



ON Semiconductor®

# QED234

## Plastic Infrared Light Emitting Diode

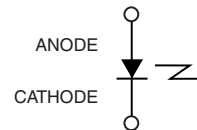
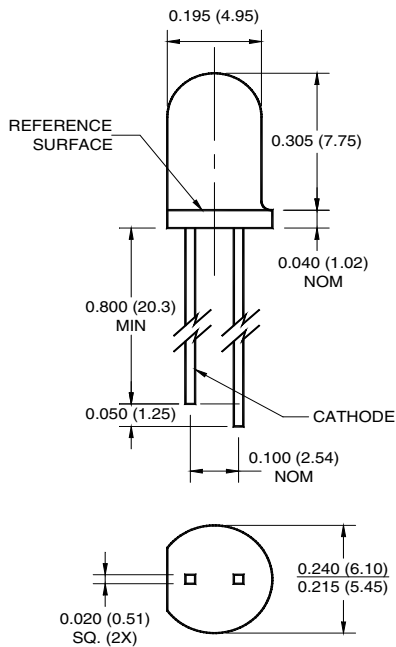
### Features

- $\lambda = 940$  nm
- Chip Material = GaAs with AlGaAs Window
- Package Type: T-1 3/4 (5 mm lens diameter)
- Matched Photosensor: QSD123/124
- Medium Emission Angle,  $40^\circ$
- High Output Power
- Package Material and Color: Clear, Untinted, Plastic
- Ideal for Remote Control Applications

### Description

The QED234 is a 940 nm GaAs / AlGaAs LED encapsulated in a clear untinted, plastic T-1 3/4 package.

### Package Dimensions<sup>(1, 2)</sup>



### 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.

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$T_{\text{OPR}}$	Operating Temperature	-40 to +100	$^\circ\text{C}$
$T_{\text{STG}}$	Storage Temperature	-40 to +100	$^\circ\text{C}$
$T_{\text{SOL-I}}$	Soldering Temperature (Iron) <sup>(4, 5, 6)</sup>	240 for 5 sec	$^\circ\text{C}$
$T_{\text{SOL-F}}$	Soldering Temperature (Flow) <sup>(4, 5)</sup>	260 for 10 sec	$^\circ\text{C}$
$I_F$	Continuous Forward Current	100	mA
$V_R$	Reverse Voltage	5	V
$P_D$	Power Dissipation <sup>(3)</sup>	200	mW
$I_{\text{FP}}$	Peak Forward Current	1.5	A

### Notes:

3. Derate power dissipation linearly 2.67 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
4. RMA flux is recommended.
5. Methanol or isopropyl alcohols are recommended as cleaning agents.
6. Soldering iron 1/16" (1.6mm) minimum from housing.
7. Pulse conditions;  $t_p = 100 \mu\text{s}$ ,  $T = 10 \text{ ms}$

## Electrical / Optical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$\lambda_{\text{PE}}$	Peak Emission Wavelength	$I_F = 20 \text{ mA}$		940		nm
-	Spectral Bandwidth	$I_F = 20 \text{ mA}$	50			nm
$\text{TC}_\lambda$	Temp. Coefficient of $\lambda_{\text{PE}}$	$I_F = 100 \text{ mA}$		0.2		nm/K
$2\theta_{1/2}$	Emission Angle	$I_F = 100 \text{ mA}$		40		$^\circ$
$V_F$	Forward Voltage	$I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$			1.6	V
$\text{TC}_V$	Temp. Coefficient of $V_F$	$I_F = 100 \text{ mA}$		-1.5		mV/K
$I_R$	Reverse Current	$V_R = 5 \text{ V}$			10	$\mu\text{A}$
$I_E$	Radiant Intensity	$I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$	27			mW/sr
$\text{TC}_I$	Temp. Coefficient of $I_E$	$I_F = 20 \text{ mA}$		-0.6		%/K
$t_r$	Rise Time	$I_F = 100 \text{ mA}$		1000		ns
$t_f$	Fall Time			1000		ns

## Typical Performance Characteristics

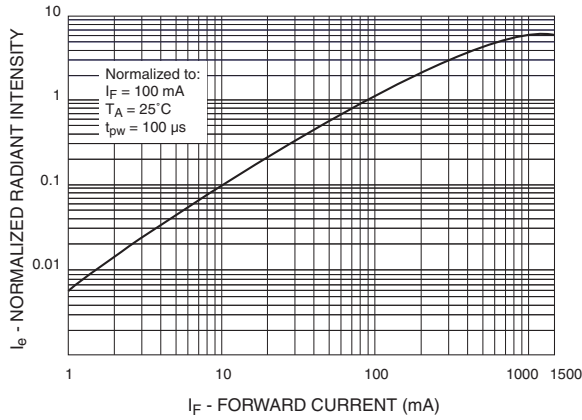


Figure 1. Normalized Radiant Intensity vs. Forward Current

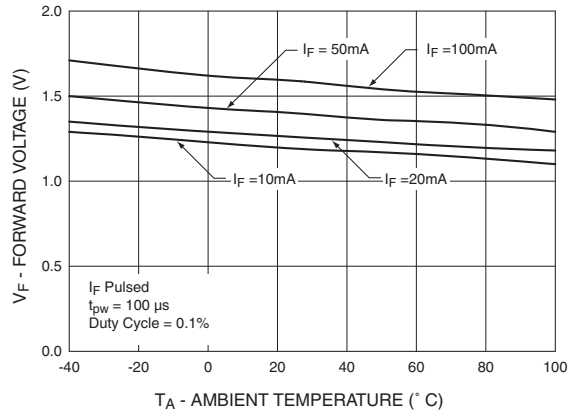


Figure 2. Forward Voltage vs. Ambient Temperature

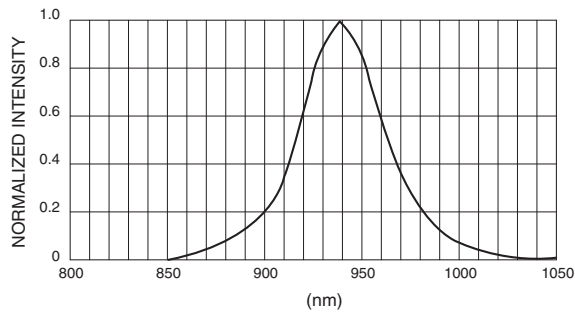


Figure 3. Normalized Radiant Intensity vs. Wavelength

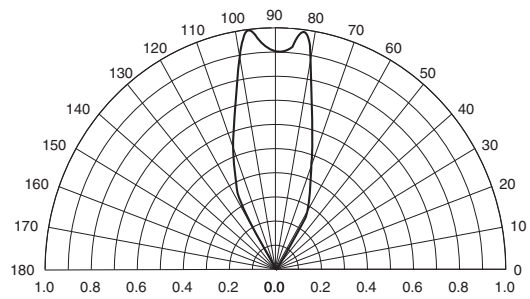


Figure 4. Radiant Diagram

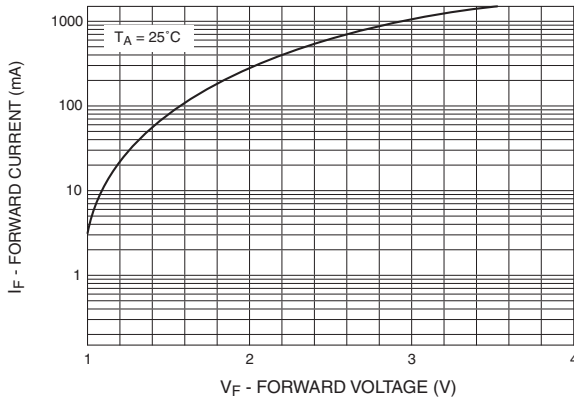


Figure 5. Forward Current vs. Forward Voltage

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