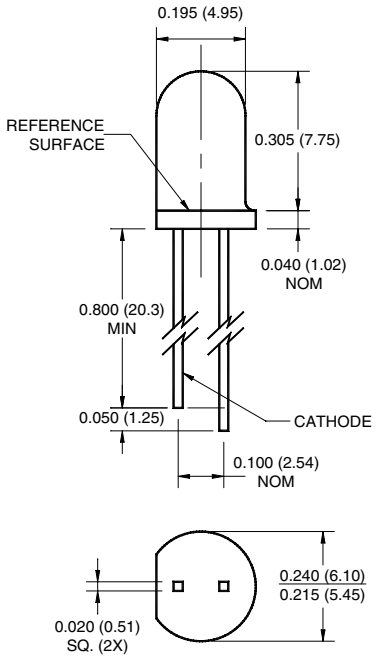
Jameco Part Number 1069691

FAIRCHILD
SEMICONDUCTOR®

# PLASTIC INFRARED LIGHT EMITTING DIODE

## QED233 QED234

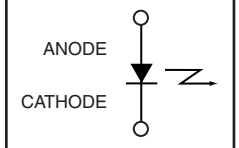
### PACKAGE DIMENSIONS




NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± .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

- λ= 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

## ABSOLUTE MAXIMUM RATINGS ($T_A$ = 25°C unless otherwise specified)

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

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" (1.6mm) minimum from housing.
5. Pulse conditions; tp = 100 µs, T = 10 ms.

## ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A$ =25°C)

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

## TYPICAL PERFORMANCE CURVES TBD

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

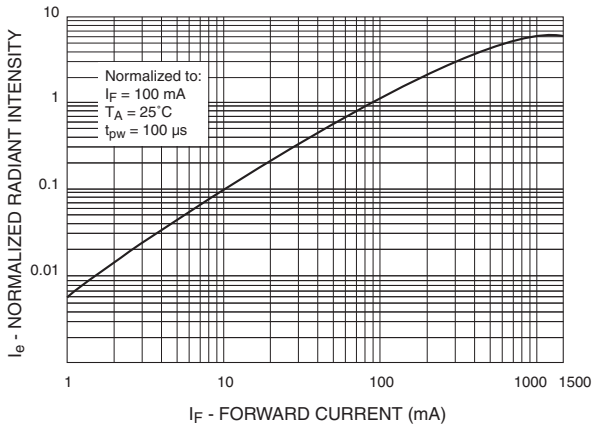



**Fig. 2 Forward Voltage Vs. Ambient Temperature**

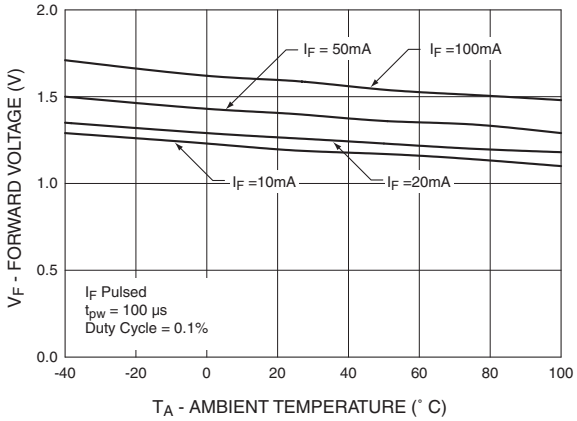



**Fig. 3 Normalized Radiant Intensity vs. Wavelength**

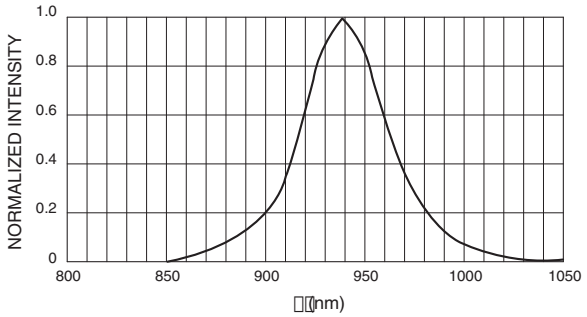



**Fig. 4 Radiation Diagram**

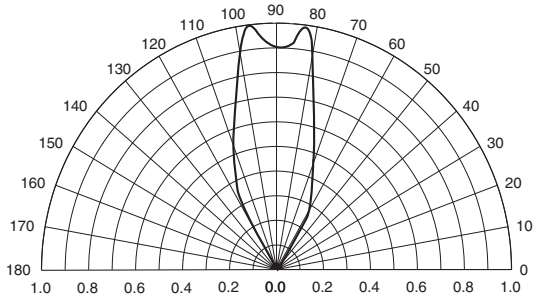
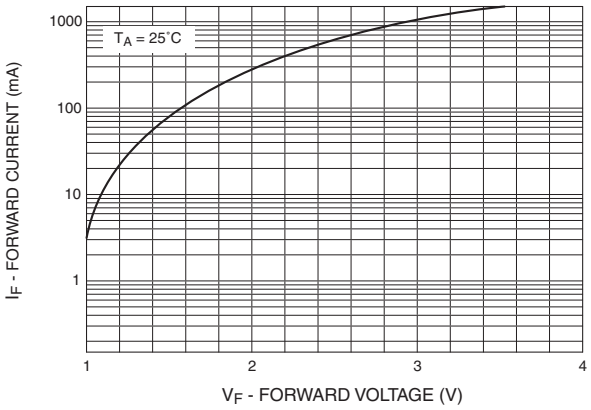


**Fig. 5 Forward Current vs. Forward Voltage**



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