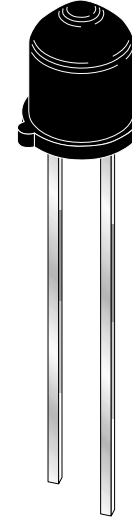
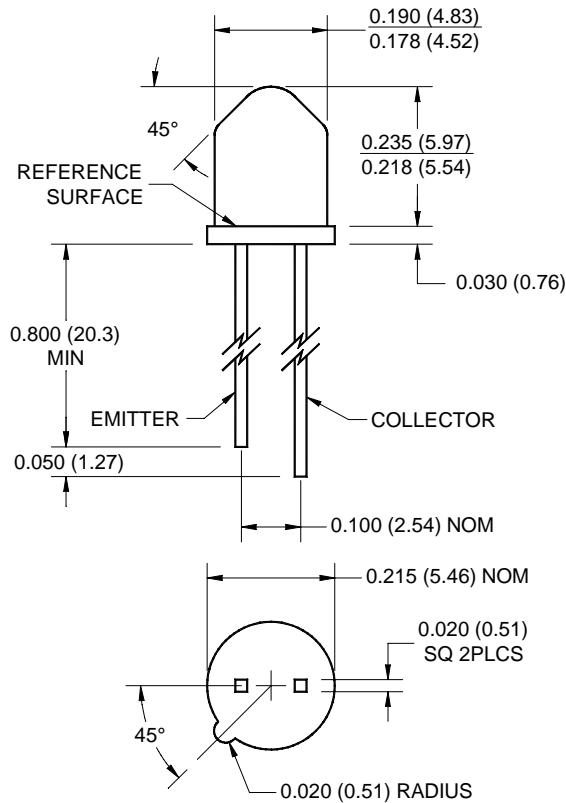
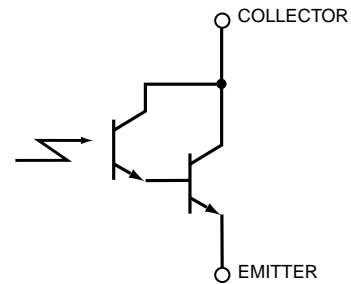


**PACKAGE DIMENSIONS**



**SCHEMATIC**



**NOTES:**

1. Dimensions for all drawings are in inches (mm).
2. Tolerance of  $\pm .010$  (.25) on all non-nominal dimensions unless otherwise specified.
3. Orange stripe on the flange.

**DESCRIPTION**

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

**FEATURES**

- NPN Silicon Photodarlington
- Package Type: Plastic TO-18
- Matched Emitter: QED523
- Narrow Reception Angle, 40°
- Daylight Filter
- Package material and color: black epoxy
- High Sensitivity

**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

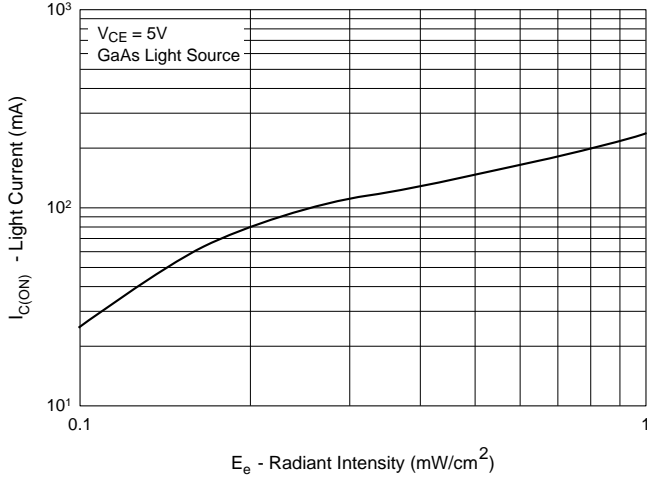
Parameter	Symbol	Rating	Unit
Operating Temperature	$T_{OPR}$	-40 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +100	$^\circ\text{C}$
Soldering Temperature (Iron) <sup>(2,3,4)</sup>	$T_{SOL-I}$	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) <sup>(2,3)</sup>	$T_{SOL-F}$	260 for 10 sec	$^\circ\text{C}$
Collector-Emitter Voltage	$V_{CE}$	30	V
Emitter-Collector Voltage	$V_{EC}$	5	V
Power Dissipation <sup>(1)</sup>	$P_D$	100	mW

1. Derate power dissipation linearly 1.33 mW/ $^\circ\text{C}$  above 25 $^\circ\text{C}$ .
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Soldering iron 1/16" (1.6mm) minimum from housing.
5.  $\lambda = 880$  nm, AlGaAs.

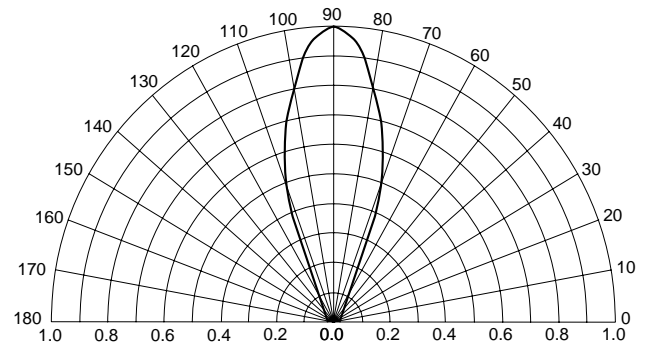
**ELECTRICAL / OPTICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ )

PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Sensitivity Wavelength		$\lambda_{PS}$	—	880	—	nm
Reception Angle		$\theta$	—	$\pm 20$	—	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	$I_E = 100$ $\mu\text{A}$	$BV_{ECO}$	5	—	—	V
On-State Collector Current <sup>(5)</sup>	$E_e = 0.125$ mW/cm <sup>2</sup> , $V_{CE} = 5$ V	$I_{C(ON)}$	5.0	—	—	mA
Saturation Voltage <sup>(5)</sup>	$E_e = 0.125$ mW/cm <sup>2</sup> , $I_C = 2.0$ mA	$V_{CE(sat)}$	—	—	1.0	V
Rise Time	$V_{CC} = 5$ V, $R_L = 100$ $\Omega$ , $I_C = 0.15$ mA	$t_r$	—	20	—	$\mu\text{s}$
Fall Time		$t_f$	—	50	—	

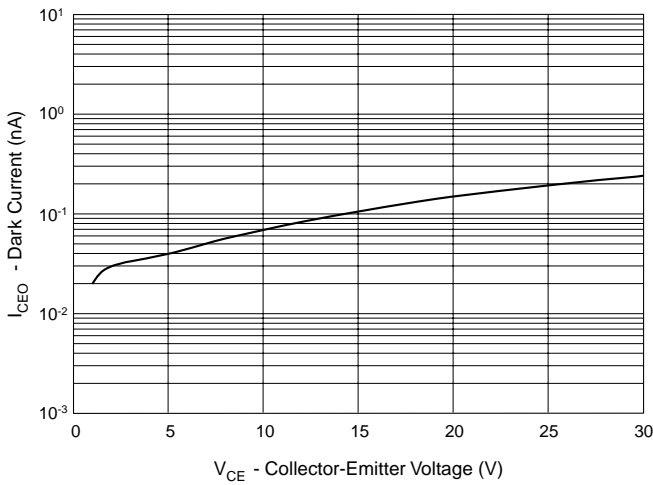
**Figure 1. Light Current vs. Radiant Intensity**



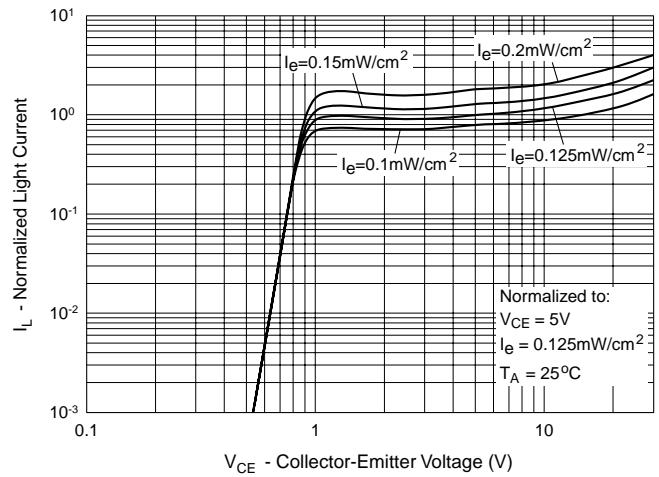
**Figure 2. Angular Response Curve**



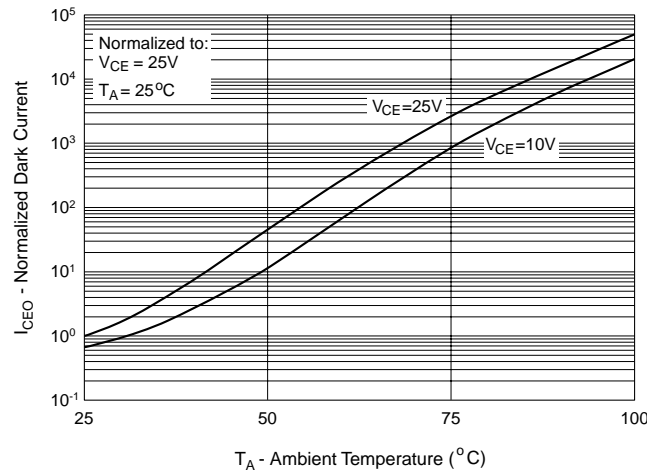
**Figure 3. Dark Current vs. Collector - Emitter Voltage**



**Figure 4. Light Current vs. Collector - Emitter Voltage**



**Figure 5. Dark Current vs. Ambient Temperature**



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