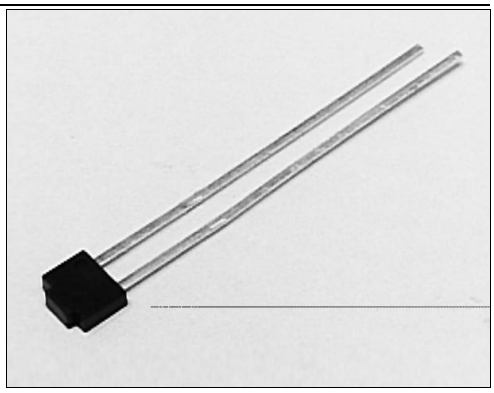
SDP8407

Silicon Phototransistor

FEATURES

- End-looking plastic package
- 135° (nominal) acceptance angle
- Low profile for design flexibility
- Mechanically and spectrally matched to SEP8507 infrared emitting diode



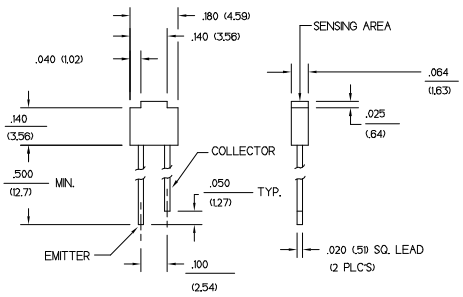
INFRA-16.TIF

DESCRIPTION

The SDP8407 is an NPN silicon phototransistor molded in an end-looking black plastic package. The chip is positioned to accept radiation from the top of the package. Lead lengths are staggered to provide a simple method of polarity identification.

OUTLINE DIMENSIONS in inches (mm)

Tolerance	3 plc decimals	±0.008(0.20)
	2 plc decimals	±0.020(0.51)



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ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Light Current SDP8407-001	I_L	 0.10			mA	V_{CE}=5 V H=1 mW/cm² (1)
Collector Dark Current	I_{CEO}			100	nA	V_{CE}=10 V, H=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	I_C=100 µA
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	I_E=100 µA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			0.4	V	I_C=10 µA H=1 mW/cm²
Angular Response (2)	Ø		135		degr.	I_F=Constant
Rise And Fall Time	t_r, t_f		15		µs	V_{CC}=5 V, I_L=1 mA R_L=1000 Ω

Notes
1. The radiation source is an IRED with a peak wavelength of 935 nm.
2. Angular response is defined as the total included angle between the half sensitivity points.

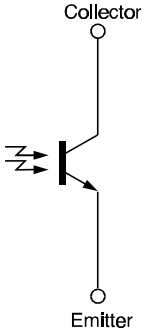
ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	100 mW (1)
Operating Temperature Range	-40°C to 85C
Storage Temperature Range	-40°C to 85°C
Soldering Temperature (5 sec)	240°C

Notes
1. Derate linearly from 25°C free-air temperature at the rate of 0.66 mW/°C.

SCHEMATIC



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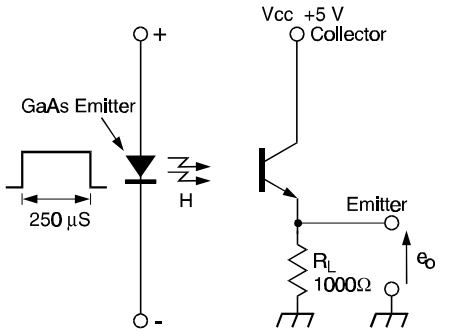
SWITCHING TIME TEST CIRCUIT

cir_015.cdr



SWITCHING WAVEFORM

cir_004.cdr

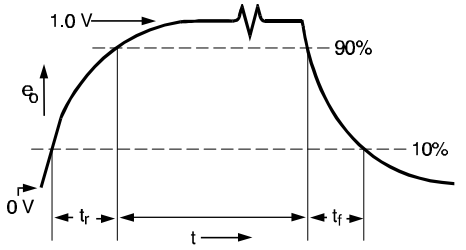


Fig. 1 Responsivity vs Angular Displacement

gra_055.ds4

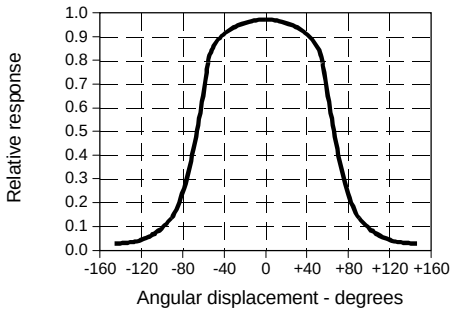


Fig. 2 Collector Current vs Ambient Temperature

gra_039.ds4

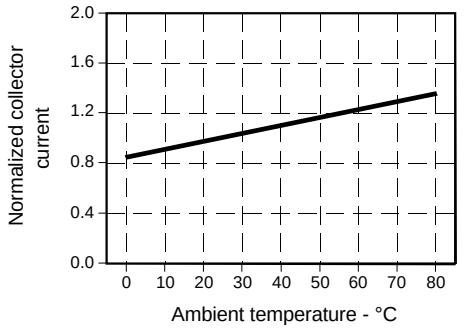


Fig. 3 Dark Current vs Temperature

gra_301.cdr

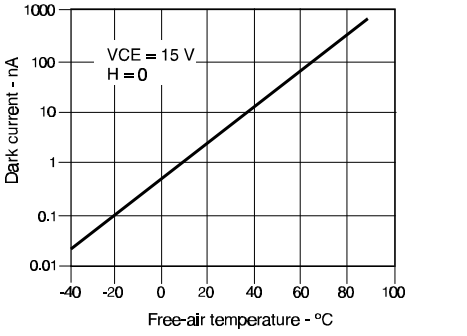
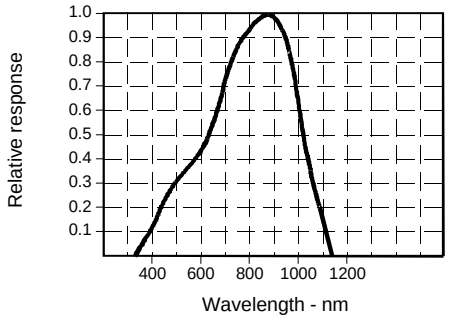


Fig. 4 Spectral Responsivity

gra_036.ds4



All Performance Curves Show Typical Values

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