

Plastic Silicon Infrared Phototransistor

QSE122

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
- Red Dot Marking on the Top Side
- This is a Pb-Free Device

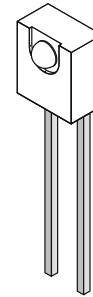
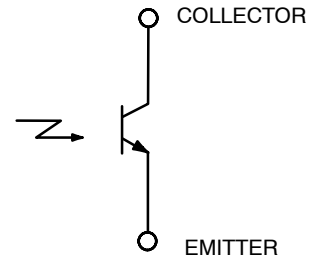
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|--------------------|--|--------------|------|
| T _{OPR} | Operating Temperature | -40 to +100 | °C |
| T _{STG} | Storage Temperature | -40 to +100 | °C |
| T _{SOL-I} | Soldering Temperature (Iron) (Note 2), (Note 3), (Note 4) | 240 for 5 s | °C |
| T _{SOL-F} | Soldering Temperature (Flow) (Note 2), (Note 3) | 260 for 10 s | °C |
| V _{CE} | Collector Emitter Voltage | 30 | V |
| V _{EC} | Emitter Collector Voltage | 5 | V |
| P _D | Power Dissipation (Note 1) | 100 | mW |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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.

SCHEMATIC



SIDELOOKER DETECTOR
CASE 100CN

ORDERING INFORMATION

| Device | Package | Shipping |
|--------|-------------------------------------|-------------------|
| QSE122 | SIDELOOKER DETECTOR (Pb-Free) | 500 / Bulk Bag |

QSE122

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

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Unit |
|----------------|-------------------------------------|--|-----|----------|------|---------------|
| λ_{PS} | Peak Sensitivity | | – | 880 | – | nm |
| Θ | Reception Angle | | – | ± 25 | – | $^\circ$ |
| I_{CEO} | Collector Emitter Dark Current | $V_{CE} = 10\text{ V}, E_e = 0$ | – | – | 100 | nA |
| BV_{CEO} | Collector–Emitter Breakdown | $I_C = 1\text{ mA}$ | 30 | – | – | V |
| BV_{ECO} | Emitter–Collector Breakdown | $I_E = 100\ \mu\text{A}$ | 5 | – | – | V |
| $I_{C(ON)}$ | On–State Collector Current (Note 5) | $E_e = 0.5\text{ mW/cm}^2, V_{CE} = 5\text{ V}$ | 3.0 | – | 12.0 | mA |
| $V_{CE(SAT)}$ | Saturation Voltage (Note 5) | $E_e = 0.5\text{ mW/cm}^2, I_C = 0.1\text{ mA}$ | – | – | 0.4 | V |
| t_r | Rise Time | $I_C = 1\text{ mA}, V_{CC} = 5\text{ V},$ $R_L = 100\ \Omega$ | – | 8 | – | μs |
| t_f | Fall Time | | – | 8 | – | μs |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

5. $\lambda = 880\text{ nm}$ (AlGaAs).

TYPICAL PERFORMANCE CHARACTERISTICS

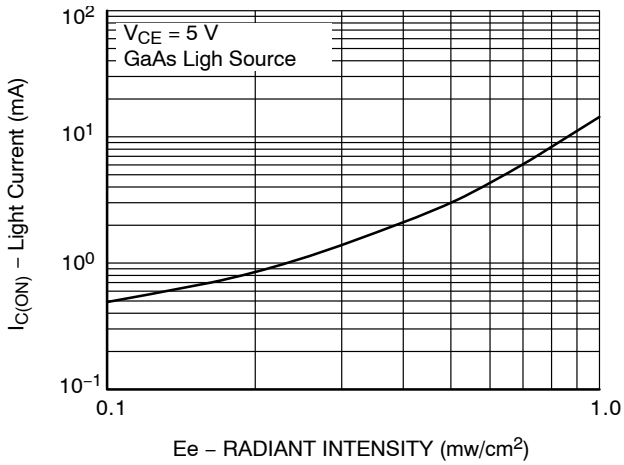


Figure 1. Light Current vs. Radiant Intensity

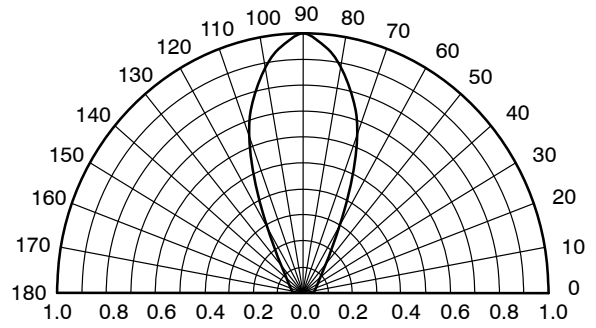


Figure 2. Angular Response Curve

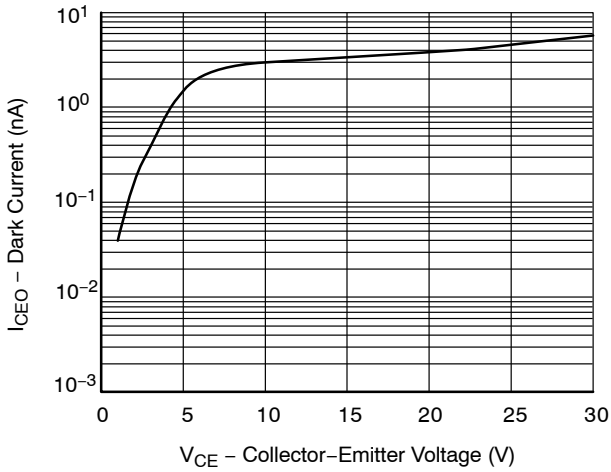


Figure 3. Dark Current vs. Collector - Emitter Voltage

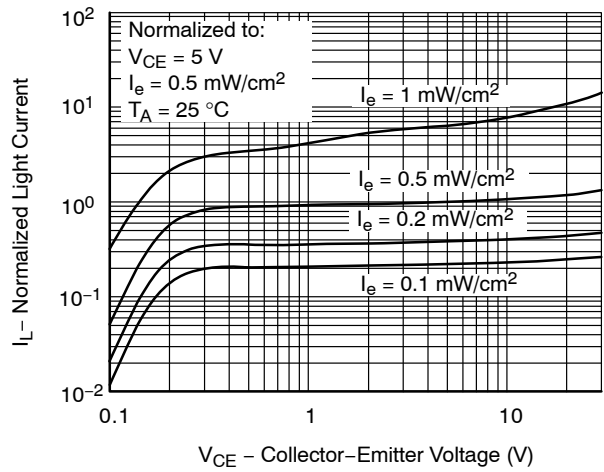


Figure 4. Light Current vs. Collector - Emitter Voltage

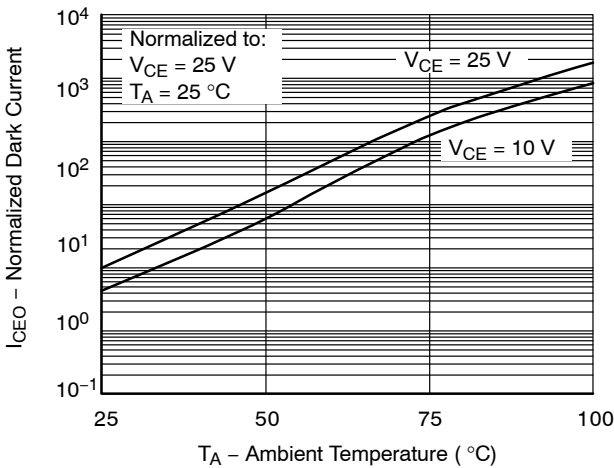
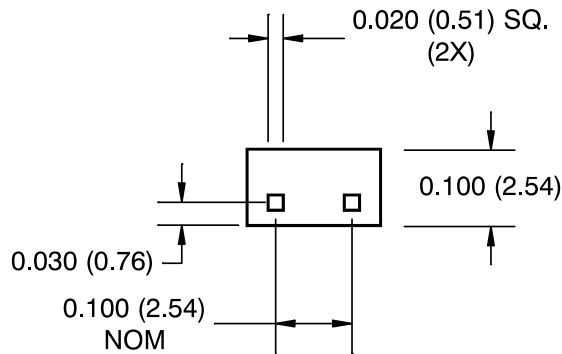
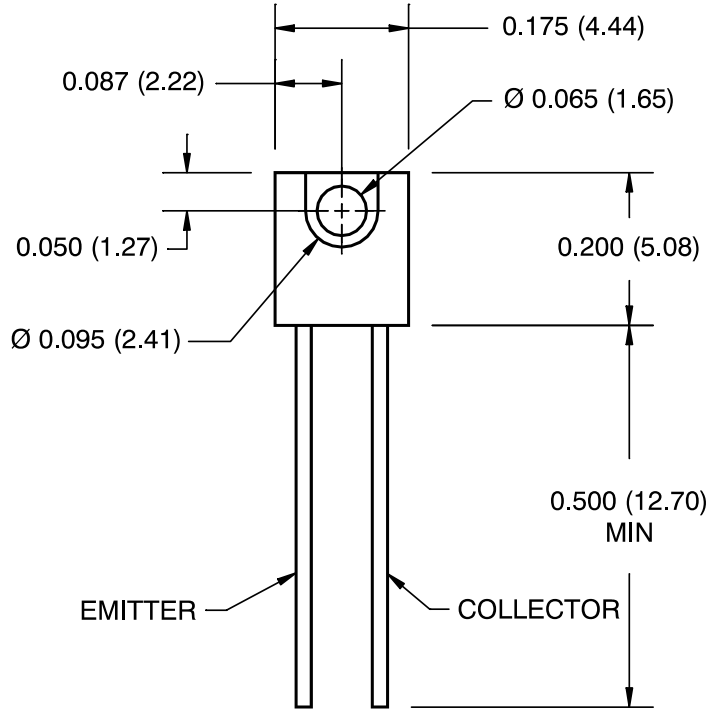


Figure 5. Dark Current vs. Ambient Temperature

SIDELOOKER DETECTOR
CASE 100CN
ISSUE O


DATE 30 NOV 2016



Notes:

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of ± 0.010 (0.25) on all non-nominal dimensions unless otherwise specified.

| | | |
|-------------------------|----------------------------|---|
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| DESCRIPTION: | SIDELOOKER DETECTOR | PAGE 1 OF 1 |

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