

# Plastic Infrared Light Emitting Diode

## QED223

### Description

The QED223 is 880 nm AlGaAs LEDs encapsulated in a clear purple 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
- Medium wide Emission Angle, 30°
- High Output Power
- Package Material and Color: Clear, Purple Tinted, Plastic

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
T <sub>OPR</sub>	Operating Temperature	-40 to 100	°C
T <sub>STG</sub>	Storage Temperature	-40 to +100	°C
T <sub>SOL-I</sub>	Soldering Temperature (Iron) (Notes 2, 3, 4)	240 for 5 s	°C
T <sub>SOL-F</sub>	Soldering Temperature (Flow) (Notes 2, 3)	260 for 10 s	°C
I <sub>F</sub>	Continuous Forward Current	100	mA
V <sub>R</sub>	Reverse Voltage	5	V
P <sub>D</sub>	Power Dissipation (Note 1)	200	mW
I <sub>F(Peak)</sub>	Peak Forward Current (Note 5)	1.5	V

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.

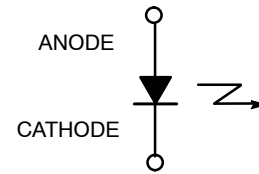
1. Derate power dissipation linearly 2.67 mW/°C above 25°C.
2. RMA flux is recommended.
3. Methanol or Isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron tip 1/16" (1.6 mm) minimum from housing.
5. Pulse conditions; t<sub>p</sub> = 100 μs, T = 10 ms.

### ELECTRICAL/OPTICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$\lambda_{PE}$	Peak Emission Wavelength	I <sub>F</sub> = 20 mA	-	890	-	nm
TC <sub><math>\lambda</math></sub>	Temperature Coefficient		-	0.2	-	nm/°C
2 $\theta$ <sub>1/2</sub>	Emission Angle	I <sub>F</sub> = 100 mA	-	30	-	°
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 20 mA, t <sub>p</sub> = 20 ms	-	-	1.7	V
TC <sub>V<sub>F</sub></sub>	Temperature Coefficient		-	-6	-	mV/°C
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = 5 V	-	-	10	μA
I <sub>E</sub>	Radiant Intensity	I <sub>F</sub> = 20 mA, t <sub>p</sub> = 20 ms	25	-	-	mW/sr
TC <sub>I<sub>E</sub></sub>	Temperature Coefficient		-	-0.3	-	%/°C
t <sub>r</sub>	Rise Time	I <sub>F</sub> = 100 mA	-	900	-	ns
t <sub>f</sub>	Fall Time	I <sub>F</sub> = 100 mA	-	800	-	ns
C <sub>j</sub>	Junction Capacitance	V <sub>R</sub> = 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.

### SCHEMATIC



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

### ORDERING INFORMATION

Device	Package	Shipping†
QED223	T-1 3/4, 5MM LED (Pb-Free)	250 / Bulk Bag
QED223A4R0	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

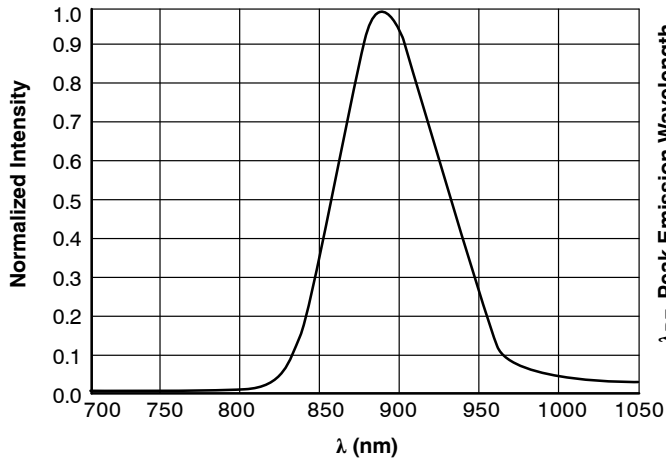


Figure 1. Normalized Intensity vs. Wavelength

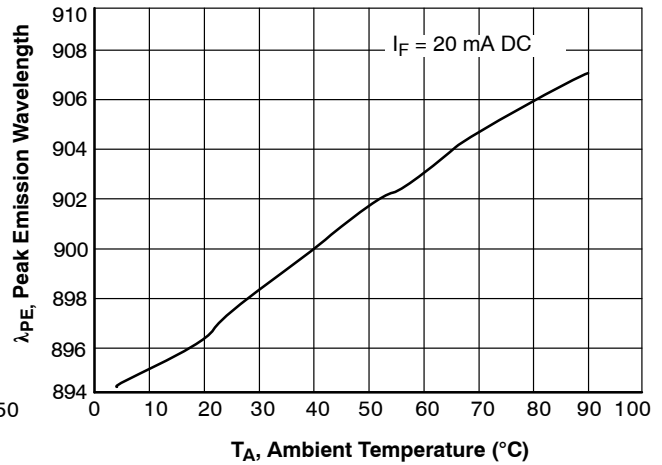


Figure 2. Peak Wavelength vs. Ambient Temperature

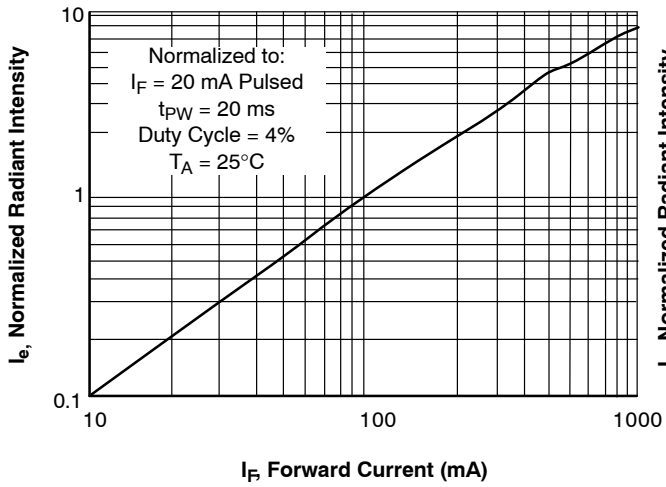


Figure 3. Normalized Radiant Intensity vs. Forward Current

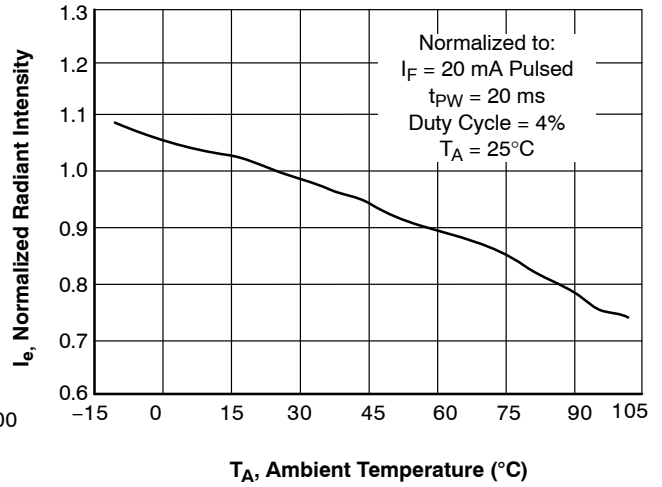


Figure 4. Normalized Radiant Intensity vs. Ambient Temperature

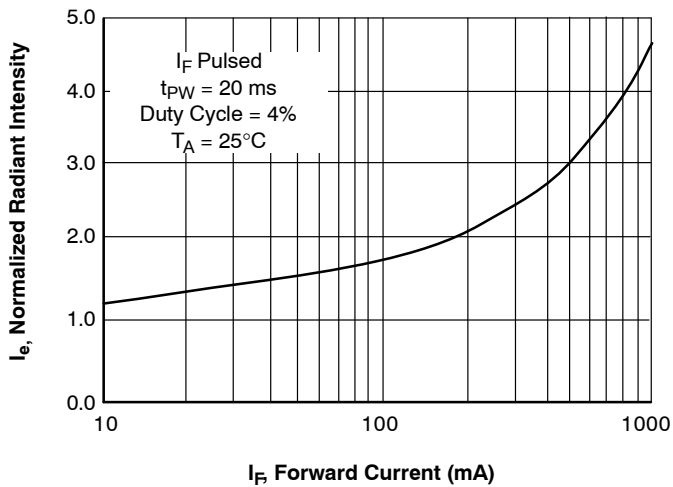


Figure 5. Forward Voltage vs. Forward Current

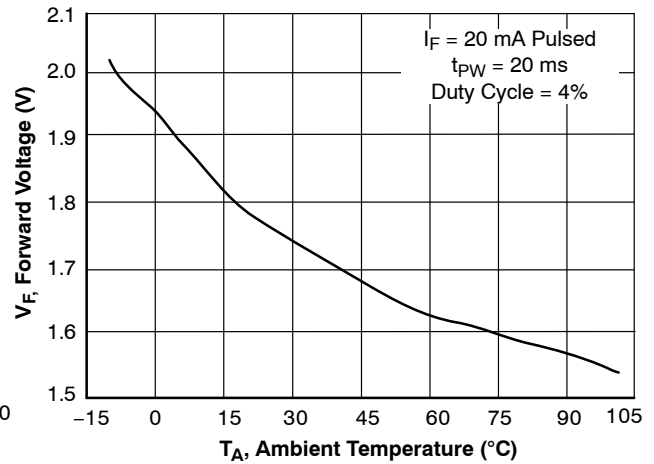


Figure 6. Forward Voltage vs. Ambient Temperature

TYPICAL PERFORMANCE CURVES (continue)

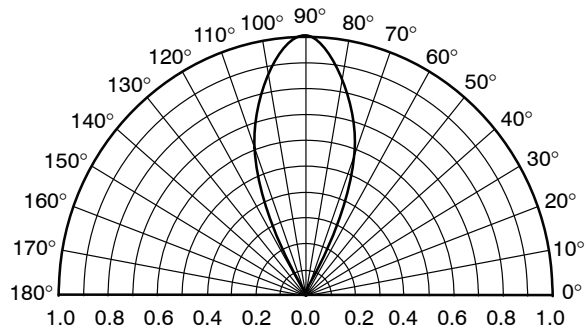


Figure 7. Radiation Diagram

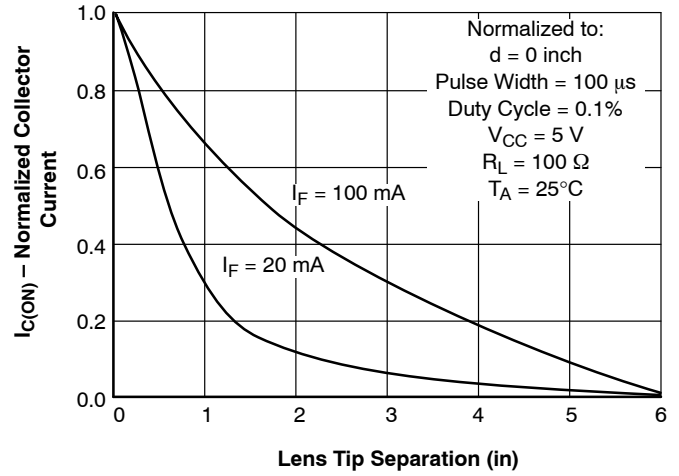
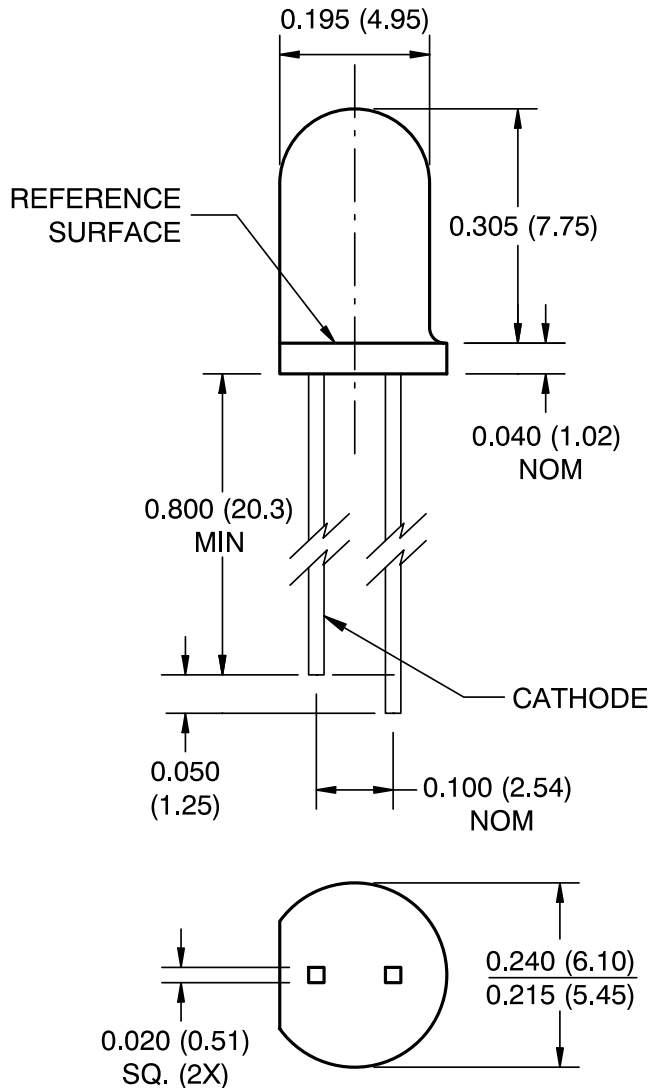


Figure 8. Coupling Characteristics of QED22X and QSD22X

**T-1 3/4, 5MM LED**  
CASE 100CC  
ISSUE 0

DATE 30 NOV 2016



**Notes:**

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

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