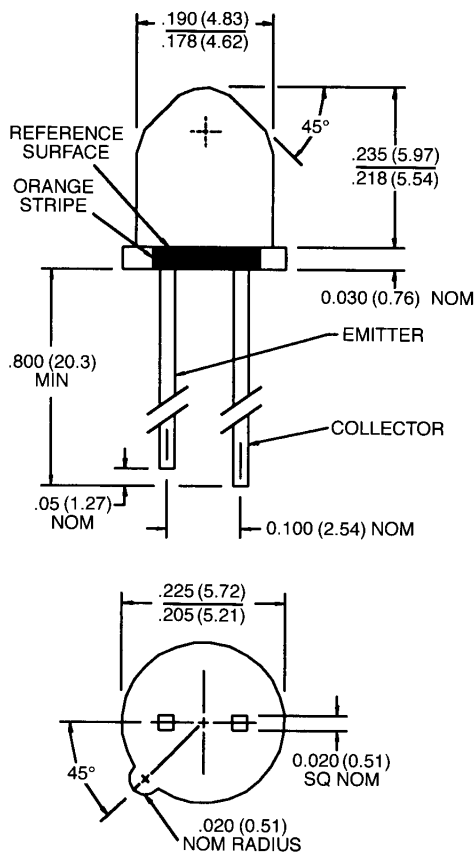


**PACKAGE DIMENSIONS**



ST2147

**DESCRIPTION**

The QSD733 is a silicon photodarlington encapsulated in an infrared transparent, black TO-18 package.

**FEATURES**

- 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 QED523 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.



## PLASTIC SILICON PHOTODARLINGTON

| <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  | $I_{C(ON)}$   | 5.0  | —    | —    | mA      | $E_e = 0.125\text{ mW/cm}^2, V_{CE} = 5\text{V}^{(6)}$    |
| Saturation Voltage  | $V_{CE(SAT)}$ | —    | —    | 1.0  | V       | $I_C = 2.0\text{mA}, E_e = 0.125\text{ mW/cm}^2^{(6)}$    |
| Rise Time   | $t_r$         | —    | 20   | —    | μS      | $I_C = .15\text{mA}, V_{CC} = 5\text{V}, R_L = 100\Omega$ |
| Fall Time   | $t_f$         | —    | 50   | —    | μS      | $I_C = .15\text{mA}, V_{CC} = 5\text{V}, R_L = 100\Omega$ |

| <b>NOTES</b>  |
|---|
| <ol style="list-style-type: none"> <li>1. Derate power dissipation linearly 1.33 mW/°C above 25°C.</li> <li>2. RMA flux is recommended.</li> <li>3. Methanol or Isopropyl alcohols are recommended as cleaning agents.</li> <li>4. Soldering iron tip 1/16" (1.6 mm) minimum from housing.</li> <li>5. As long as leads are not under any stress or spring tension.</li> <li>6. Light source is an AlGaAs LED emitting light at a peak wavelength of 880 nm.</li> </ol> |