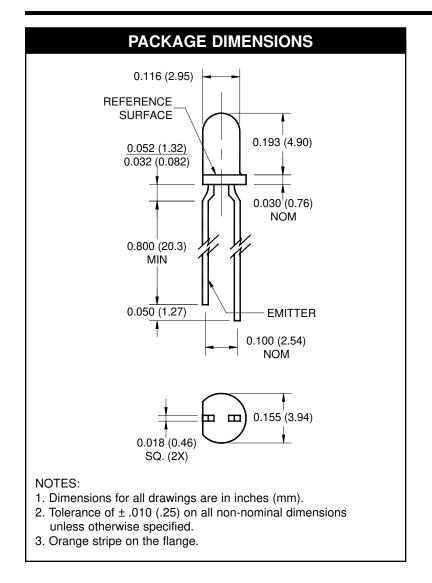
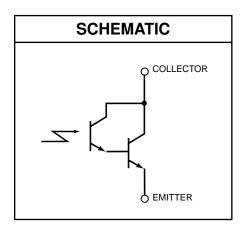
**QSC133** 







### DESCRIPTION

The QSC133 is a silicon phototdarlington encapsulated in an infrared transparent, black T-1 package.

### **FEATURES**

- NPN Silicon Photodarlington
- Package Type: T-1 (3mm lens diameter)
- Matched Emitter: QECXXX
- Narrow Reception Angle, 16°
- · Daylight Filter
- · Package material and color: black epoxy
- · High Sensitivity



**QSC133** 

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise specified)							
Parameter	Symbol	Rating	Unit				
Operating Temperature	T <sub>OPR</sub>	-40 to +100	°C				
Storage Temperature	T <sub>STG</sub>	-40 to +100	°C				
Soldering Temperature (Iron)(2,3,4)	T <sub>SOL-I</sub>	240 for 5 sec	°C				
Soldering Temperature (Flow)(2,3)	T <sub>SOL-F</sub>	260 for 10 sec	°C				
Collector-Emitter Voltage	V <sub>CE</sub>	30	V				
Emitter-Collector Voltage	V <sub>EC</sub>	5	V				
Power Dissipation(1)	P <sub>D</sub>	100	mW				

- 1. Derate power dissipation linearly 2.00 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.  $\lambda$  = 880 nm, AlGaAs.

ELECTRICAL / OPTICAL CHARACTERISTICS (TA =25°C)								
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS		
Peak Sensitivity Wavelength		$\lambda_{PS}$	_	880	_	nm		
Reception Angle			_	±8	_	Deg.		
Collector-Emitter Dark Current	V <sub>CE</sub> = 10 V, Ee = 0	I <sub>CEO</sub>	_	_	100	nA		
Collector-Emitter Breakdown	$I_C = 1 \text{ mA}$	BV <sub>CEO</sub>	30	_	_	V		
Emitter-Collector Breakdown	I <sub>E</sub> = 100 μA	BV <sub>ECO</sub>	5	_	_	V		
On-State Collector Current <sup>(5)</sup>	$Ee = 0.25 \text{ mW/cm}^2, V_{CE} = 5 \text{ V}$	Ic(on)	8.00	_	_	mA		
Saturation Voltage <sup>(5)</sup>	$Ee = 0.25 \text{ mW/cm}^2, I_C = 0.4 \text{ mA}$	$V_{CE(sat)}$	_	_	1.0	V		
Rise Time	V 5 V D 400 O L 045 TA	t <sub>r</sub>	_	20	_	μs		
Fall Time	$V_{\rm CC}$ = 5 V, R <sub>L</sub> = 100 $\Omega$ , I <sub>C</sub> = 0.15 mA	t <sub>f</sub>	_	50	_			



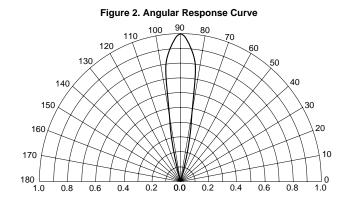
**QSC133** 

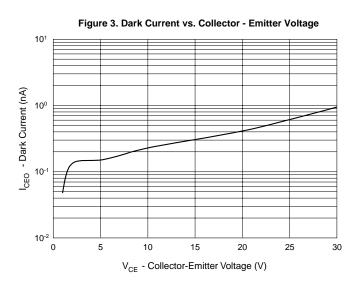
Figure 1. Light Current vs. Radiant Intensity

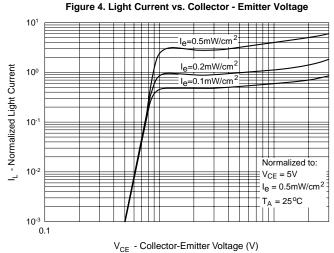
VCE = 5V
GaAs Light Source

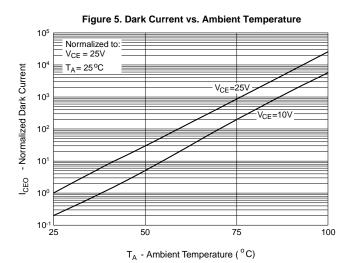
10<sup>1</sup>
0.1

E<sub>e</sub> - Radiant Intensity (mW/cm<sup>2</sup>)











**QSC133** 

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