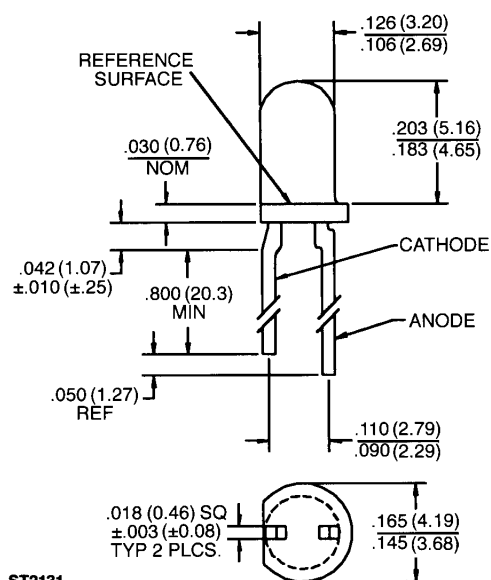




AlGaAs INFRARED EMITTING DIODE

QEC121/122

PACKAGE DIMENSIONS



ST2131

NOTES:

1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS $\pm .010$ (.25) UNLESS OTHERWISE SPECIFIED.
3. FLAT DENOTES CATHODE.

DESCRIPTION

The QEC12X is an 880 nm AlGaAs LED encapsulated in a clear, purple tinted, plastic T-1 package.

FEATURES

- Tight production E_θ distribution.
- Steel lead frames for improved reliability in solder mounting.
- Good optical-to-mechanical alignment.
- Narrow emission angle.
- Mechanically and wavelength matched to QSC11X series phototransistor.
- Plastic package color allows easy recognition from phototransistor.
- High irradiance level.



AlGaAs INFRARED EMITTING DIODE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

Storage Temperature	-40°C to $+100^\circ\text{C}$
Operating Temperature	-40°C to $+100^\circ\text{C}$
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. ^(2,3,4,5)
Lead Temperature (Flow)	260°C for 10 sec. ^(2,3,5)
Continuous Forward Current	50 mA
Reverse Voltage	5.0 Volts
Power Dissipation	100 mW ⁽¹⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

(All measurements made under pulse conditions.)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Forward Voltage	V_F	—		1.70	V	$I_F = 20\text{ mA}$
Reverse Leakage Current	I_R	—		10	μA	$V_R = 5.0\text{ V}$
Peak Emission Wavelength	λ_P	—	880	—	nm	$I_F = 20\text{ mA}$
Emission Angle at $\frac{1}{2}$ Power	θ	—	± 8	—	Degrees	
Radiant Incidence QEC121	E_0	0.07		—	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)
Radiant Incidence QEC122	E_0	0.13		0.45	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)

NOTES

1. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$ above 25°C .
2. RMA flux is recommended.
3. Methanol or Isopropanol alcohols are recommended as cleaning agents.
4. Soldering iron tip $\frac{1}{16}$ " (1.6 mm) minimum from housing.
5. As long as leads are not under any stress or spring tension.
6. Measurement is taken at the end of a single 100 μsec pulse.
7. E_0 is a measurement of the average apertured radiant energy incident upon a sensing area 0.444" (11.3 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens, and 2.54" (64.4 mm) from the measurement surface. E_0 is not necessarily uniform within the measurement area.



AIGaAs INFRARED EMITTING DIODE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

Storage Temperature	-40°C to $+100^\circ\text{C}$
Operating Temperature	-40°C to $+100^\circ\text{C}$
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. ^(2,3,4,5)
Lead Temperature (Flow)	260°C for 10 sec. ^(2,3,5)
Continuous Forward Current	50 mA
Reverse Voltage	5.0 Volts
Power Dissipation	100 mW ⁽¹⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Forward Voltage	V_F	—		1.70	V	$I_F = 20\text{ mA}$
Reverse Leakage Current	I_R	—		10	μA	$V_R = 5.0\text{ V}$
Peak Emission Wavelength	λ_P	—	880	—	nm	$I_F = 20\text{ mA}$
Emission Angle at $\frac{1}{2}$ Power	θ	—	± 8	—	Degrees	
Radiant Incidence QEC121	E_s	0.07		—	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)
Radiant Incidence QEC122	E_s	0.13		0.45	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)

NOTES

- Derate power dissipation linearly 1.33 mW/°C above 25°C .
- RMA flux is recommended.
- Methanol or Isopropanol alcohols are recommended as cleaning agents.
- Soldering iron tip $\frac{1}{16}$ " (1.6 mm) minimum from housing.
- As long as leads are not under any stress or spring tension.
- Measurement is taken at the end of a single 100 μsec pulse.
- E_s is a measurement of the average apertured radiant energy incident upon a sensing area 0.444" (11.3 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens, and 2.54" (64.4 mm) from the measurement surface. E_s is not necessarily uniform within the measurement area.



AIGaAs INFRARED EMITTING DIODE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

Storage Temperature	−40°C to +100°C
Operating Temperature	−40°C to +100°C
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. ^(2,3,4,5)
Lead Temperature (Flow)	260°C for 10 sec. ^(2,3,5)
Continuous Forward Current	100 mA
Reverse Voltage	5.0 Volts
Power Dissipation	200 mW ⁽¹⁾

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Forward Voltage	V_F	—		1.70	V	$I_F = 20\text{ mA}$
Reverse Leakage Current	I_R	—		10	μA	$V_R = 5.0\text{ V}$
Peak Emission Wavelength	λ_P	—	880	—	nm	$I_F = 20\text{ mA}$
Emission Angle at ½ Power	θ	—	± 9	—	Degrees	
Radiant Incidence QED121	E_0	0.08		—	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)
Radiant Incidence QED122	E_0	0.16		0.56	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)
Radiant Incidence QED123	E_0	0.24		—	mW/10° Cone	$I_F = 20\text{ mA}$ ^(6,7)

NOTES

- Derate power dissipation linearly 2.67 mW/°C above 25°C.
- RMA flux is recommended.
- Methanol or Isopropyl alcohols are recommended as cleaning agents.
- Soldering iron tip 1/16" (1.6 mm) minimum from housing.
- As long as leads are not under any stress or spring tension.
- Measurement is taken at the end of a single 100 μsec pulse.
- E_0 is a measurement of the average apertured radiant energy incident upon a sensing area 0.444" (11.3 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens, and 2.54" (64.4 mm) from the measurement surface. E_0 is not necessarily uniform within the measurement area.