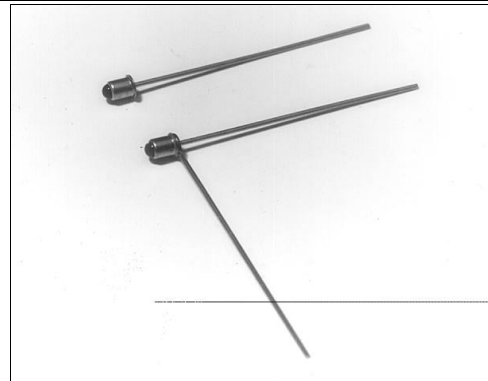


SD1440

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



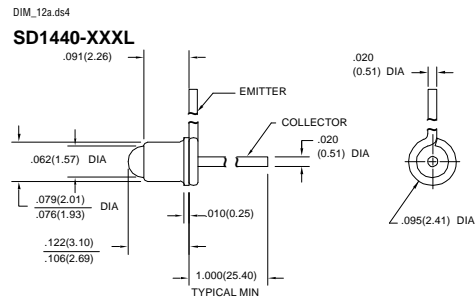
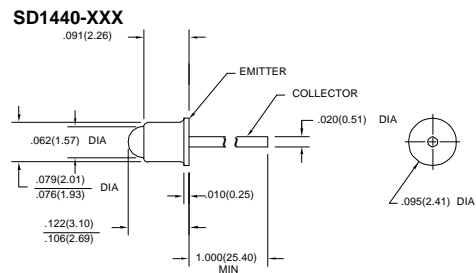
INFRA-63.TIF

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.

OUTLINE DIMENSIONS in inches (mm)

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



DIM_12b.ds4

SD1440

Silicon Phototransistor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

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

Notes

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

ABSOLUTE MAXIMUM RATINGS

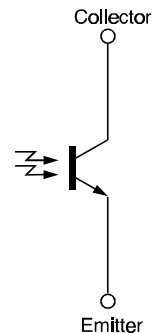
(25°C Free-Air Temperature unless otherwise noted)

| | |
|--------------------------------|----------------|
| 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

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

SCHEMATIC



Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

Honeywell

SD1440

Silicon Phototransistor

SWITCHING TIME TEST CIRCUIT

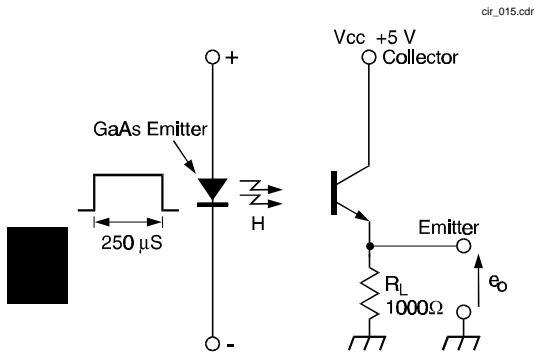


Fig. 1 Responsivity vs Angular Displacement

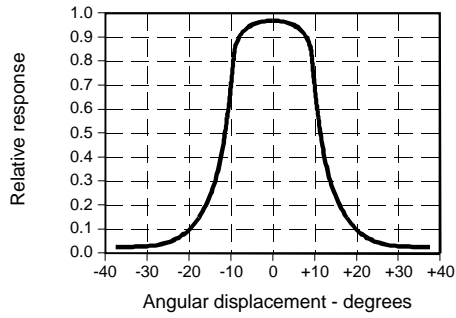
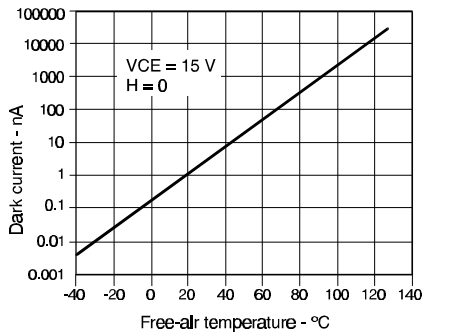


Fig. 3 Dark Current vs Temperature



SWITCHING WAVEFORM

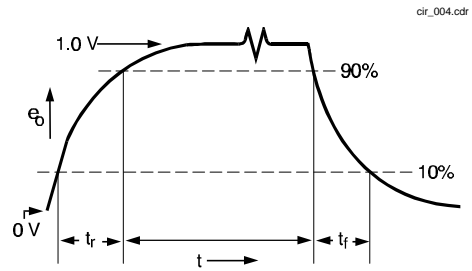


Fig. 2 Collector Current vs Ambient Temperature

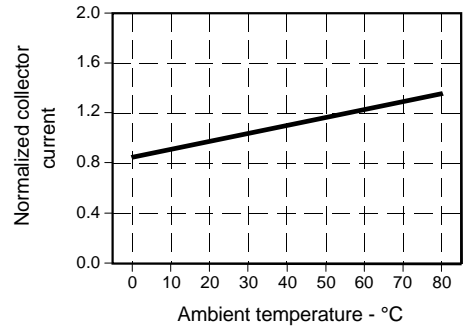
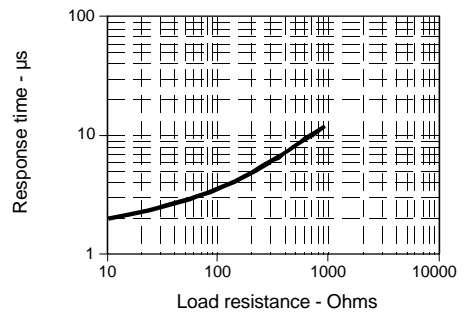


Fig. 4 Non-Saturated Switching Time vs Load Resistance



SD1440

Silicon Phototransistor

Fig. 5 Spectral Responsivity

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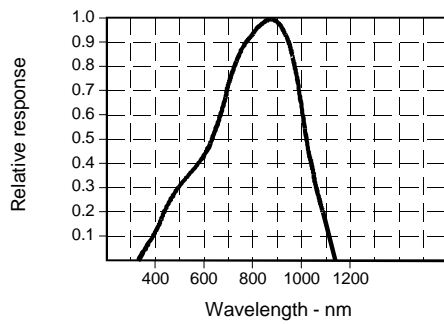
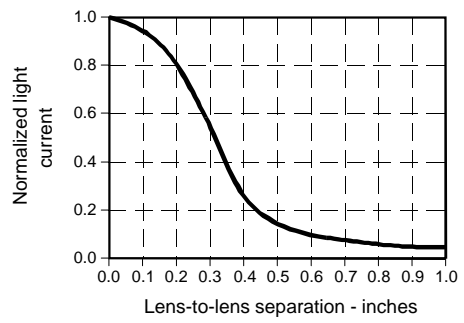


Fig. 6 Coupling Characteristics with SE1450

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All Performance Curves Show Typical Values