

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

- $\lambda = 880 \text{ nm}$
- 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

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

Symbol	Parameter	Value	Unit
T_{OPR}	Operating Temperature	-40 to +100	$^\circ\text{C}$
T_{STG}	Storage Temperature	-40 to +100	$^\circ\text{C}$
T_{SOL-I}	Soldering Temperature (Iron) (Notes 2, 3, 4)	240 for 5 s	$^\circ\text{C}$
T_{SOL-F}	Soldering Temperature (Flow) (Notes 2, 3)	260 for 10 s	$^\circ\text{C}$
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.

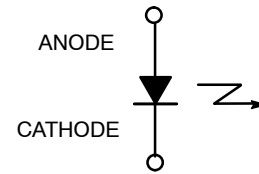
1. Derate power dissipation linearly 2.67 mW/ $^\circ\text{C}$ above 25°C .
2. RMA flux is recommended.
3. Methanol or Isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip 1/16" (1.6 mm) minimum from housing.

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
λ_{PE}	Peak Emission Wavelength	$I_F = 20 \text{ mA}$	–	890	–	nm
TC_λ	Temperature Coefficient		–	0.2	–	nm/ $^\circ\text{C}$
$2\theta_{1/2}$	Emission Angle	$I_F = 100 \text{ mA}$	–	16	–	$^\circ$
V_F	Forward Voltage	$I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$	–	–	1.7	V
TC_{VF}	Temperature Coefficient		–	-6	–	mV/ $^\circ\text{C}$
I_R	Reverse Current	$V_R = 5 \text{ V}$	–	–	10	μA
I_E	Radiant Intensity QED123	$I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$	50	70	–	mW/sr
TC_{IE}	Temperature Coefficient		–	-0.3	–	%/ $^\circ\text{C}$
t_r	Rise Time	$I_F = 100 \text{ mA}$	–	900	–	ns
t_f	Fall Time	$I_F = 100 \text{ mA}$	–	800	–	ns
C_j	Junction Capacitance	$V_R = 0 \text{ V}$	–	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.

SCHEMATIC



T-1 3/4, 5MM LED
CASE 100CC

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.

TYPICAL PERFORMANCE CURVES

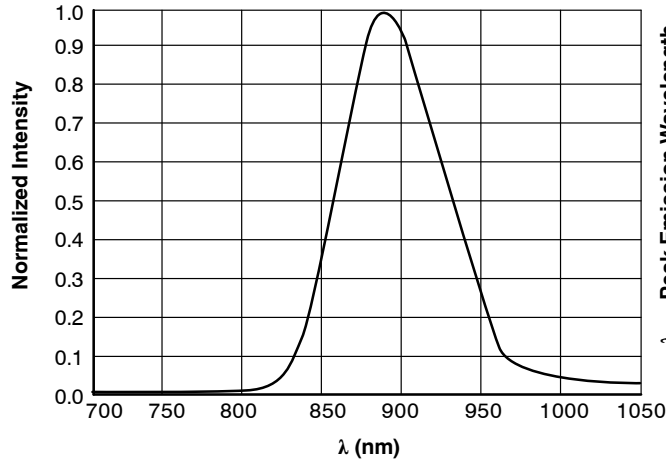


Figure 1. Normalized Intensity vs. Wavelength

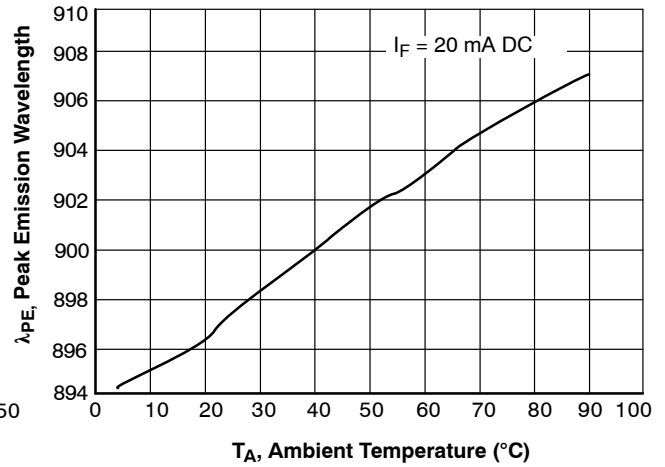


Figure 2. Peak Wavelength vs. Ambient Temperature

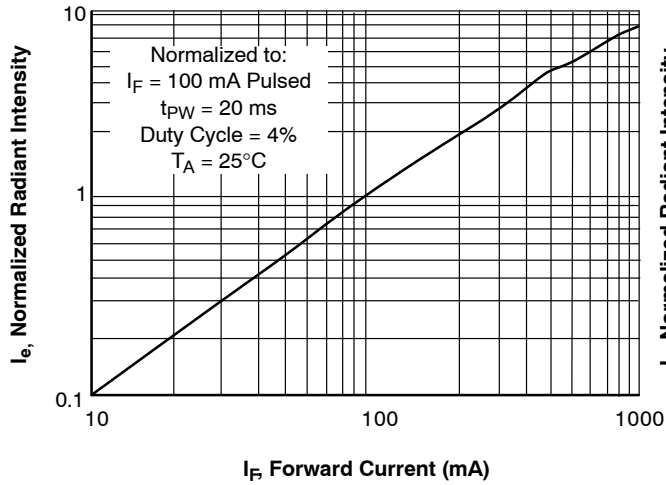


Figure 3. Normalized Radiant Intensity vs. Forward Current

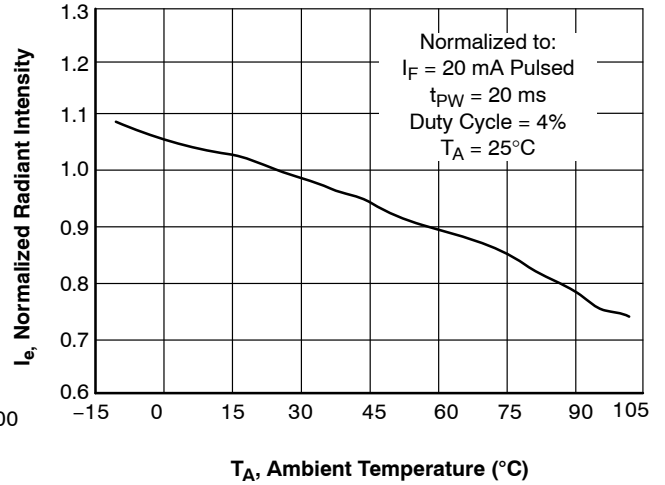


Figure 4. Normalized Radiant Intensity vs. Ambient Temperature

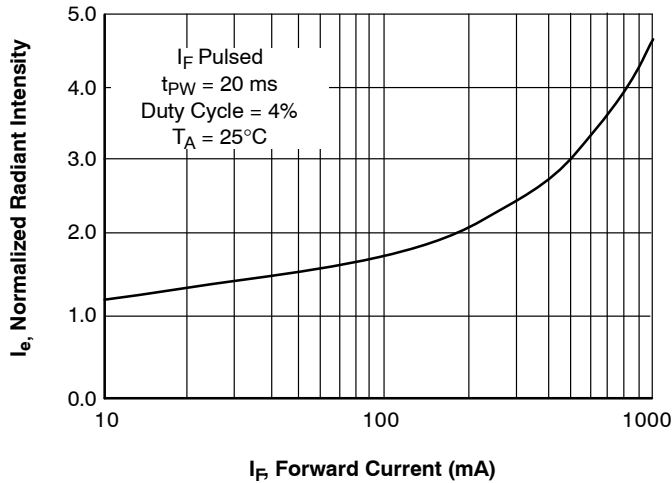


Figure 5. Forward Voltage vs. Forward Current

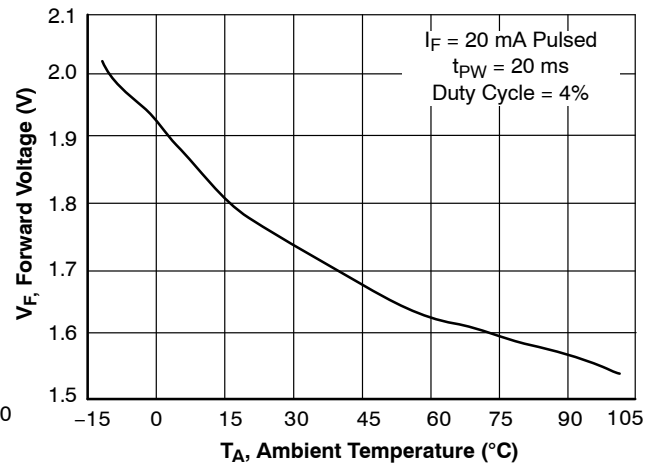


Figure 6. Forward Voltage vs. Ambient Temperature

TYPICAL PERFORMANCE CURVES (continue)

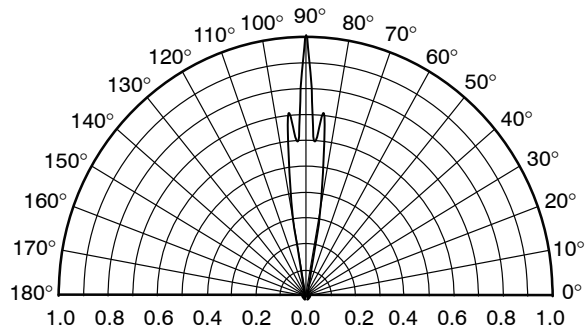


Figure 7. Radiation Diagram

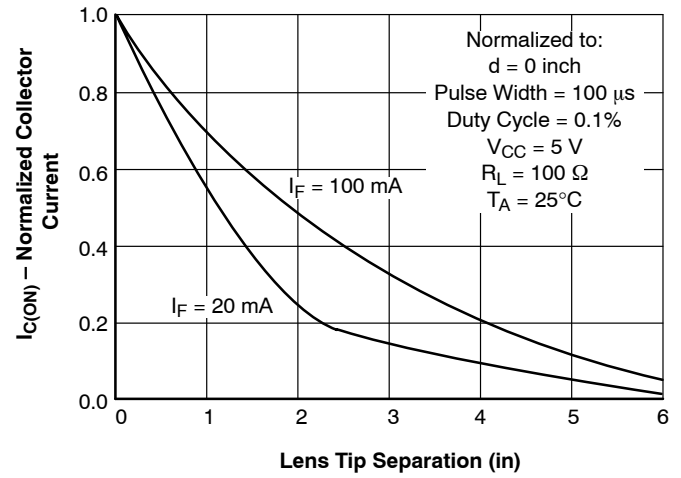
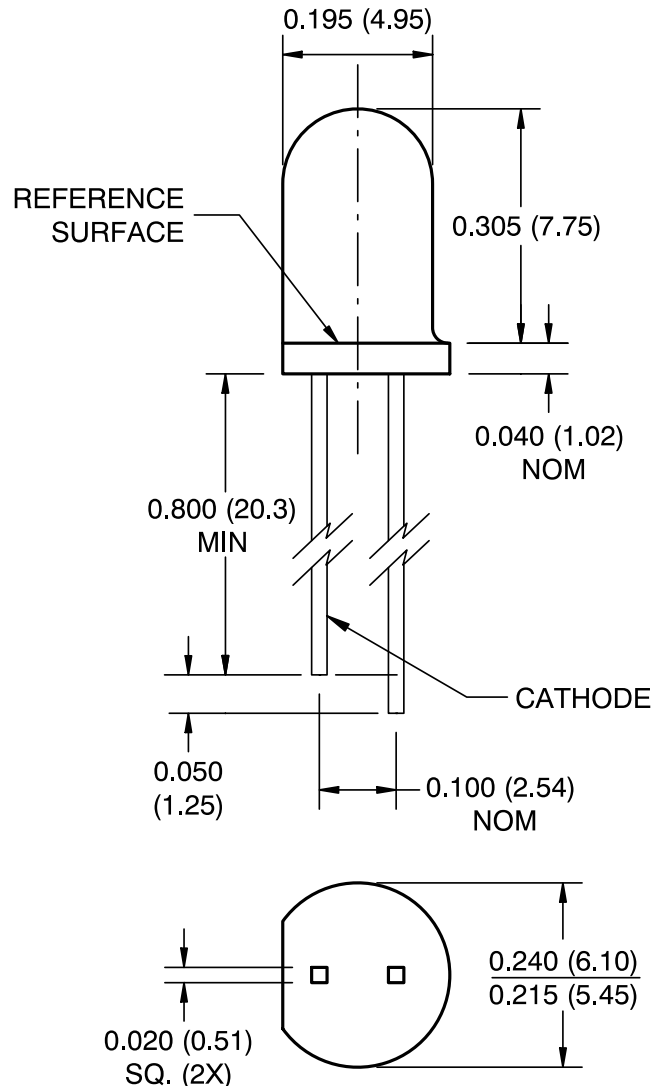


Figure 8. Coupling Characteristics of QED12X and QSD12X

T-1 3/4, 5MM LED
CASE 100CC
ISSUE O

DATE 30 NOV 2016



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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