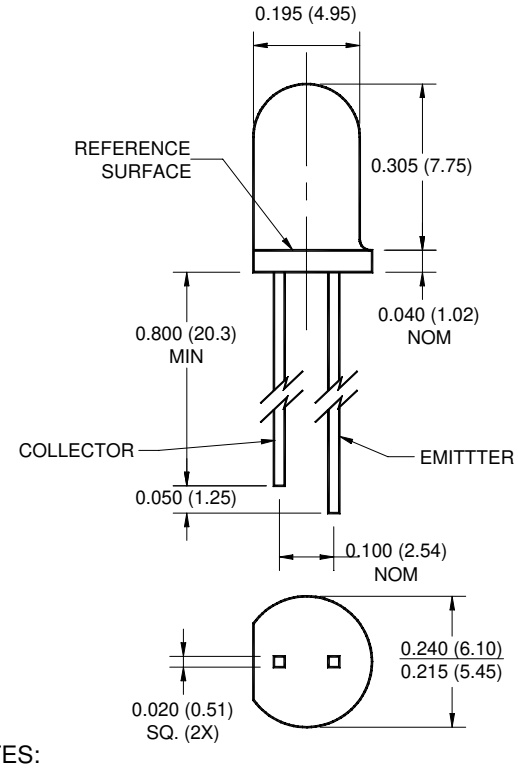
FAIRCHILD
SEMICONDUCTOR®

PLASTIC SILICON INFRARED PHOTOTRANSISTOR

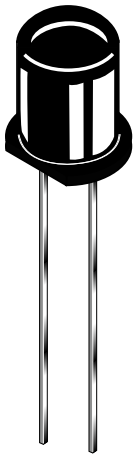
QSD128

PACKAGE DIMENSIONS

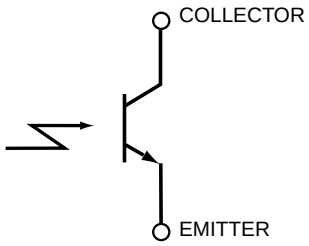


NOTES:

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



SCHEMATIC



DESCRIPTION

The QSD128 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

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Operating Temperature	T_{OPR}	-40 to +100	°C
Storage Temperature	T_{STG}	-40 to +100	°C
Soldering Temperature (Iron)(2,3,4)	T_{SOL-I}	240 for 5 sec	°C
Soldering Temperature (Flow)(2,3)	T_{SOL-F}	260 for 10 sec	°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/°C above 25°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. λ = 880 nm, AlGaAs.

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°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 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 µA	BV_{ECO}	5	—	—	V
On-State Collector Current(5)	E_e = 0.5 mW/cm², V_{CE} = 5 V	$I_{C\ (ON)}$	1.60	—	—	mA
Saturation Voltage(5)	E_e = 0.5 mW/cm², I_C = 0.5 mA	$V_{CE\ (SAT)}$	—	—	0.4	V
Rise Time	V_{CC} = 5 V, R_L = 100 Ω I_C = 0.2 mA	t_r	—	7	—	µs
Fall Time		t_f	—	7	—	

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Figure 1. Light Current vs. Radiant Intensity

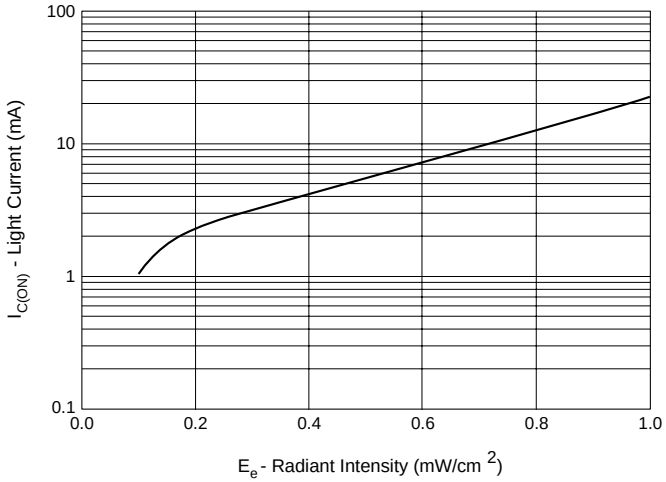


Figure 2. Angular Response Curve

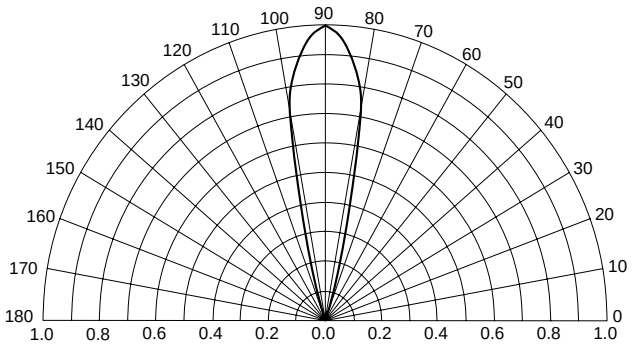


Figure 3. Dark Current vs. Collector - Emitter Voltage

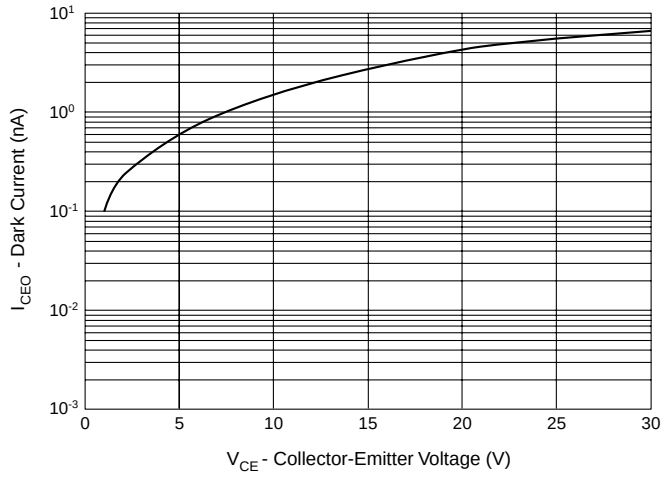


Figure 4. Light Current vs. Collector - Emitter Voltage

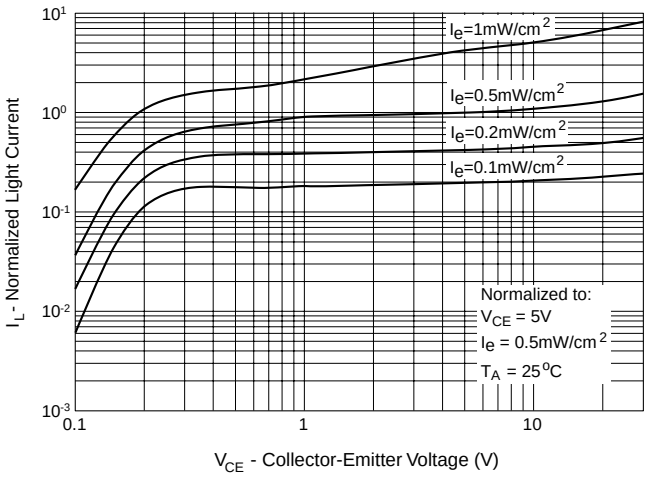
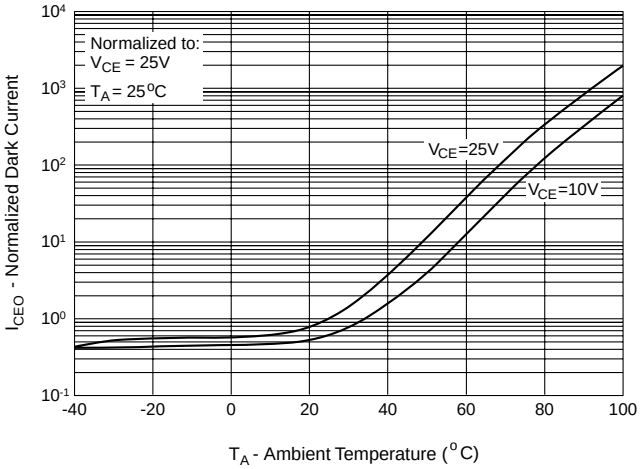


Figure 5. Dark Current vs. Ambient Temperature



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