFORMATION

Device	Package	Shipping†
QED123	T−1 3/4, 5MM LED (Pb−Free)	250 / Bulk Bag
QED123A4R0	T−1 3/4, 5MM LED (Pb−Free)	1200 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

ELECTRICAL/OPTICAL CHARACTERISTICS (T_A = 25°C)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
λ_{PE}	Peak Emission Wavelength	I_F = 20 mA	−	890	−	nm
TC_λ	Temperature Coefficient		−	0.2	−	nm/°C
2Θ1/2	Emission Angle	I_F = 100 mA	−	16	−	°
V_F	Forward Voltage	I_F = 100 mA, tp = 20 ms	−	−	1.7	V
TC_{VF}	Temperature Coefficient		−	−6	−	mV/°C
I_R	Reverse Current	V_R = 5 V	−	−	10	μA
I_E	Radiant Intensity QED123	I_F = 100 mA, tp = 20 ms	50	70	−	mW/sr
TC_{IE}	Temperature Coefficient		−	−0.3	−	%/°C
t_r	Rise Time	I_F = 100 mA	−	900	−	ns
t_f	Fall Time	I_F = 100 mA	−	800	−	ns
C_j	Junction Capacitance	V_R = 0 V	−	11	−	pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL PERFORMANCE CURVES

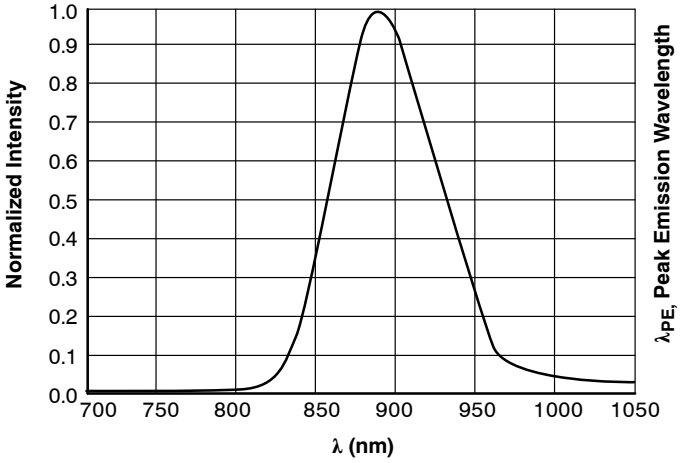


Figure 1. Normalized Intensity vs. Wavelength

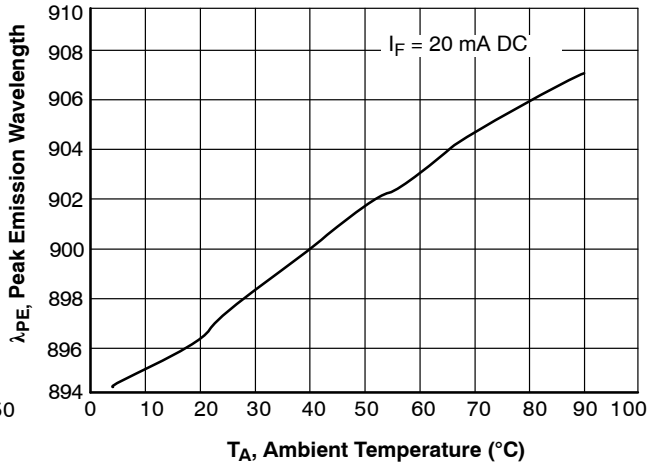


Figure 2. Peak Wavelength vs. Ambient Temperature

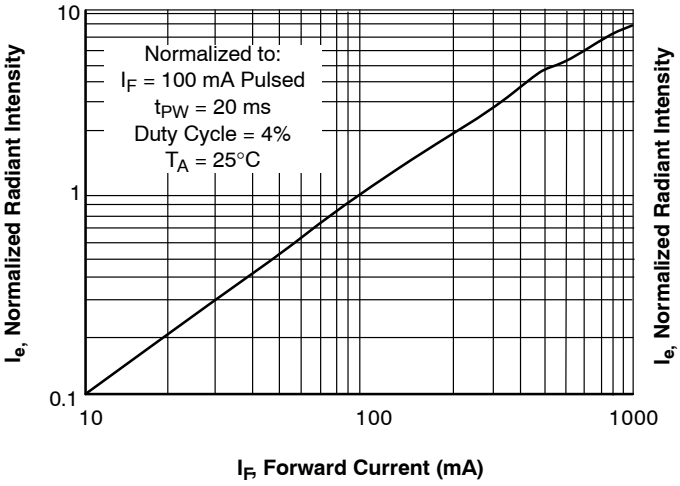


Figure 3. Normalized Radiant Intensity vs. Forward Current

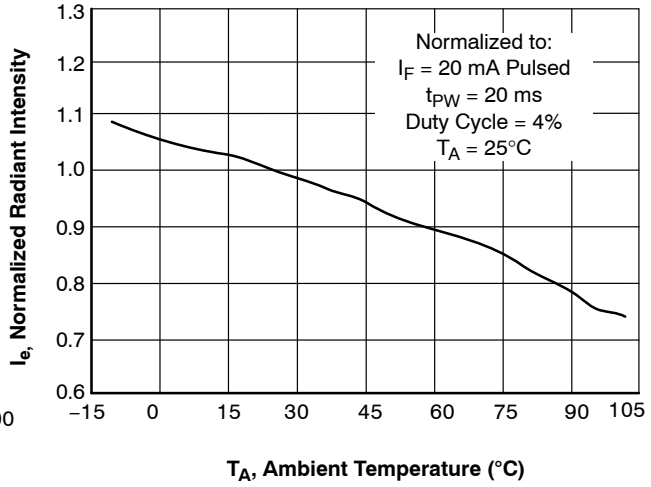


Figure 4. Normalized Radient Intensity vs. Ambient Temperature

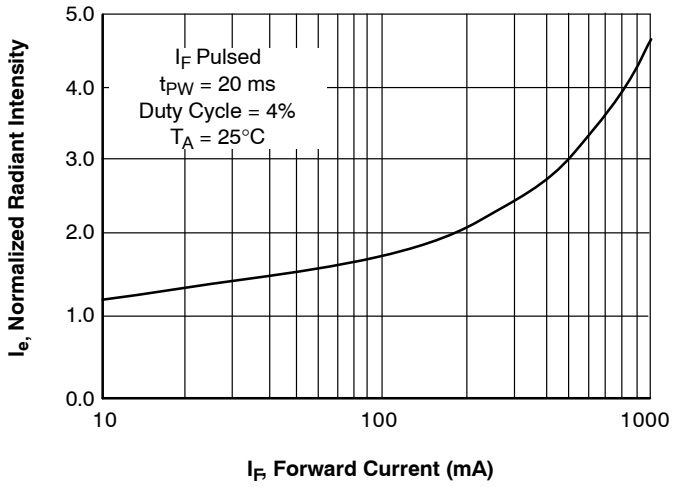


Figure 5. Forward Voltage vs. Forward Current

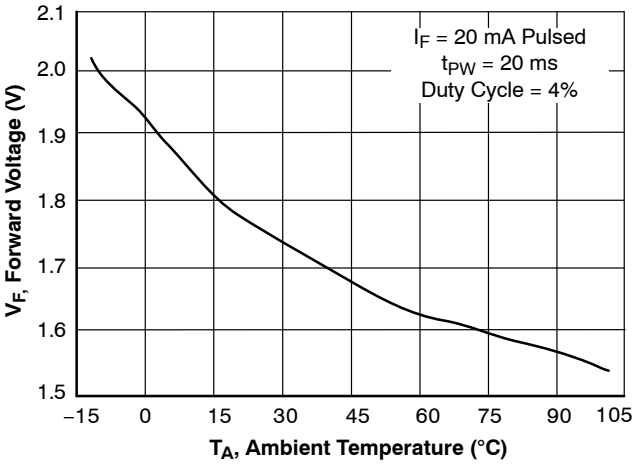


Figure 6. Forward Voltage vs. Ambient Temperature

TYPICAL PERFORMANCE CURVES (continue)

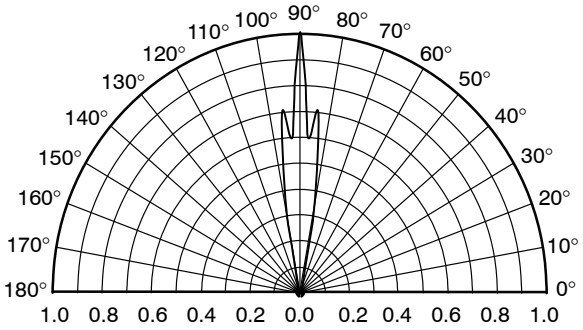


Figure 7. Radiation Diagram

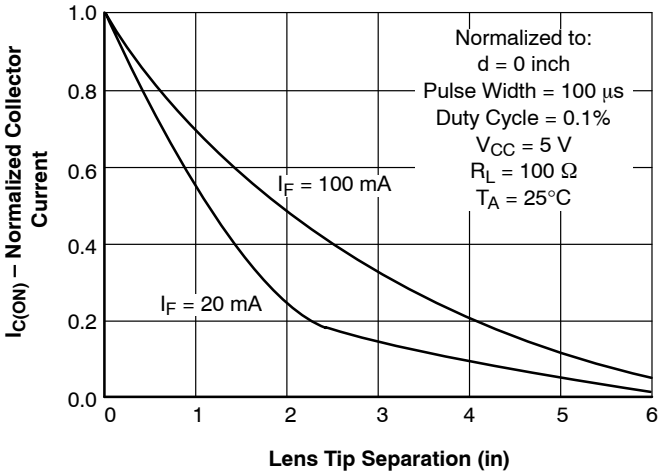


Figure 8. Coupling Characteristics of QED12X and QSD12X

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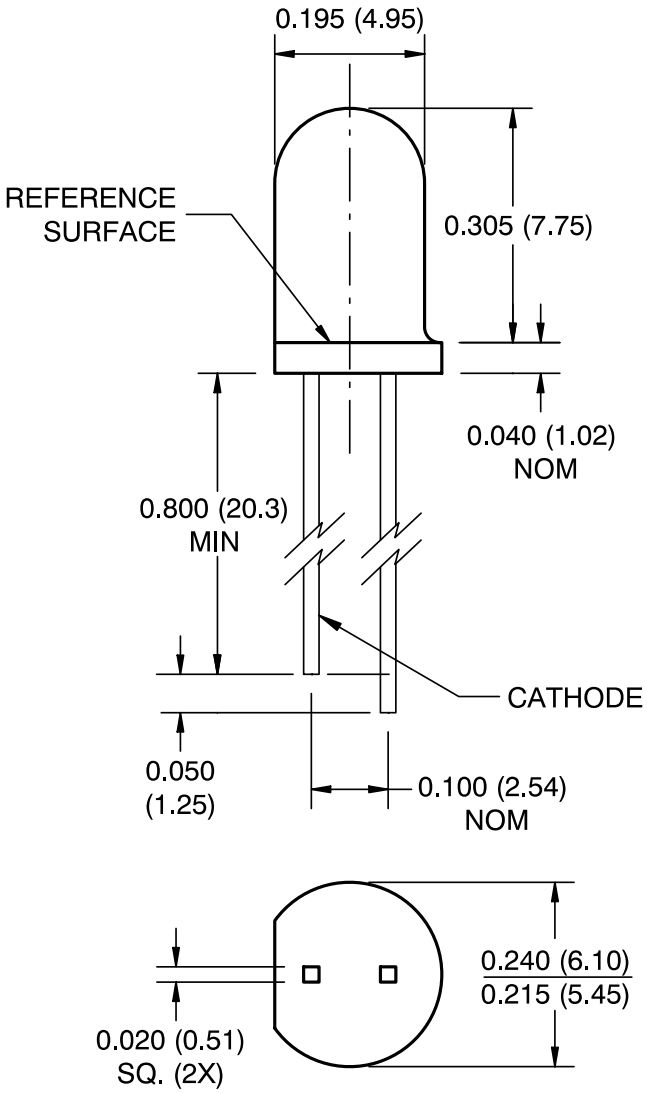

Notes:
1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ±0.010 (0.25) on all non-nominal dimensions unless otherwise specified.

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O	RELEASED FOR PRODUCTION FROM FAIRCHILD DBE111A TO ON SEMICONDUCTOR. REQ. BY J. LETTERMAN.	30 NOV 2016

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