

# Plastic Infrared Light Emitting Diode

## QED234

### Description

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

### Features

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

### ABSOLUTE MAXIMUM RATINGS

| 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)<br>(Note 2)<br>(Note 3)<br>(Note 4) | 240 for 5 s  | °C   |
| $T_{SOL-F}$ | Soldering Temperature (Flow)<br>(Note 2)<br>(Note 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   |
| $I_{FP}$    | Peak Forward Current                                             | 1.5          | A    |

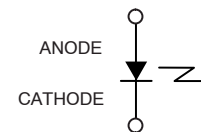
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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 1/16" (1.6 mm) minimum from housing.
5. Pulse conditions;  $t_p = 100 \mu\text{s}$ ,  $T = 10 \text{ ms}$



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

### CONNECTION DIAGRAM



### ORDERING INFORMATION

| Device | Package                       | Shipping†         |
|--------|-------------------------------|-------------------|
| QED234 | T-1 3/4, 5MM LED<br>(Pb-Free) | 250 /<br>Bulk Bag |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

**ELECTRICAL / OPTICAL CHARACTERISTICS**

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

| Symbol          | Parameter                           | Test Conditions                              | Min. | Typ. | Max. | Unit |
|-----------------|-------------------------------------|----------------------------------------------|------|------|------|------|
| $\lambda_{PE}$  | Peak Emission Wavelength            | $I_F = 20\text{ mA}$                         | –    | 940  | –    | nm   |
| –               | Spectral Bandwidth                  | $I_F = 20\text{ mA}$                         | 50   | –    | –    | nm   |
| $TC_\lambda$    | Temp. Coefficient of $\lambda_{PE}$ | $I_F = 100\text{ mA}$                        | –    | 0.2  | –    | nm/K |
| $2\theta_{1/2}$ | Emission Angle                      | $I_F = 100\text{ mA}$                        | –    | 40   | –    | °    |
| $V_F$           | Forward Voltage                     | $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ |      | –    | 1.6  | V    |
| $TC_V$          | Temp. Coefficient of $V_F$          | $I_F = 100\text{ mA}$                        | –    | –1.5 | –    | mV/K |
| $I_R$           | Reverse Current                     | $V_R = 5\text{ V}$                           | –    |      | 10   | ns   |
| $I_E$           | Radiant Intensity                   | $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$ | 27   |      | –    | ns   |
| $TC_I$          | Temp. Coefficient of $I_E$          | $I_F = 20\text{ mA}$                         | –    | –0.6 | –    | ns   |
| $t_r$           | Rise Time                           | $I_F = 100\text{ mA}$                        | –    | 1000 | –    | ns   |
| $t_f$           | Fall Time                           |                                              | –    | 1000 | –    | ns   |

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 CHARACTERISTICS

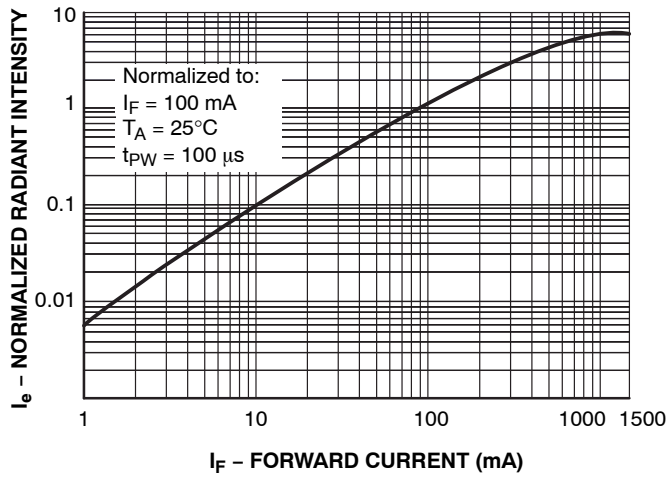


Figure 1. Normalized Radiant Intensity vs. Forward Current

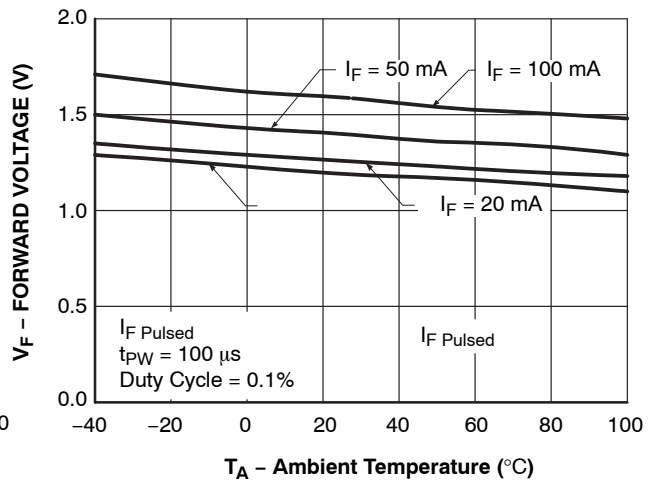


Figure 2. Forward Voltage vs. Ambient Temperature

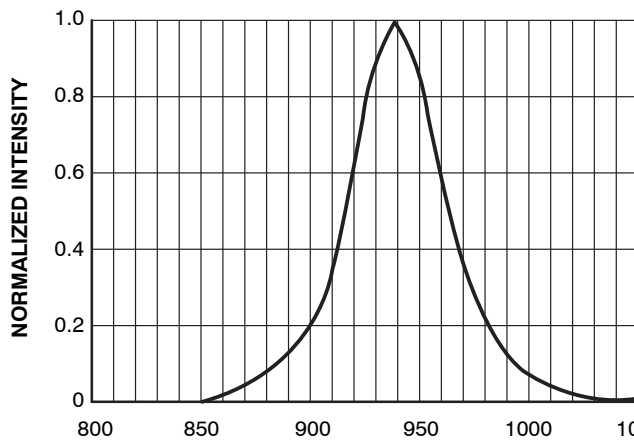


Figure 3. Normalized Radiant Intensity vs. Wavelength

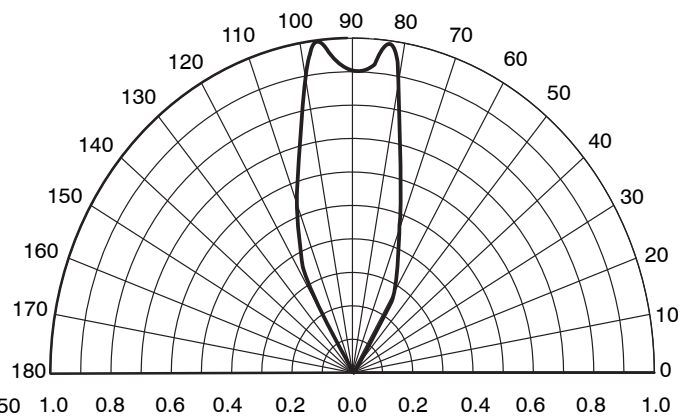


Figure 4. Radiant Diagram

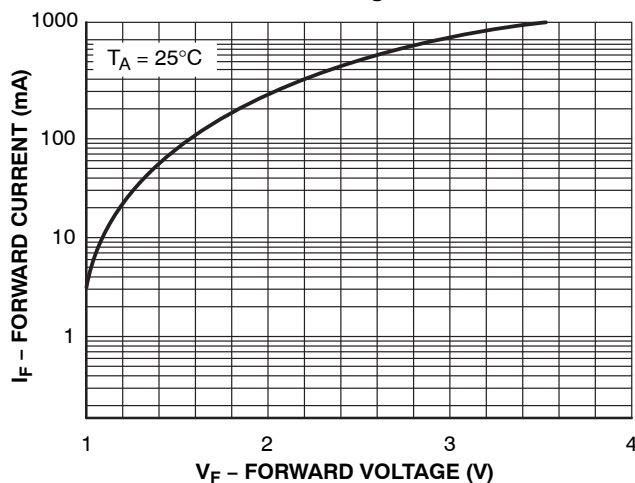
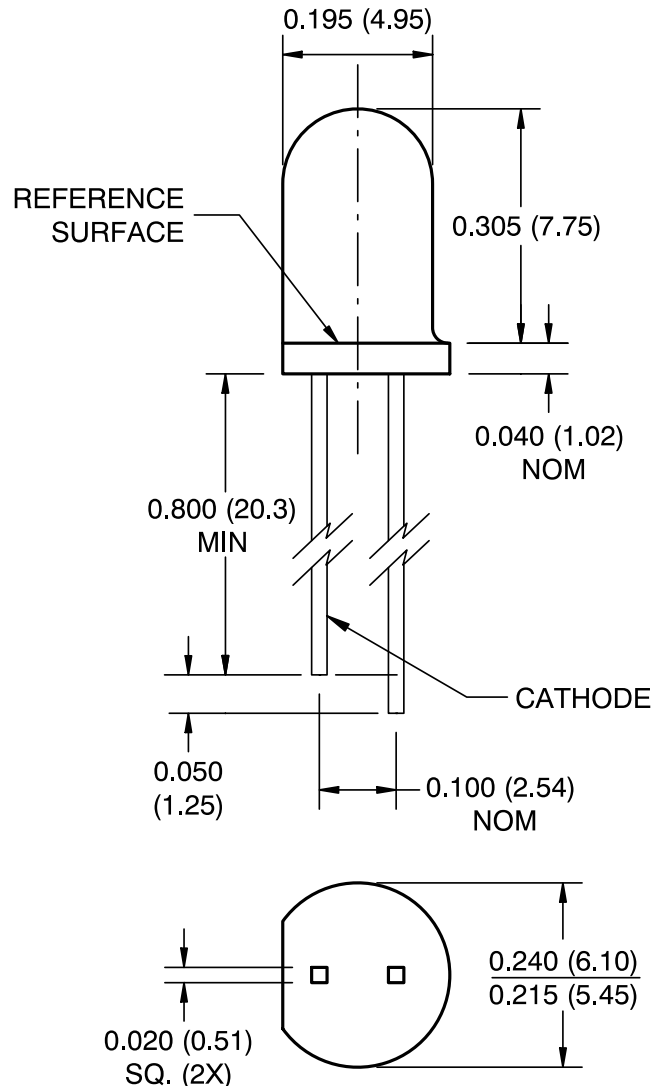


Figure 5. Forward Current vs. Forward Voltage

**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  $\pm 0.010$  (0.25) on all non-nominal dimensions unless otherwise specified.

|                         |                         |                                                                                                                                                                                     |
|-------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| <b>DESCRIPTION:</b>     | <b>T-1 3/4, 5MM LED</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                                  |

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