

SD1440

Silicon Phototransistor

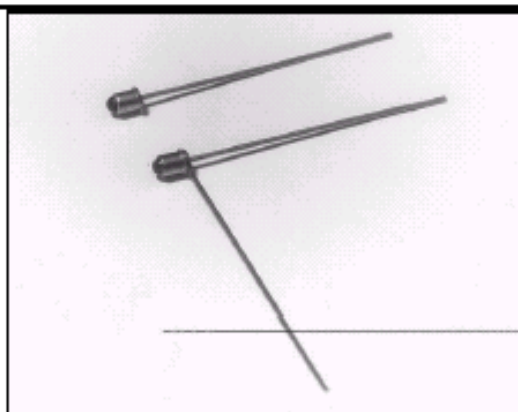
FEATURES

- Compact, metal can coaxial package
- 24° (nominal) acceptance angle
- Wide sensitivity ranges
- Wide operating temperature range (-55°C to +125°C)
- Mechanically and spectrally matched to SE1450 and SE1470 infrared emitting diodes



DESCRIPTION

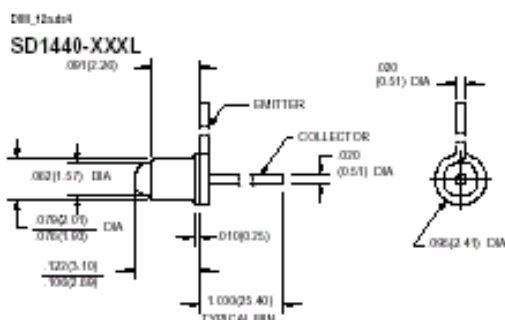
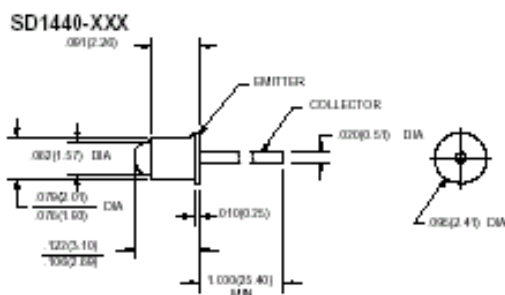
The SD1440 is an NPN silicon phototransistor mounted in a glass lensed metal can coaxial package. The package may have a tab or second lead welded to the can as an optional feature (SD1440-XXXL). Both leads are flexible and may be formed to fit various mounting configurations.



144463.TF

OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals ±0.005(0.12)
2 plc decimals ±0.020(0.51)



DBL_121.dwg

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ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Light Current	I_L				mA	$V_{CC}=5\text{ V}$ $H=5\text{ mW/cm}^2$
SD1440-001, SD1440-001 L		0.7				
SD1440-002, SD1440-002 L		1.5				
SD1440-003, SD1440-003 L		3.0				
SD1440-004, SD1440-004 L		6.0				
Collector Dark Current	I_{CO}			100	nA	$V_{CC}=10\text{ V}, H=0$
Collector-Emitter Breakdown Voltage	V_{CE0}	30			V	$I_C=100\text{ }\mu\text{A}$
Emitter-Collector Breakdown Voltage	V_{EC0}	5.0			V	$I_E=100\text{ }\mu\text{A}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.4	V	$I_C=0.4\text{ mA}$ $H=5\text{ mW/cm}^2$
Angular Response ^{1,2}	θ		24		degr.	$I_C=\text{Constant}$
Rise And Fall Time	t_r, t_f		15		μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$

Notes

1. The radiation source is a tungsten lamp operating at a color temperature of 2870°K.
2. Angular response is defined as the total included angle between the half sensitivity points.

ABSOLUTE MAXIMUM RATINGS

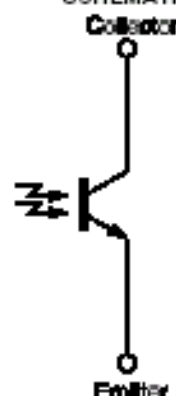
(25°C Free-Air Temperature unless otherwise noted)

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	75 mW ¹⁾
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Soldering Temperature (10 sec)	260°C

Notes

1. Derate linearly from 25°C free-air temperature at the rate of 0.71 mW/°C.

SCHEMATIC



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SWITCHING TIME TEST CIRCUIT

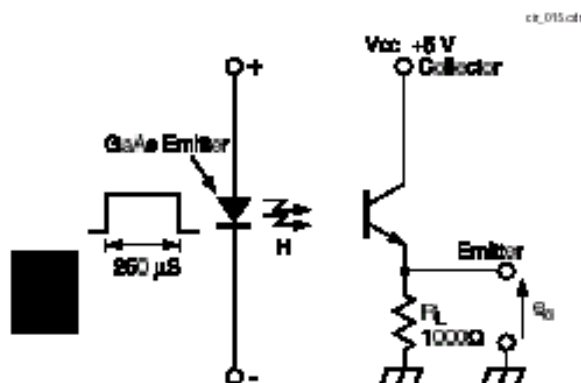


Fig. 1 Responsivity vs Angular Displacement

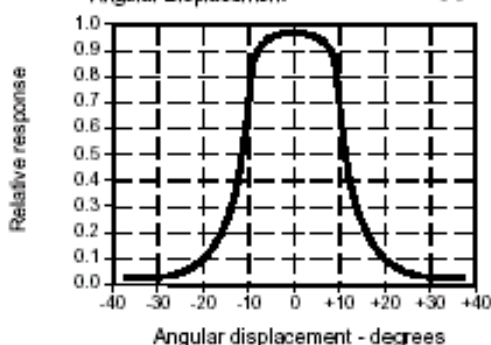
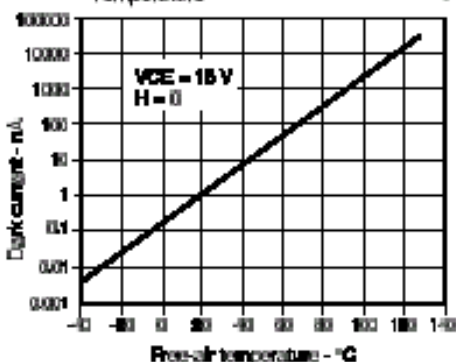


Fig. 3 Dark Current vs Temperature



SWITCHING WAVEFORM

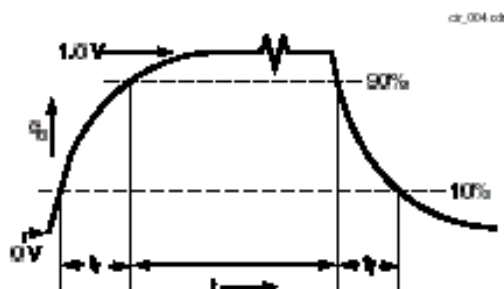


Fig. 2 Collector Current vs Ambient Temperature

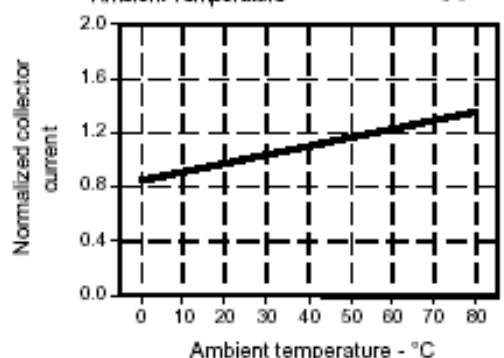
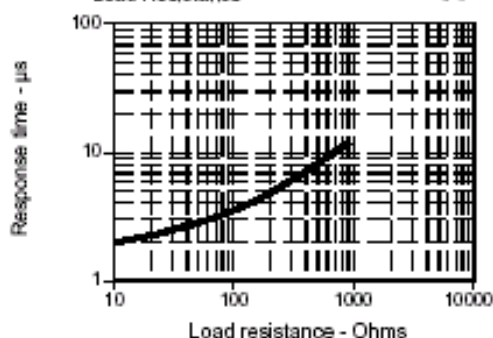


Fig. 4 Non-Saturated Switching Time vs Load Resistance



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Fig. 5 Spectral Responsivity

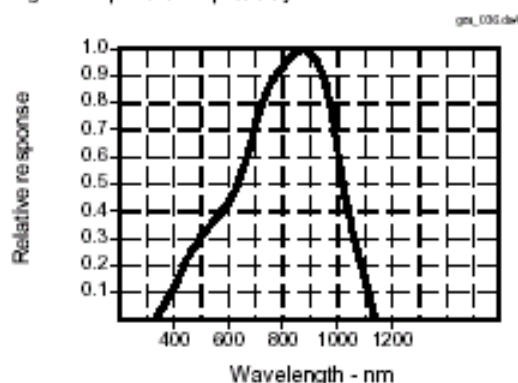
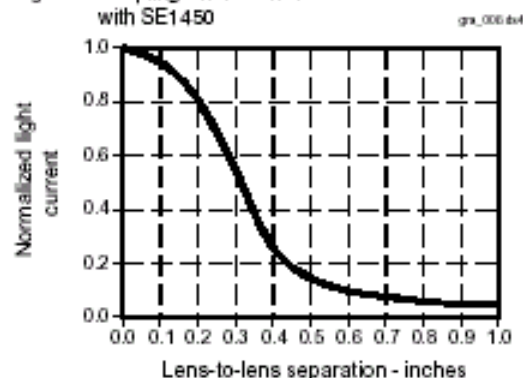


Fig. 6 Coupling Characteristics with SE1450



All Performance Curves Show Typical Values

传感与控制事业部

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