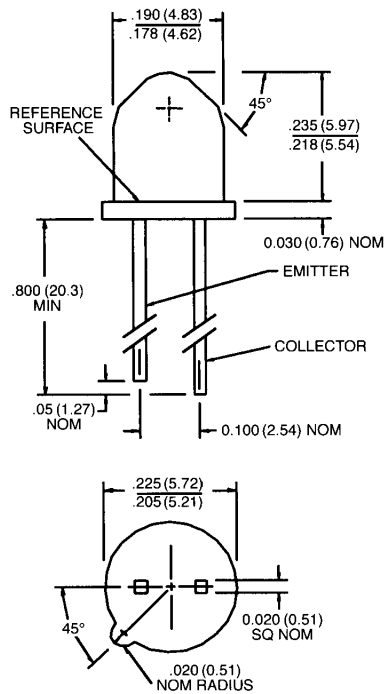




## PLASTIC SILICON PHOTOTRANSISTOR

**QSD722/723/724**

### PACKAGE DIMENSIONS



### DESCRIPTION

The QSD72X 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.

ST2146

#### NOTES:

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



## PLASTIC SILICON PHOTOTRANSISTOR

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ 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. <sup>(2,3,4,5)</sup> |
| Lead Temperature (Flow) .....  | 260°C for 10 sec. <sup>(2,3,5)</sup>  |
| Collector-Emitter Breakdown Voltage .....  | 30 Volts                              |
| Emitter-Collector Breakdown Voltage .....  | 5.0 Volts                             |
| Power Dissipation .....  | 100 mW <sup>(1)</sup>                 |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)<br>(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  | $\theta$      | —    | ±20  | —    | Degrees       |  |
| On-State Collector Current QSD722   | $I_{C(ON)}$   | 0.6  | —    | 3.8  | mA            | $E_e = 0.5\text{ mW/cm}^2$ , $V_{CE} = 5\text{ V}^{(6)}$         |
| On-State Collector Current QSD723   | $I_{C(ON)}$   | 2.5  | —    | 10.0 | mA            | $E_e = 0.5\text{ mW/cm}^2$ , $V_{CE} = 5\text{ V}^{(6)}$         |
| On-State Collector Current QSD724   | $I_{C(ON)}$   | 3.5  | —    | —    | mA            | $E_e = 0.5\text{ mW/cm}^2$ , $V_{CE} = 5\text{ V}^{(6)}$         |
| Rise Time   | $t_r$         | —    | 8.0  | —    | $\mu\text{S}$ | $I_C = .2\text{ mA}$ , $V_{CC} = 5\text{ V}$ , $R_L = 100\Omega$ |
| Fall Time   | $t_f$         | —    | 8.0  | —    | $\mu\text{S}$ | $I_C = .2\text{ mA}$ , $V_{CC} = 5\text{ V}$ , $R_L = 100\Omega$ |
| Saturation Voltage  | $V_{CE(SAT)}$ | —    | —    | 0.40 | V             | $I_C = 0.6\text{ mA}$ , $E_e = 0.5\text{ mW/cm}^2^{(6)}$         |

| <b>NOTES</b>  |
|---|
| 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. |