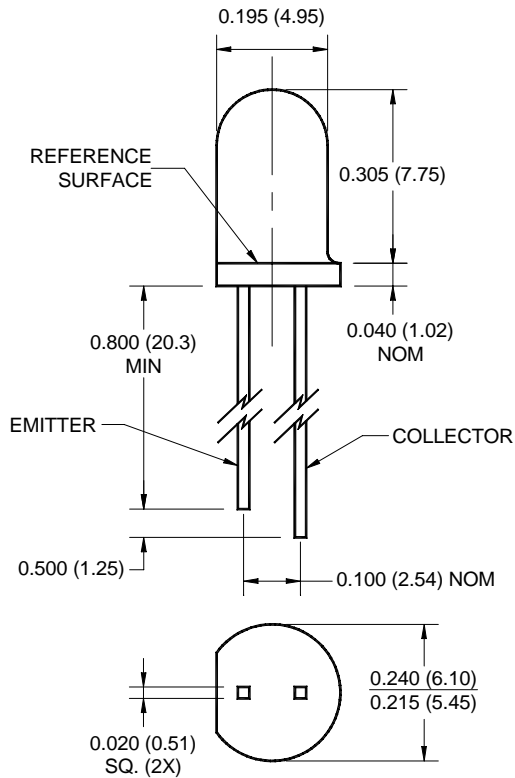


PACKAGE DIMENSIONS

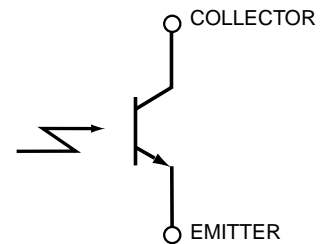


NOTES:

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



SCHEMATIC



DESCRIPTION

The QSD122/123/124 is a phototransistor encapsulated in an infrared transparent, black T-1 3/4 package.

FEATURES

- NPN Silicon Phototransistor
- Package Type: T-1 3/4
- Notched Emitter: QED12X/QED22X/QED23X
- Narrow Reception Angle: 24°C
- Daylight Filter
- Package Material and Color: Black Epoxy
- High Sensitivity

QSD122 QSD123 QSD124

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) ^(2,3,4)	T_{SOL-I}	240 for 5 sec	$^\circ\text{C}$
Soldering Temperature (Flow) ^(2,3)	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 ⁽¹⁾	P_D	100	mW

NOTE:

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. $\lambda = 880 \text{ nm}$, AlGaAs.

ELECTRICAL / OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS
Peak Sensitivity Wavelength		λ_{PS}	—	880	—	nm
Reception Angle		Θ	—	± 12	—	Deg.
Collector Emitter Dark Current	$V_{CE} = 10 \text{ V}, E_e = 0$	I_{CEO}	—	—	100	nA
Collector Emitter Breakdown	$I_C = 1 \text{ mA}$	BV_{CEO}	30	—	—	V
Emitter Collector Breakdown	$I_E = 100 \mu\text{A}$	BV_{ECO}	5	—	—	V
On-State Collector Current ⁽⁵⁾	$E_e = 0.5 \text{ mW/cm}^2, V_{CE} = 5 \text{ V}$	$I_{C(ON)}$	1.00	—	6.00	mA
QSD123			4.00	—	16.00	
QSD124			6.00	—	—	
Saturation Voltage ⁽⁵⁾	$E_e = 0.5 \text{ mW/cm}^2, I_C = 0.5 \text{ mA}$	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	$V_{CC} = 5 \text{ V}, R_L = 100 \Omega, I_C = 0.2 \text{ mA}$	t_r	—	7	—	μs
Fall Time		t_f	—	7	—	

Figure 1. Light Current vs. Radiant Intensity

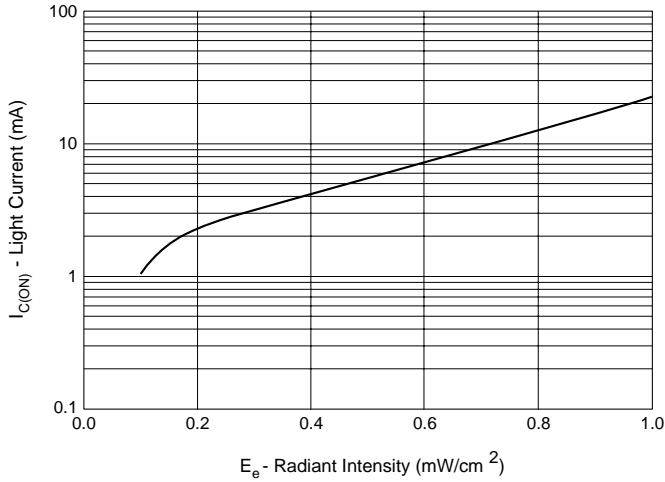


Figure 2. Angular Response Curve

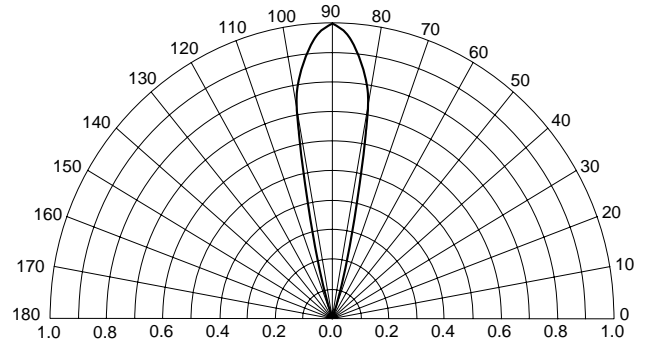


Figure 3. Dark Current vs. Collector - Emitter Voltage

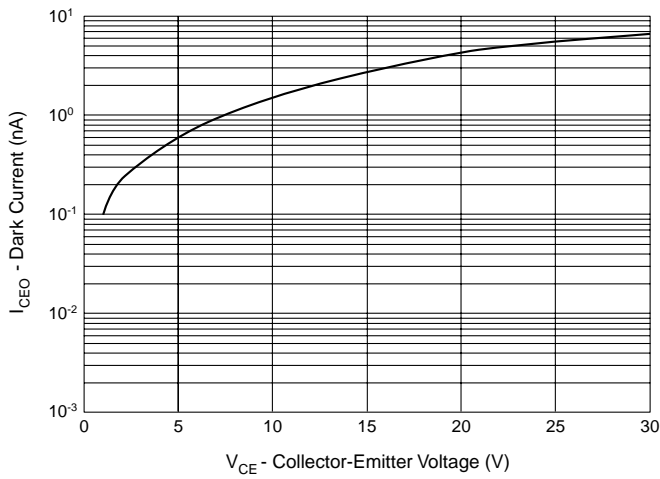


Figure 4. Light Current vs. Collector - Emitter Voltage

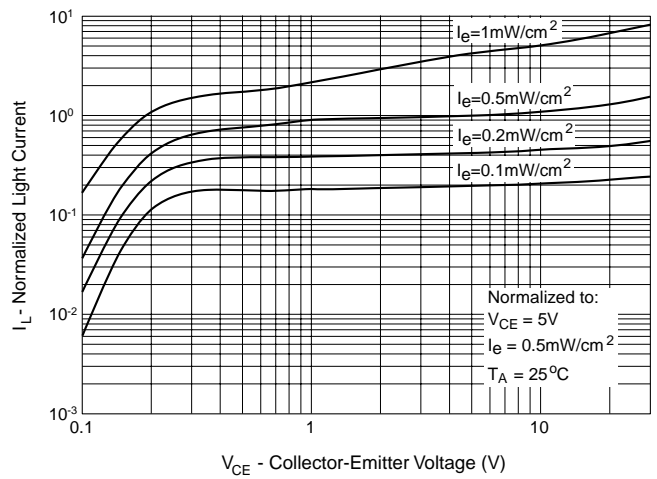
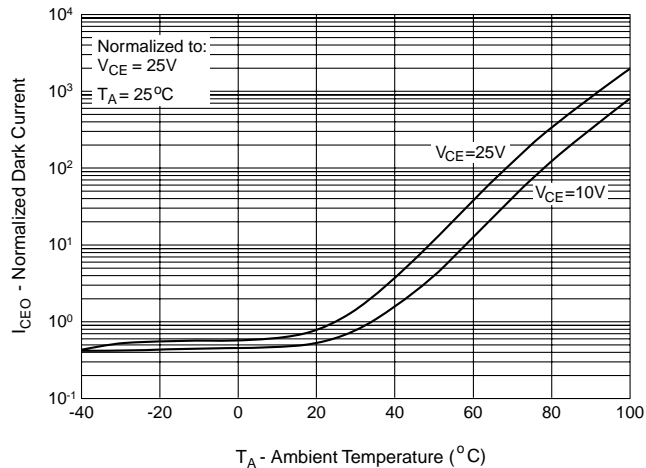


Figure 5. Dark Current vs. Ambient Temperature



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