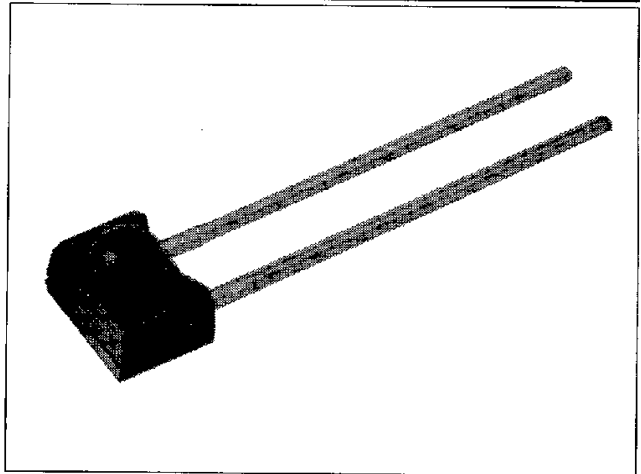


SDP8436

Silicon Phototransistor

FEATURES

- Side-looking plastic package
- 18° (nominal) acceptance angle
- Enhanced coupling distance
- Internal visible light rejection filter
- Low profile for design flexibility
- Wide sensitivity ranges
- Mechanically matched to SEP8736 infrared emitting diode



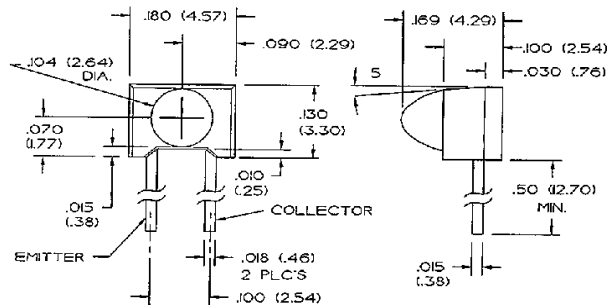
INFRA-82.TIF

DESCRIPTION

The SDP8436 is an NPN silicon phototransistor molded in a black plastic package which combines the mounting advantages of a side-looking package with the narrow acceptance angle and high optical gain of a T-1 package. The SDP8436 is designed for those applications which require longer coupling distances than standard side-looking devices can provide, such as touch screens. The device is also well suited to applications in which adjacent channel crosstalk could be a problem. The package is highly transmissive to the IR source energy while it provides effective shielding against visible ambient light.

OUTLINE DIMENSIONS in inches (mm)

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



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

SDP8436

Silicon Phototransistor

ELECTRICAL CHARACTERISTIC (25°C unless otherwise noted)

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|--------------------------------------|---------------|------|------|-----|---------------|--|
| Light Current | I_L | | | | mA | $V_{CE}=5\text{ V}$ $H=1\text{ mW/cm}^2$ (1) |
| SDP8436-001 | | 0.50 | | | | |
| SDP8436-002 | | 4.00 | 10.0 | | | |
| SDP8436-003 | | 7.00 | 17.5 | | | |
| SDP8436-004 | | 12.5 | | | | |
| Collector Dark Current | I_{CEO} | | | 100 | nA | $V_{CE}=15\text{ V}, H=0$ |
| 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 | $I_C=0.1\text{ mA}$ $H=1\text{ mW/cm}^2$ |
| Angular Response (2) | θ | | 18 | | 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

1. The radiation source is an IRED with a peak wavelength of 880 nm.
2. Angular response is defined as the total included angle between the half sensitivity points.

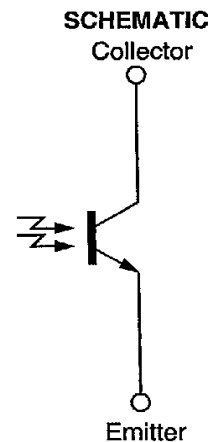
ABSOLUTE MAXIMUM RATINGS

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

| | |
|-------------------------------|---------------|
| Collector-Emitter Voltage | 30 V |
| Emitter-Collector Voltage | 5 V |
| Power Dissipation | 100 mW (1) |
| Operating Temperature Range | -40°C to 85°C |
| Storage Temperature Range | -40°C to 85°C |
| Soldering Temperature (5 sec) | 240°C |

Notes

1. Derate linearly from 25°C free-air temperature at the rate of 0.78 mW/°C.



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SDP8436

Silicon Phototransistor

SWITCHING TIME TEST CIRCUIT

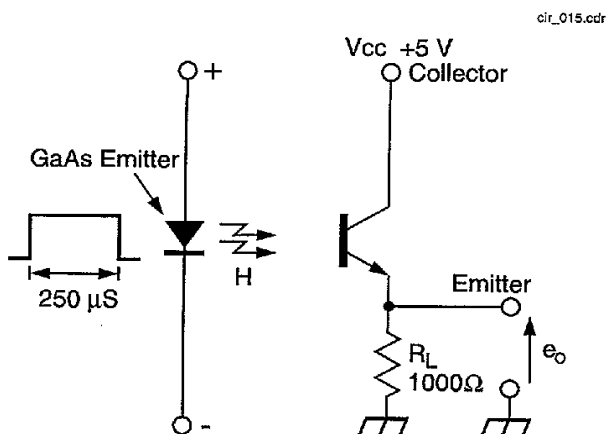


Fig. 1 Responsivity vs Angular Displacement

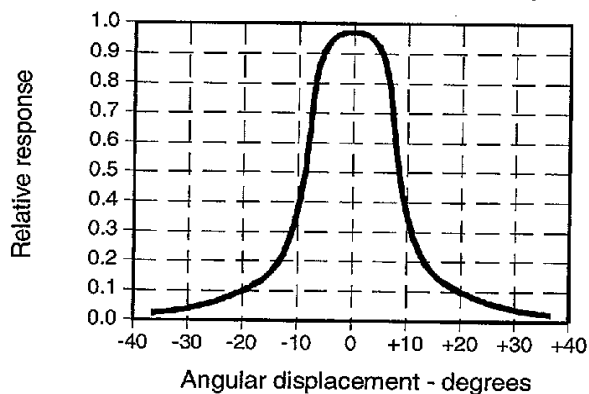
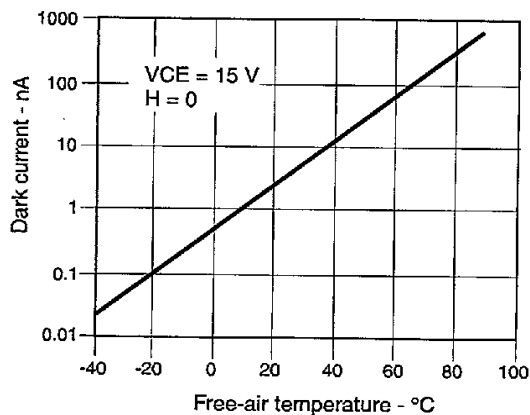


Fig. 3 Dark Current vs Temperature



SWITCHING WAVEFORM

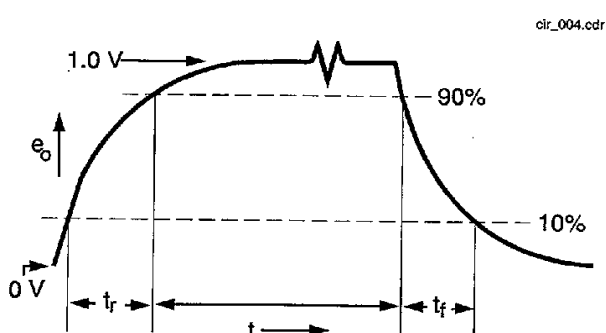


Fig. 2 Collector Current vs Ambient Temperature

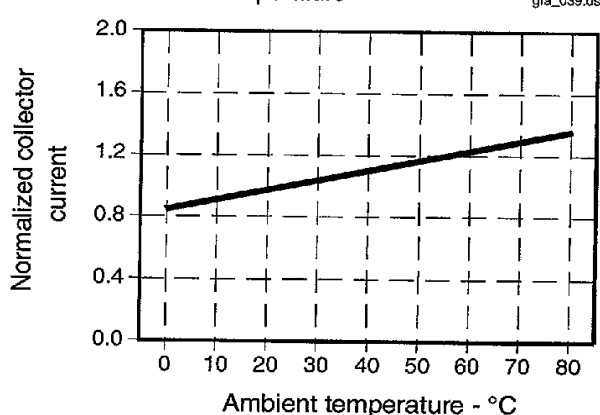
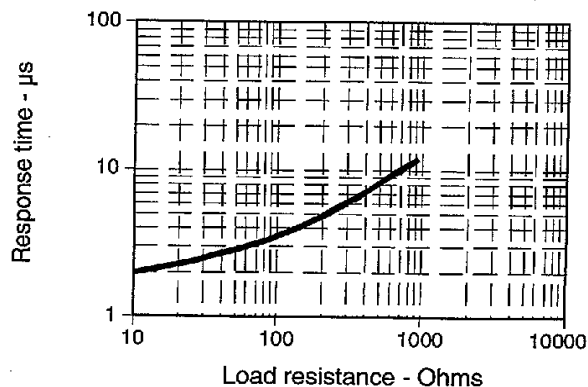


Fig. 4 Non-Saturated Switching Time vs Load Resistance



SDP8436

Silicon Phototransistor

Fig. 5 Spectral Responsivity

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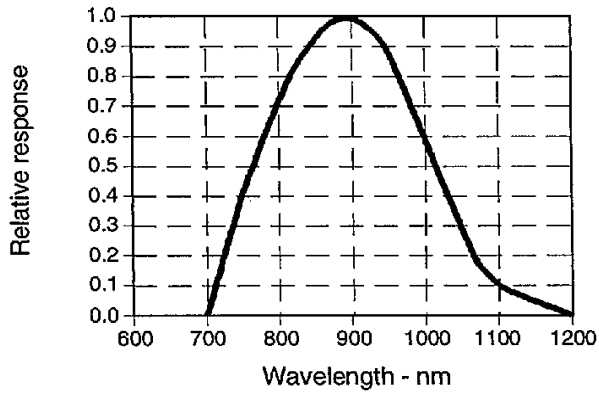
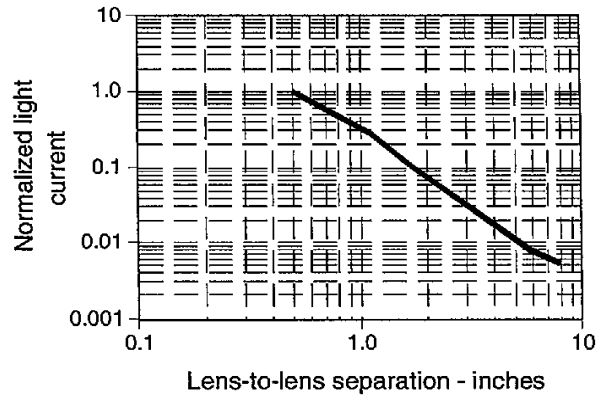


Fig. 6 Coupling Characteristics with SEP8736

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All Performance Curves Show Typical Values

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