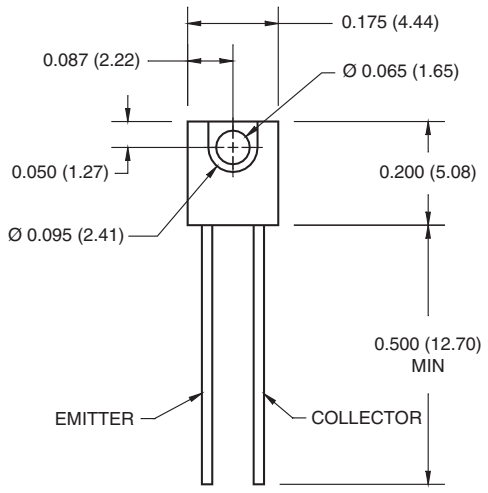
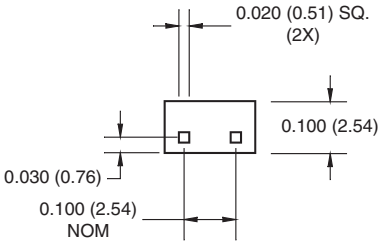
PLASTIC SILICON INFRARED PHOTOTRANSISTOR

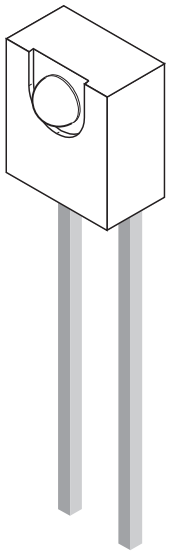
QSE122

PACKAGE DIMENSIONS

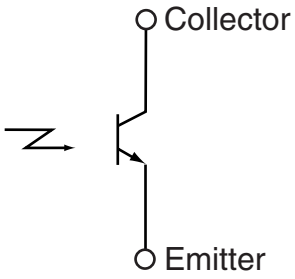




NOTES:
1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± .010 (.25) on all non-nominal dimensions unless otherwise specified.



SCHEMATIC



DESCRIPTION

The QSE122 is a silicon phototransistor encapsulated in a wide angle, infrared transparent, black plastic sidelooker package.

FEATURES

- NPN silicon phototransistor
- Package type: Sidelooker
- Medium wide reception angle, 50°
- Package material and color: black epoxy
- Matched emitter: QEE113
- Daylight filter
- High sensitivity

FAIRCHILD
SEMICONDUCTOR®

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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
Collector Emitter Voltage	V_{CE}	30	V
Emitter Collector Voltage	V_{EC}	5	V
Power Dissipation(1)	P_D	100	mW

NOTES:
1. Derate power dissipation linearly 1.33 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. λ = 880 nm (AlGaAs).

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C unless otherwise specified)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Peak Sensitivity		λ_{PS}	—	880	—	nM
Reception Angle		Θ	—	±25	—	Deg.
Collector Emitter Dark Current	V_{CE} = 10 V, E_e = 0	I_{CEO}	—	—	100	nA
Collector-Emitter Breakdown	I_C = 1 mA	BV_{CEO}	30	—	—	V
Emitter-Collector Breakdown	I_E = 100 µA	BV_{ECO}	5	—	—	V
On-State Collector Current(5) QSE122	E_e = 0.5 mW/cm^2, V_{CE} = 5 V	$I_{C(ON)}$	3.0	—	12.0	mA
Saturation Voltage(5)	E_e = 0.5 mW/cm^2, I_C = 0.1 mA	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	I_C = 1mA, V_{CC} = 5V, R_L = 100Ω	t_r	—	8	—	µs
Fall Time		t_f	—	8	—	µs

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Figure 1. Light Current vs. Radiant Intensity

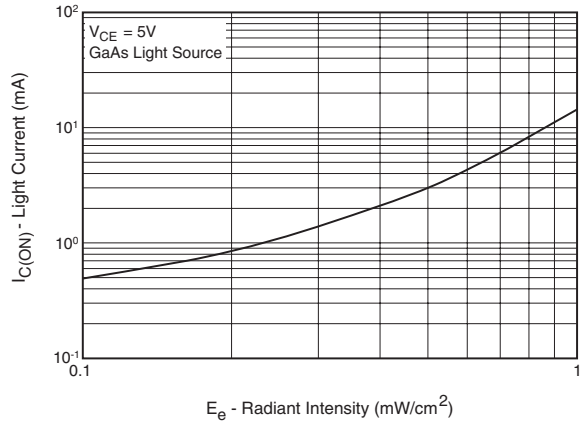


Figure 2. Angular Response Curve

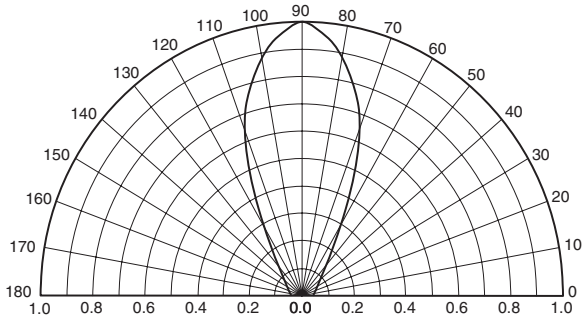


Figure 3. Dark Current vs. Collector - Emitter Voltage

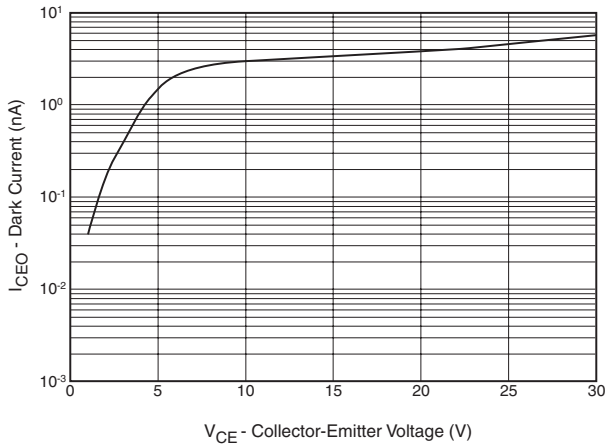


Figure 4. Light Current vs. Collector - Emitter Voltage

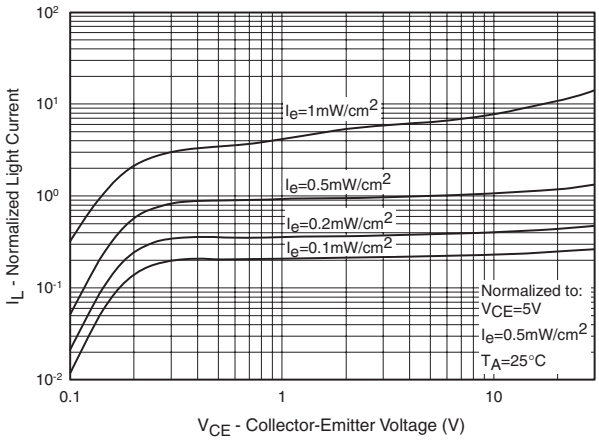
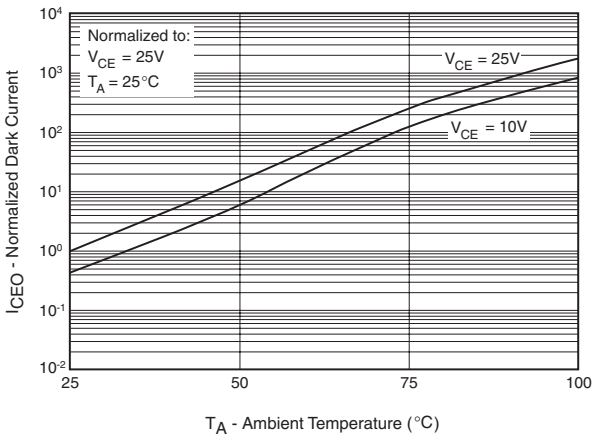


Figure 5. Dark Current vs. Ambient Temperature



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