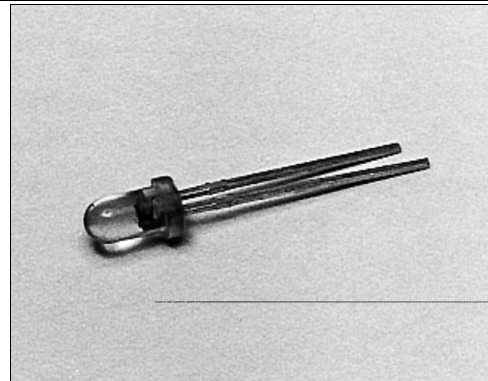


SDP8405

Silicon Phototransistor

FEATURES

- T-1 plastic package
- 20° (nominal) acceptance angle
- Consistent optical properties
- Wide sensitivity ranges
- Mechanically and spectrally matched to SEP8505 and SEP8705 infrared emitting diodes



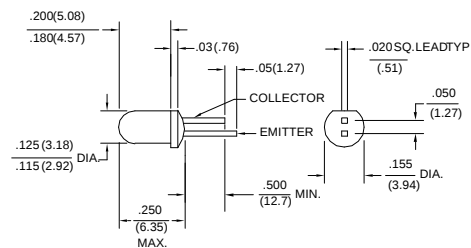
INFRA-22.TIF

DESCRIPTION

The SDP8405 is an NPN silicon phototransistor transfer molded in a T-1 clear plastic package. Transfer molding of this device assures superior optical centerline performance compared to other molding processes. Lead lengths are staggered to provide a simple method of polarity identification.

OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals $\pm 0.005(0.12)$
2 plc decimals $\pm 0.020(0.51)$



DIM_100.ds4

SDP8405

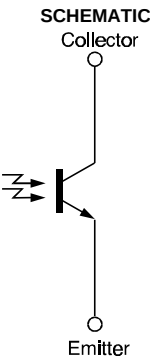
Silicon Phototransistor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)							
PARAMETER		SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Light Current SDP8405-001 SDP8405-002 SDP8405-003		I _L	1.00 7.00 12.0		14.0 24.0	mA	V _{CE} =5 V H=5 mW/cm ² (1)
Light Current SDP8405-011 SDP8405-012 SDP8405-013 SDP8405-014 SDP8405-015		I _L	0.16 0.16 0.32 0.64 1.25		0.46 0.92 1.85	mA	V _{CE} =5 V H=0.25 mW/cm ² (2)
Collector Dark Current		I _{CEO}			100	nA	V _{CE} =15 V, H=0
Collector-Emitter Breakdown Voltage		V _{(BR)CEO}	30			V	I _C =100 μA
Emitter-Collector Breakdown Voltage		V _{(BR)ECO}	5.0			V	I _E =100 μA
Collector-Emitter Saturation Voltage SDP8405-001 to -003 SDP8405-011 to -015		V _{CE(SAT)}			0.4	V	I _C =I _L /8 H=5 mW/cm ² H=0.25 mW/cm ²
Angular Response (3)		Ø		20		degr.	I _F =Constant
Rise And Fall Time		t _r , t _f		15		μs	V _{CC} =5 V, I _L =1 mA R _L =1000 Ω

Notes
1. The radiation source is a tungsten lamp operating at a color temperature of 2870°K.
2. The radiation source is an IRED with a peak wavelength of 935 nm.
3. 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	70 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 0.18 mW/°C.



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

Honeywell

SDP8405

Silicon Phototransistor

SWITCHING TIME TEST CIRCUIT

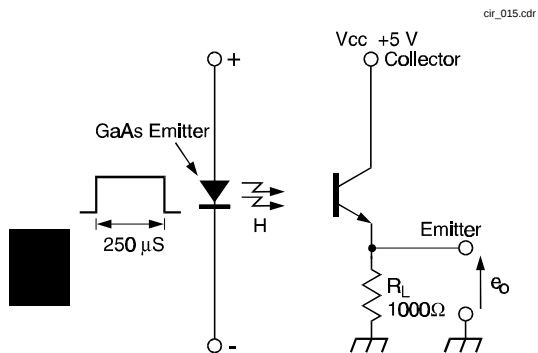
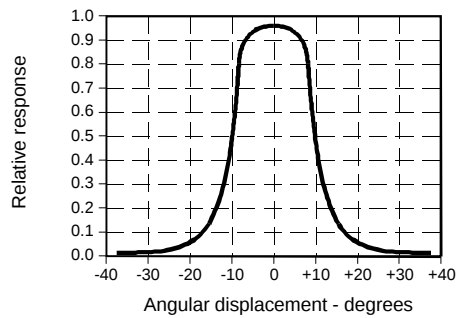


Fig. 1 Responsivity vs Angular Displacement



SWITCHING WAVEFORM

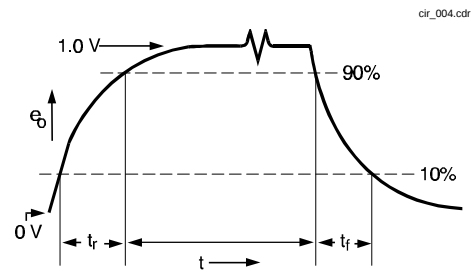


Fig. 2 Collector Current vs Ambient Temperature

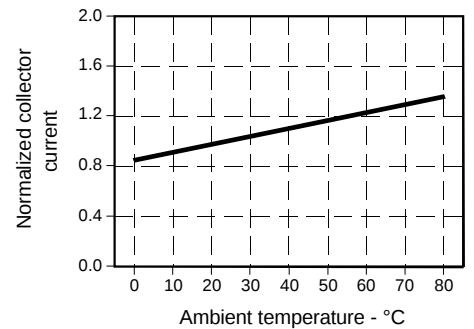


Fig. 3 Dark Current vs Temperature

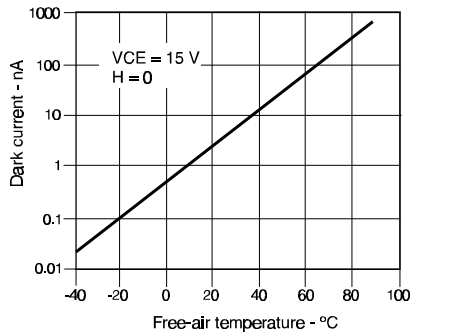
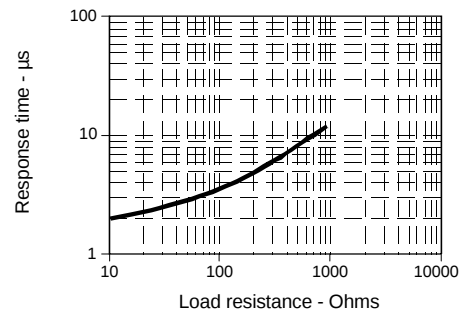


Fig. 4 Non-Saturated Switching Time vs Load Resistance



SDP8405

Silicon Phototransistor

Fig. 5 Spectral Responsivity

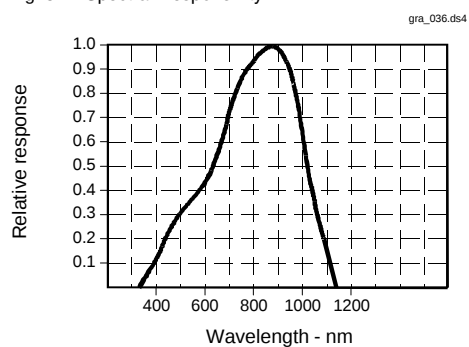
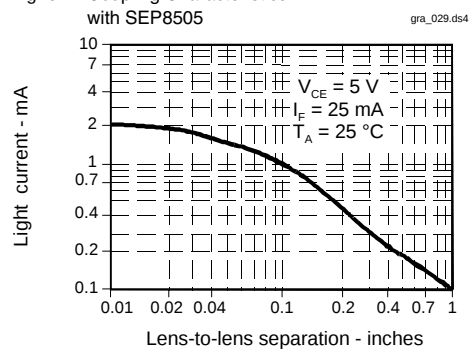


Fig. 6 Coupling Characteristics with SEP8505



All Performance Curves Show Typical Values