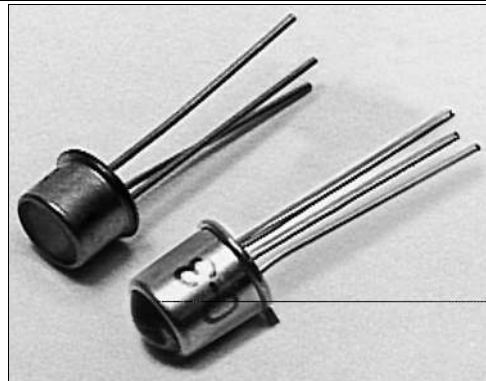


SD3410/5410

Silicon Photodarlington

FEATURES

- TO-46 metal can package
- Choice of flat window or lensed package
- 90° or 12° (nominal) acceptance angle option
- Wide operating temperature range (-55°C to +125°C)
- Wide sensitivity ranges
- Mechanically and spectrally matched to SE3450/5450, SE3455/5455 and SE3470/5470 infrared emitting diodes



INFRA-17.TIF

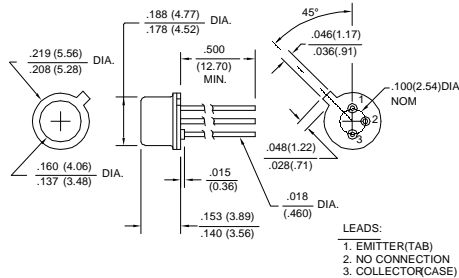
DESCRIPTION

The SD3410/5410 series consists of an NPN silicon photodarlington mounted in a TO-46 metal can package. The SD3410 has flat window cans providing a wide acceptance angle, while the SD5410 has glass lensed cans providing a narrow acceptance angle. The TO-46 packages are ideally suited for operation in hostile environments.

OUTLINE DIMENSIONS in inches (mm)

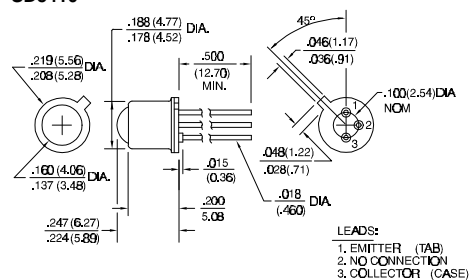
| | | |
|-----------|----------------|--------------|
| Tolerance | 3 plc decimals | ±0.005(0.12) |
| | 2 plc decimals | ±0.020(0.51) |

SD3410



DIM_021.ds4

SD5410



DIM_21b.ds4

SD3410/5410

Silicon Photodarlington

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---------------|--------------------------|----------|-----|---------------|---|
| Light Current SD3410-001 SD3410-002 SD3410-003 SD3410-004 | I_L | 0.6 2.0 4.0 8.0 | | | mA | $V_{CE}=5\text{ V}$ $H=2\text{ mW/cm}^2$ (1) |
| Light Current SD5410-001 SD5410-002 SD5410-003 | I_L | 2.0 4.0 8.0 | | | mA | $V_{CE}=5\text{ V}$ $H=0.2\text{ mW/cm}^2$ (1) |
| Collector Dark Current | I_{CE0} | | | 250 | nA | $V_{CE}=10\text{ V}$, $H=0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 15 | | | 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 SD3410 SD5410 | $V_{CE(SAT)}$ | | | 1.1 | V | $I_C=1\text{ mA}$ $H=2\text{ mW/cm}^2$ $H=0.2\text{ mW/cm}^2$ |
| Angular Response (2) SD3410 SD5410 | \emptyset | | 90 12 | | degr. | $I_F=\text{Constant}$ |
| Rise And Fall Time | t_r, t_f | | 75 | | μs | $V_{CC}=5\text{ V}$, $I_L=1\text{ mA}$ $R_L=100\text{ }\Omega$ |

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

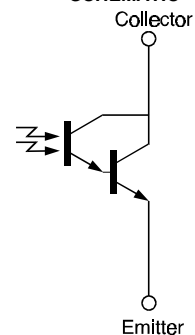
(25°C Free-Air Temperature unless otherwise noted)

| | |
|--------------------------------|----------------|
| Collector-Emitter Voltage | 15 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

1. Derate linearly from 25°C free-air temperature at the rate of 1.43 mW/°C.

SCHEMATIC



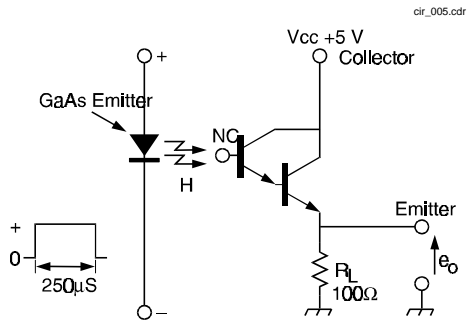
Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

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SD3410/5410

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SWITCHING TIME TEST CIRCUIT



SWITCHING WAVEFORM

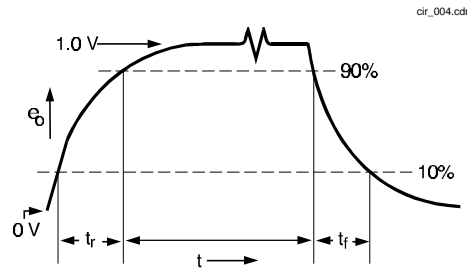


Fig. 1 Responsivity vs Angular Displacement (SD3410)

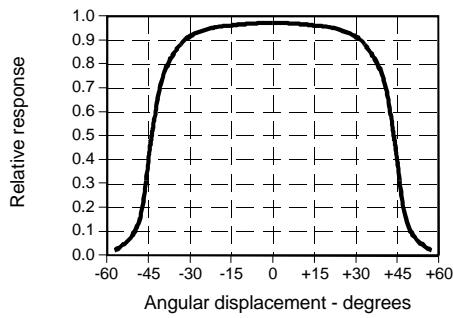


Fig. 2 Responsivity vs Angular Displacement (SD5410)

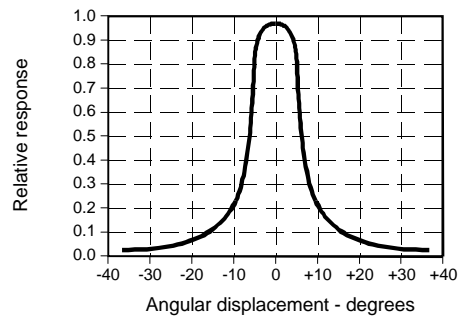


Fig. 3 Non-Saturated Switching Time vs Load Resistance

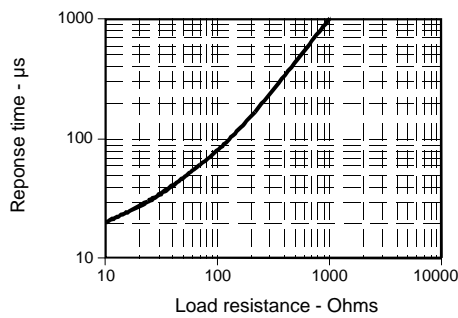
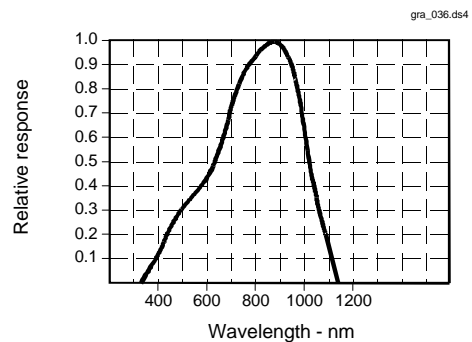


Fig. 4 Spectral Responsivity



All Performance Curves Show Typical Values

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