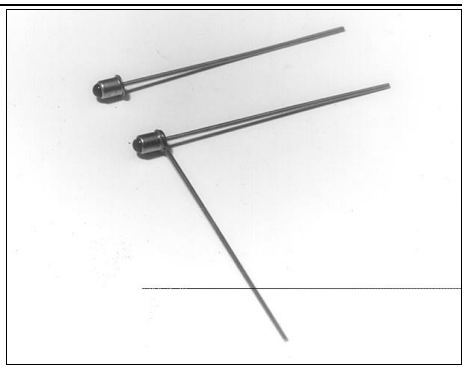
SD1410

Silicon Photodarlington

FEATURES

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



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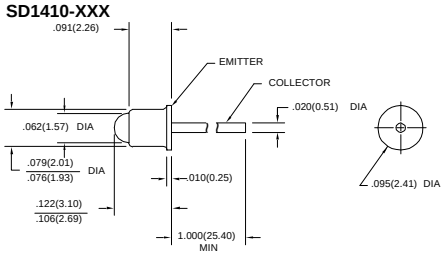
DESCRIPTION

The SD1410 is an NPN silicon photodarlington 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 (SD1410-XXXL). Both leads are flexible and may be formed as required to fit various mounting configurations.

OUTLINE DIMENSIONS in inches (mm)

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

SD1410-XXX



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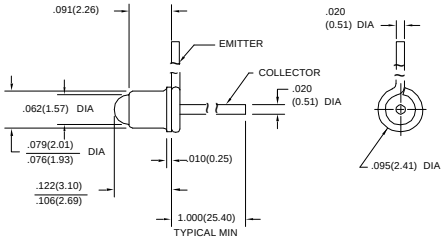
SD1410-XXXL



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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_{CE}=5 V
SD1410-001, SD1410-001 L		0.6				H=0.2 mW/cm² (1)
SD1410-002, SD1410-002 L		2.0				
SD1410-003, SD1410-003 L		4.0				
SD1410-004, SD1410-004 L		8.0				
Collector Dark Current	I_{CEO}			250	nA	V_{CE}=10 V, H=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	15			V	I_C=100 µA
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5.0			V	I_E=100 µA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$			1.1	V	I_C=1 mA, H=1 mW/cm²
Angular Response (2)	Ø		24		degr.	I_F=Constant
Rise And Fall Time	t_r, t_f		75		µs	V_{CC}=5 V, I_L=1 mA, R_L=100 Ω

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.

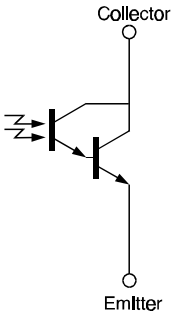
ABSOLUTE MAXIMUM RATINGS

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

Collector-Emitter Voltage	15 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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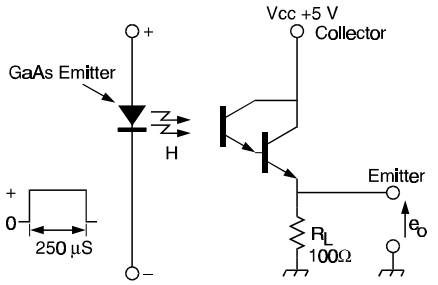
SWITCHING TIME TEST CIRCUIT

cir_016.cdr



SWITCHING WAVEFORM

cir_004.cdr

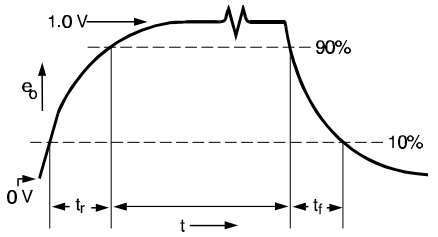


Fig. 1 Responsivity vs Angular Displacement

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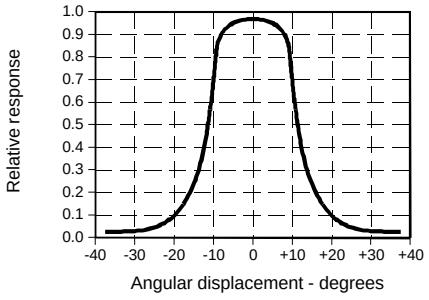

Fig. 2 Spectral Responsivity

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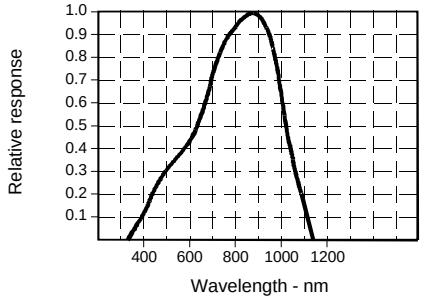

Fig. 3 Non-Saturated Switching Time vs Load Resistance

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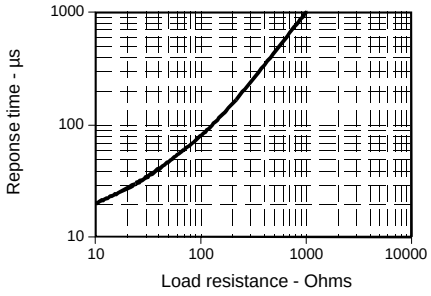

All Performance Curves Show Typical Values

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