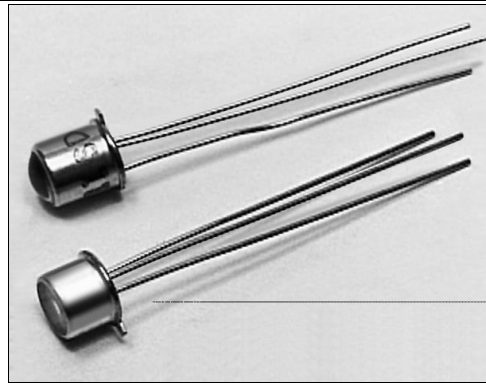


SD3443/5443

Silicon Phototransistor

FEATURES

- TO-46 metal can package
- Choice of flat window or lensed package
- 90° or 18° (nominal) acceptance angle option
- Wide operating temperature range (-55°C to +125°C)
- External base connection for added control
- High sensitivity
- Mechanically and spectrally matched to SE3450/5450, SE3455/5455 and SE3470/5470 infrared emitting diodes



INFRA-57.TIF

DESCRIPTION

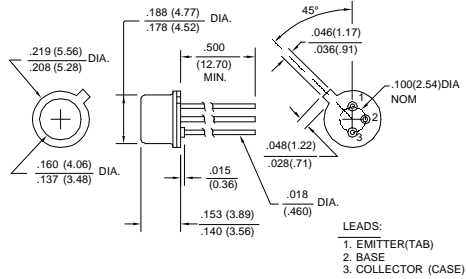
The SD3443/5443 series consists of an NPN silicon phototransistor mounted in a TO-46 metal can package. The SD3443 has flat window cans providing a wide acceptance angle, while the SD5443 has glass lensed cans providing a narrow acceptance angle. The TO-46 packages are ideally suited for operation in hostile environments.

The base is connected on all SD3443 and SD5433 standard products.

OUTLINE DIMENSIONS in inches (mm)

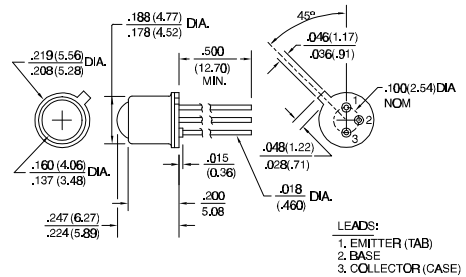
| | | |
|-----------|----------------|--------------|
| Tolerance | 3 plc decimals | ±0.005(0.12) |
| | 2 plc decimals | ±0.020(0.51) |

SD3443



DIM_015.ds4

SD5443



DIM_15b.ds4

SD3443/5443

Silicon Phototransistor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------------------------------------|---------------|------|-----|-----|---------------|--|
| Light Current | I_L | | | | mA | $V_{CE}=5\text{ V}$ $H=5\text{ mW/cm}^2$ (1) |
| SD3443-001 | | 0.50 | | | | |
| SD3443-002 | | 1.00 | | | | |
| SD3443-003 | | 2.00 | | | | |
| SD5443-001 | | 1.00 | | | | |
| SD5443-002 | | 4.00 | | | | |
| SD5443-003 | | 8.00 | | | | |
| SD5443-004 | 16.0 | | | | | |
| 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 | | | | degr. | $I_F=\text{Constant}$ |
| SD3443 | | | 90 | | | |
| SD5443 | | | 18 | | | |
| 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

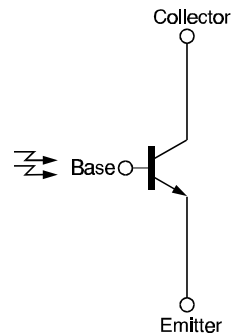
(25°C Free-Air Temperature unless otherwise noted)

| | |
|--------------------------------|----------------|
| Collector-Emitter Voltage | 30 V |
| Emitter-Collector Voltage | 5 V |
| Power Dissipation | 150 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 1.43 mW/°C.

SCHEMATIC



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

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SD3443/5443

Silicon Phototransistor

SWITCHING TIME TEST CIRCUIT

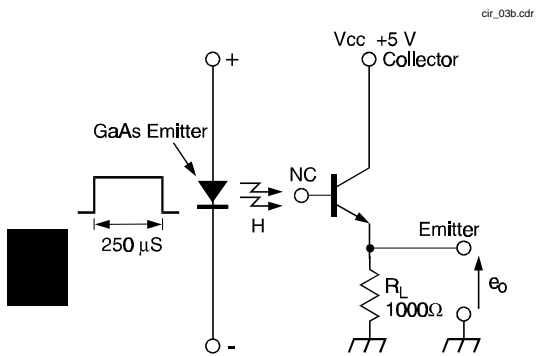
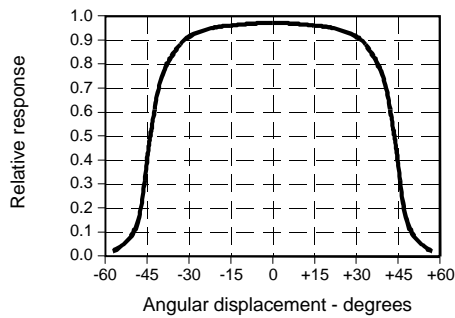


Fig. 1 Responsivity vs Angular Displacement (SD3443) gra_052.ds4



SWITCHING WAVEFORM

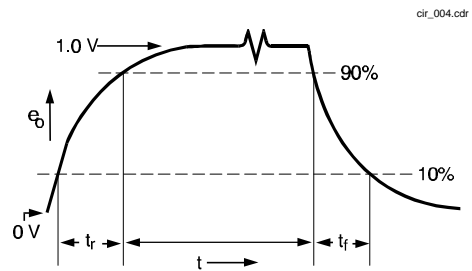


Fig. 2 Responsivity vs Angular Displacement (SD5443) gra_053.ds4

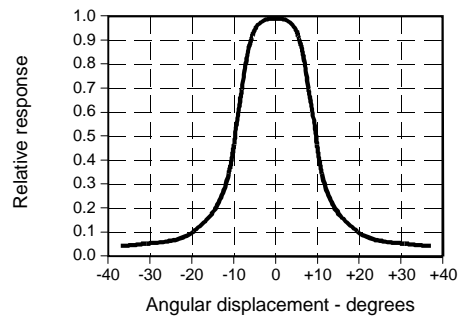


Fig. 3 Dark Current vs Temperature gra_303.cdr

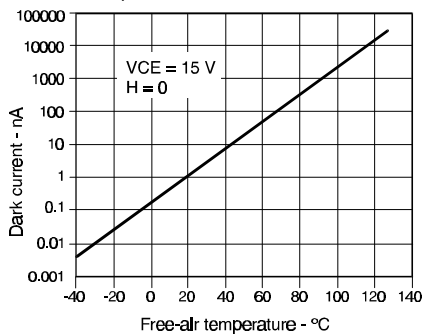
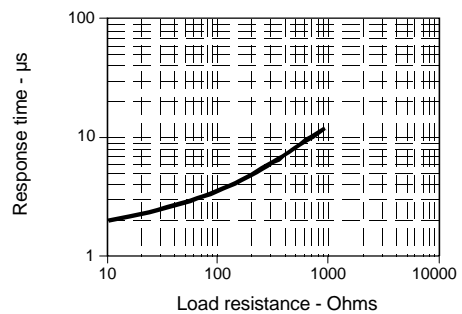


Fig. 4 Non-Saturated Switching Time vs Load Resistance gra_041.ds4



SD3443/5443

Silicon Phototransistor

Fig. 5 Spectral Responsivity

gra_036.ds4

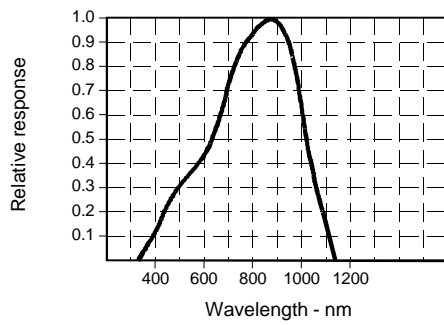


Fig. 6 Coupling Characteristics SE3450 with SD3443

gra_021.ds4

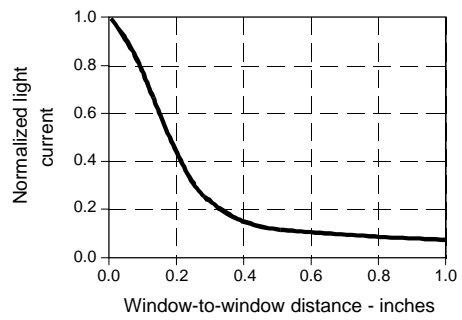


Fig. 7 Coupling Characteristics SE5450 with SD5443

gra_024.ds4

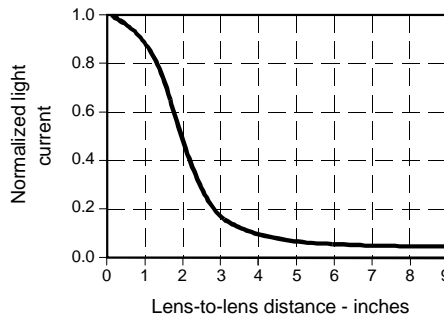
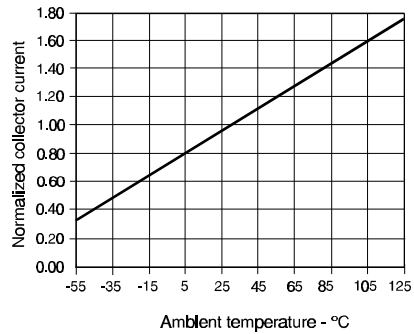


Fig. 8 Collector Current vs Ambient Temperature

gra_302.cdr



All Performance Curves Show Typical Values

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