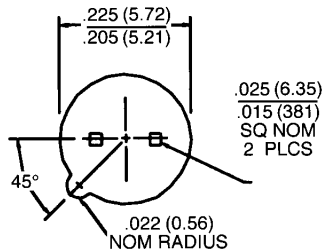
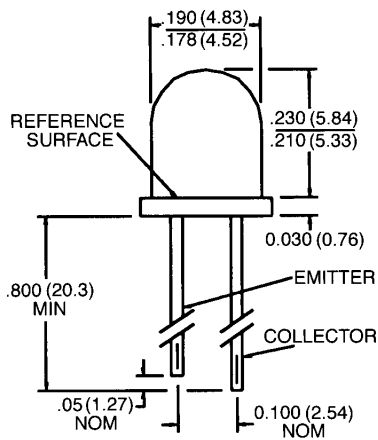


PACKAGE DIMENSIONS



ST2145

DESCRIPTION

The QSD42X is a silicon phototransistor encapsulated in an infrared transparent, black TO-18 package.

FEATURES

- Tight production distribution.
- Steel lead frames for improved reliability in solder mounting.
- Good optical-to-mechanical alignment.
- Narrow reception angle.
- Plastic package is infrared transparent black to attenuate visible light.
- Mechanically and spectrally matched to the QED423/523 LED.
- Black plastic body allows easy recognition from LED.

NOTES:

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

| 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. ^(4,5) |
| Lead Temperature (Flow) | 260°C for 10 sec. ^(2,5) |
| Collector-Emitter Breakdown Voltage | 30 Volts |
| Emitter-Collector Breakdown 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 |
| Collector-Emitter Breakdown | BV_{CEO} | 30 | — | — | V | $I_C = 1.0 \text{ mA}$ |
| Emitter-Collector Breakdown | BV_{ECO} | 5.0 | — | — | V | $I_E = 100 \mu\text{A}$ |
| Collector-Emitter Leakage | I_{CEO} | — | — | 100 | nA | $V_{CE} = 10 \text{ V}$ |
| Reception Angle at ½ Sensitivity | θ | — | ±35 | — | Degrees | |
| On-State Collector Current QSD422 | $I_{C(ON)}$ | 0.3 | — | 1.8 | mA | $E_e = 0.5 \text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$ |
| On-State Collector Current QSD423 | $I_{C(ON)}$ | 1.2 | — | 4.8 | mA | $E_e = 0.5 \text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$ |
| On-State Collector Current QSD424 | $I_{C(ON)}$ | 1.8 | — | — | mA | $E_e = 0.5 \text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$ |
| Rise Time | t_r | — | 8.0 | — | μS | $I_C = .2 \text{ mA}, V_{CC} = 5 \text{ V}, R_L = 100\Omega$ |
| Fall Time | t_f | — | 8.0 | — | μS | $I_C = .2 \text{ mA}, V_{CC} = 5 \text{ V}, R_L = 100\Omega$ |
| Saturation Voltage | $V_{CE(SAT)}$ | — | — | 0.40 | V | $I_C = 0.15 \text{ mA}, E_e = 0.5 \text{ mW/cm}^2^{(6)}$ |

| 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 tip 1/16" (1.6 mm) minimum from housing. |
| 5. As long as leads are not under any stress or spring tension. |
| 6. Light source is an AlGaAs LED emitting light at a peak wavelength of 880 nm. |



PLASTIC SILICON PHOTOTRANSISTOR

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