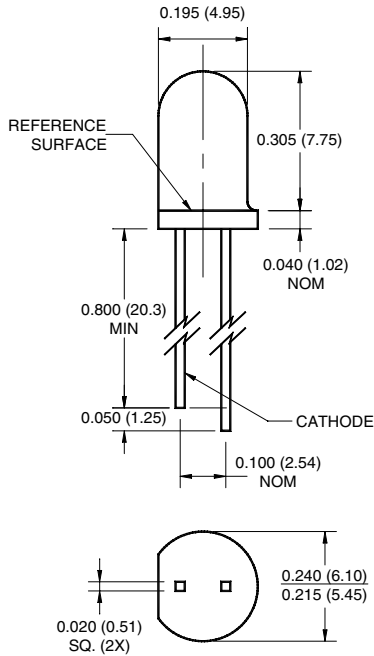


**QED233**

**QED234**

**PACKAGE DIMENSIONS**

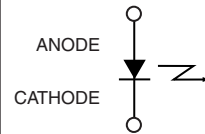


**NOTES:**

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of  $\pm .010 (.25)$  on all non-nominal dimensions unless otherwise specified.



**SCHEMATIC**



**DESCRIPTION**

The QED233 / QED234 is a 940 nm GaAs / AlGaAs LED encapsulated in a clear untinted, plastic T-1 3/4 package.

**FEATURES**

- $\lambda = 940$  nm
- Chip material = GaAs with AlGaAs window
- Package type: T-1 3/4 (5mm lens diameter)
- Matched Photosensor: QSD122/123/124
- Medium Emission Angle, 40°
- High Output Power
- Package material and color: Clear, untinted, plastic
- Ideal for remote control applications

**QED233**

**QED234**

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

Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{OPR}$	-40 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +100	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(2,3,4)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2,3)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
Continuous Forward Current	$I_F$	100	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation <sup>(1)</sup>	$P_D$	200	mW
Peak Forward Current	$I_{FP}$	1.5	A

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

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

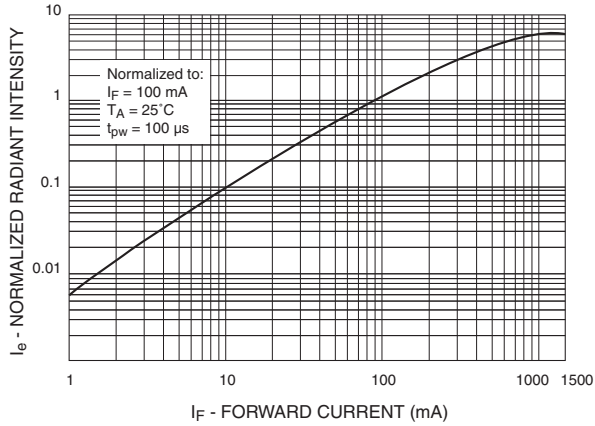
PARAMETER	TEST CONDITIONS	DEVICE	SYMBOL	MIN	TYP	MAX	UNITS
Peak Emission Wavelength	$I_F = 20 \text{ mA}$	ALL	$\lambda_{PE}$	—	940	—	nm
Spectral Bandwidth	$I_F = 20 \text{ mA}$	ALL	—	50	—	nm	
Temp. Coefficient of $\lambda_{PE}$	$I_F = 100 \text{ mA}$	ALL	$TC_\lambda$	—	0.2	—	nm/K
Emission Angle	$I_F = 100 \text{ mA}$	ALL	$2\theta_{1/2}$	—	40	—	Deg.
Forward Voltage	$I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$	ALL	$V_F$	—	—	1.6	V
Temp. Coefficient of $V_F$	$I_F = 100 \text{ mA}$	ALL	$TC_V$	—	-1.5	—	mV/K
Reverse Current	$V_R = 5 \text{ V}$	ALL	$I_R$	—	—	10	$\mu\text{A}$
Radiant Intensity	$I_F = 100 \text{ mA}$ , $t_p = 20 \text{ ms}$	QED233	$I_E$	10	—	50	mW/sr
		QED234		27	—	—	
Temp. Coefficient of $I_E$	$I_F = 20 \text{ mA}$	ALL	$TC_I$	—	-0.6	—	%/K
Rise Time	$I_F = 100 \text{ mA}$	ALL	$t_r$	—	1000	—	ns
Fall Time		ALL	$t_f$	—	1000	—	

**QED233**

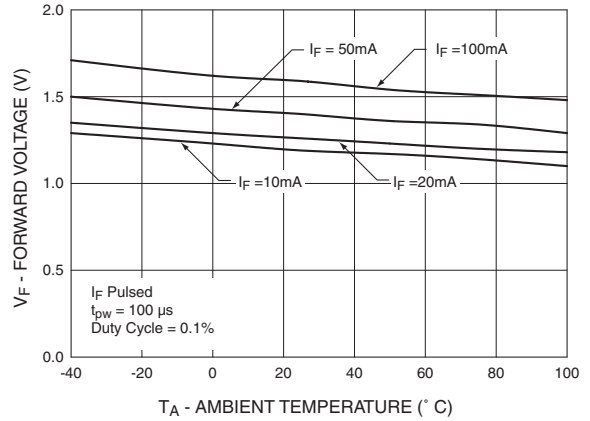
**QED234**

**TYPICAL PERFORMANCE CURVES TBD**

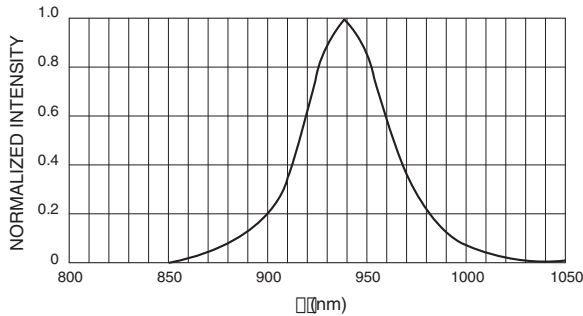
**Fig. 1 Normalized Radiant Intensity vs. Forward Current**



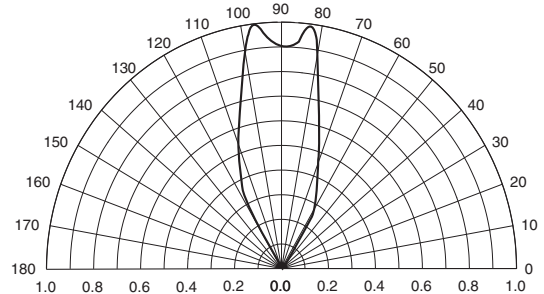
**Fig. 2 Forward Voltage Vs. Ambient Temperature**



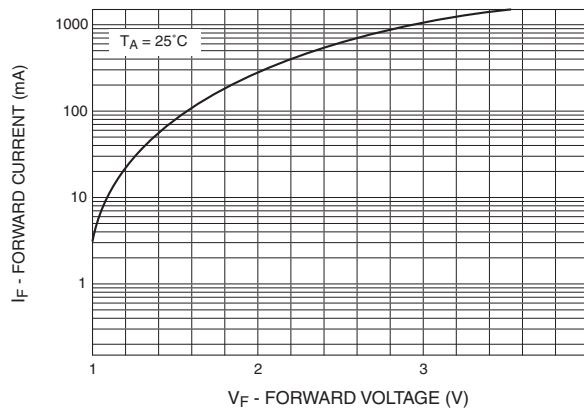
**Fig. 3 Normalized Radiant Intensity vs. Wavelength**



**Fig. 4 Radiation Diagram**



**Fig. 5 Forward Current vs. Forward Voltage**



---

**QED233**

**QED234**

---

**DISCLAIMER**

FAIRCHILD SEMICONDUCTOR RESERVES THE THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

**LIFE SUPPORT POLICY**

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.