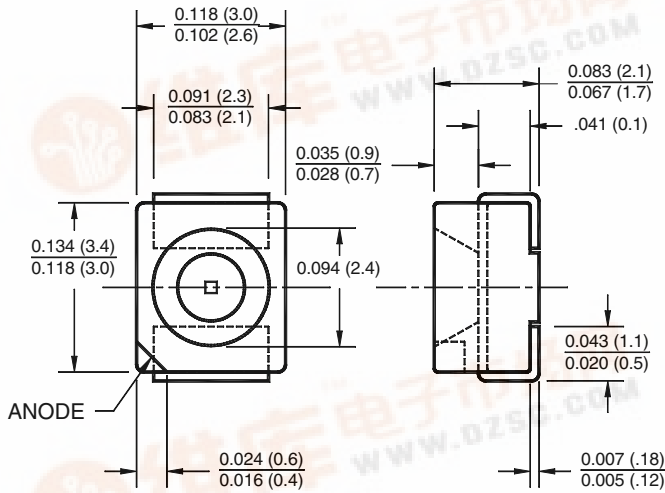


FAIRCHILD
SEMICONDUCTOR®

SURFACE MOUNT INFRARED LIGHT EMITTING DIODE

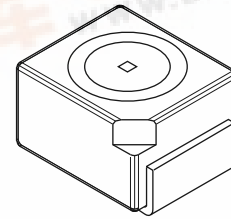
QEB441

PACKAGE DIMENSIONS

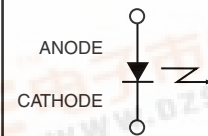


NOTES:

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



SCHEMATIC



DESCRIPTION

The QEB441 is a 730 nm AlGaAs LED encapsulated in a PLCC-2 package.

FEATURES

- $\lambda = 730$ nm
- Chip Material: AlGaAs double heterojunction
- Surface Mount PLCC-2 package
- Wide Emission Angle, 120°
- High Power
- Tape and Reel option: .TR



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

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-55 to +100	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +100	$^\circ\text{C}$
Soldering Temperature (Flow) ^(2,3)	T_{SOL}	260 for 10 sec	$^\circ\text{C}$
Continuous Forward Current	I_F	100	mA
Peak Forward Current ⁽⁴⁾	I_{FP}	1	A
Reverse Voltage	V_R	5	V
Power Dissipation ⁽¹⁾	P_D	180	mW

NOTES

1. Derate power dissipation linearly TBD mW/ $^\circ\text{C}$ above 25°C .
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Pulse conditions: $t_p = 100 \mu\text{s}$, $T = 10 \text{ ms}$.

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

PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Forward Voltage	$I_F = 10 \text{ mA}$, $t_p = 20 \text{ ms}$	V_F	—	—	2.0	V
	$I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$		—	2.1	—	
	$I_F = 500 \text{ mA}$, $t_p = 1 \text{ ms}$		—	3.9	4.5	
	$I_F = 1 \text{ A}$, $t_p = 100 \mu\text{s}$		—	5.5	—	
Emission Angle	$I_F = 100 \text{ mA}$	$2\theta_{1/2}$	—	120	—	%
Reverse Leakage Current	$V_R = 5 \text{ V}$	I_R	—	—	10	μA
Peak Emission Wavelength	$I_F = 100 \text{ mA}$	λ_P	710	730	750	nm
Spectral Bandwidth	$I_F = 100 \text{ mA}$	$\Delta\lambda$	—	25	—	nm
Radiant Intensity	$I_F = 100 \text{ mA}$, $t_p = 20 \text{ ms}$	I_e	2	3	6	mW/sr
	$I_F = 500 \text{ mA}$, $t_p = 1 \text{ ms}$		9	14	28	
	$I_F = 1 \text{ A}$, $t_p = 100 \mu\text{s}$		16	24	48	
Response Time	$I_F = 10 \text{ mA}$, $t_p = 100 \mu\text{s}$, $T = 10 \text{ ms}$	t_r, t_f	—	—	100	ns

Fig.1 Relative Radiant Intensity vs. Input Current

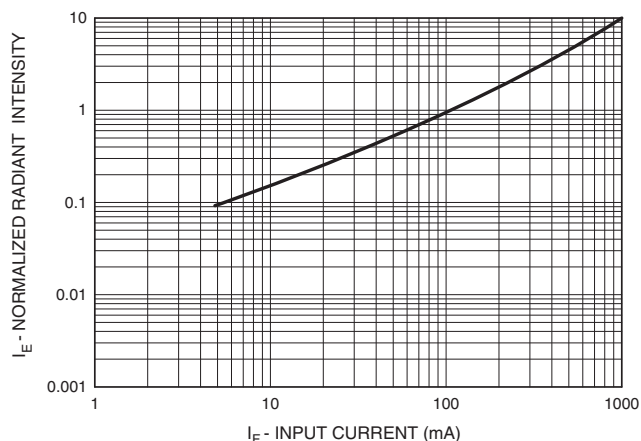


Fig.2 Forward Current vs. Forward Voltage

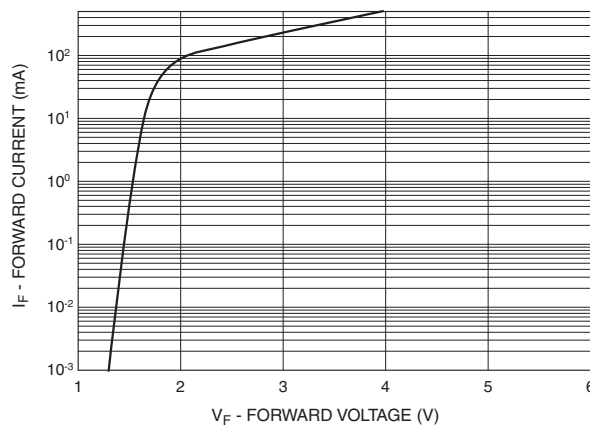


Fig.3 Radiation Diagram

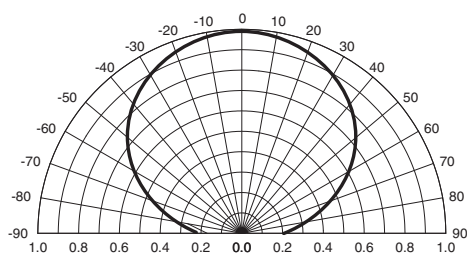


Fig.4 Forward Voltage vs. Ambient Temperature

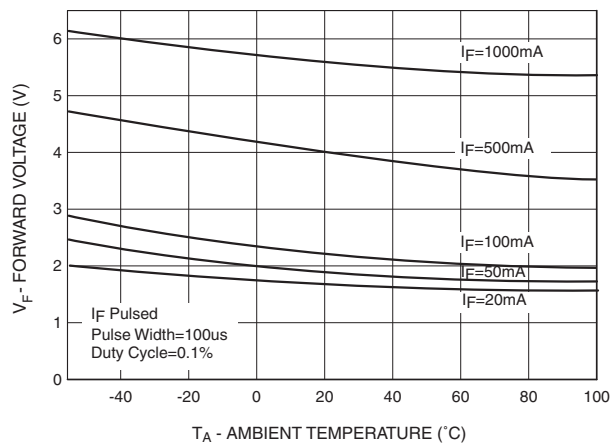
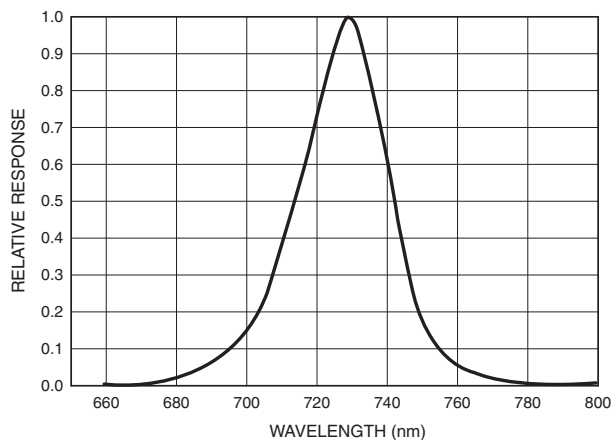


Fig.5 Spectral Response



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