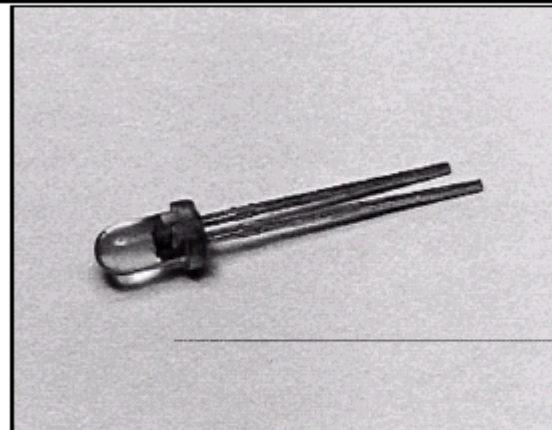


SDP8405

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



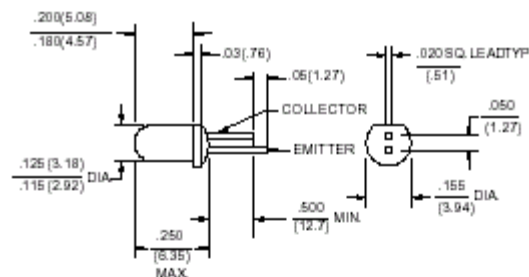
MFPA-22.TIF

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



DRW_100.dwg

SDP8405

Silicon Phototransistor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Light Current SDP8405-001	I _L	1.00			mA	V _{CE} =5 V H=5 mW/cm ² (1)
SDP8405-002		7.00	14.0			
SDP8405-003		12.0	24.0			
Light Current SDP8405-011	I _L	0.18			mA	V _{CE} =5 V H=0.25 mW/cm ² (1)
SDP8405-012		0.18	0.48			
SDP8405-013		0.32	0.82			
SDP8405-014		0.64	1.85			
SDP8405-015		1.28				
Collector Dark Current	I _{CO}			100	nA	V _{CE} =15 V, H=0
Collector-Emitter Breakdown Voltage	V _{CE(BR)}	30			V	I _C =100 μA
Emitter-Collector Breakdown Voltage	V _{EC(BR)}	5.0			V	I _E =100 μA
Collector-Emitter Saturation Voltage SDP8405-001 to -003	V _{CE(SAT)}			0.4	V	I _C =I _E /8 H=5 mW/cm ²
SDP8405-011 to -015						H=0.25 mW/cm ²
Angular Response (2)	θ		20		degr.	I _E =Constant
Rise And Fall Time	t _r , t _f		15		μs	V _{CE} =5 V, I _C =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 885 nm.
3. Angular response is defined as the total included angle between the half sensitivity points.

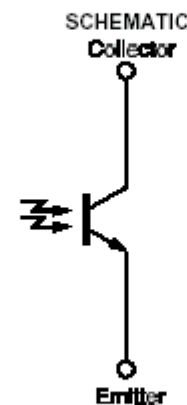
ABSOLUTE MAXIMUM RATINGS

(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.

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SDP8405 Silicon Phototransistor

SWITCHING TIME TEST CIRCUIT

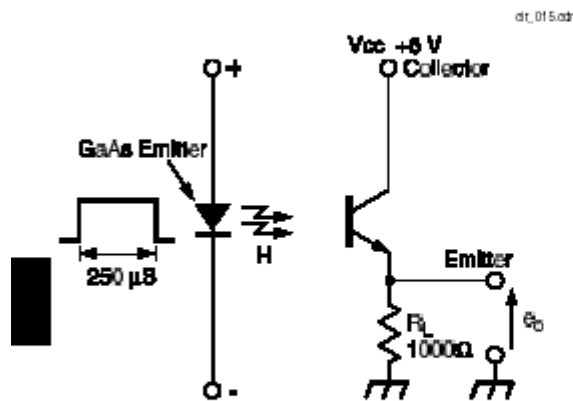


Fig. 1 Responsivity vs Angular Displacement

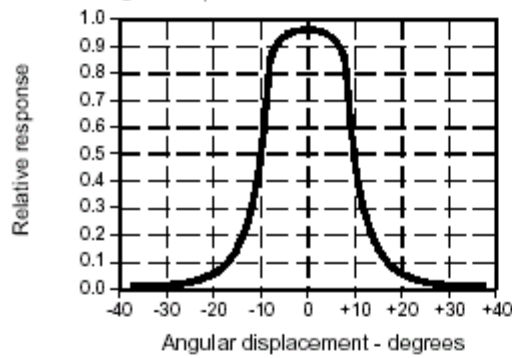
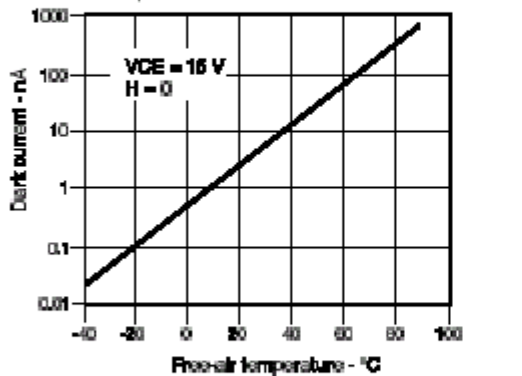


Fig. 3 Dark Current vs Temperature



SWITCHING WAVEFORM

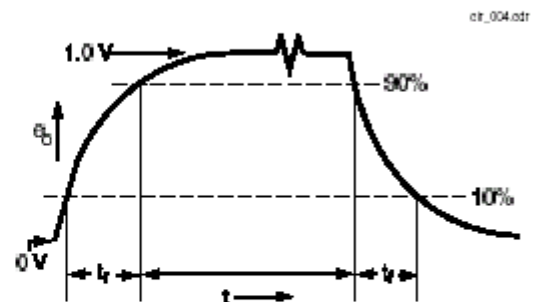


Fig. 2 Collector Current vs Ambient Temperature

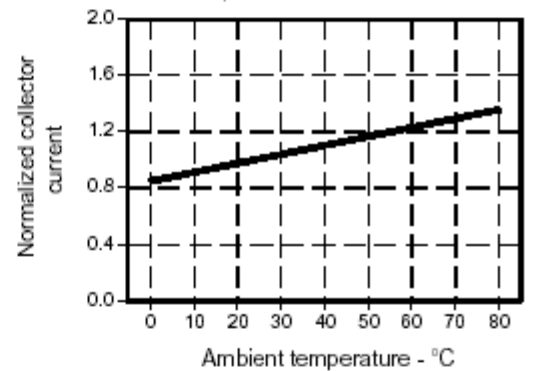
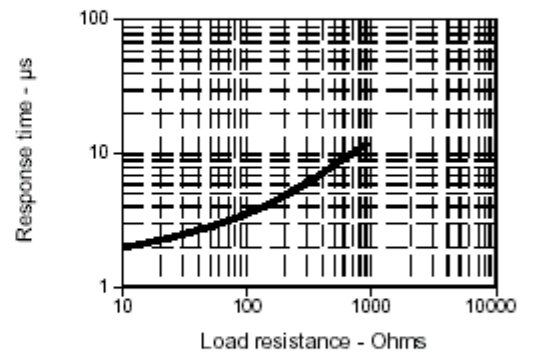


Fig. 4 Non-Saturated Switching Time vs Load Resistance



SDP8405 Silicon Phototransistor

Fig. 5 Spectral Responsivity

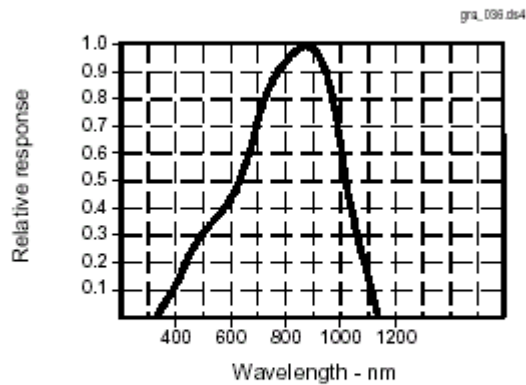
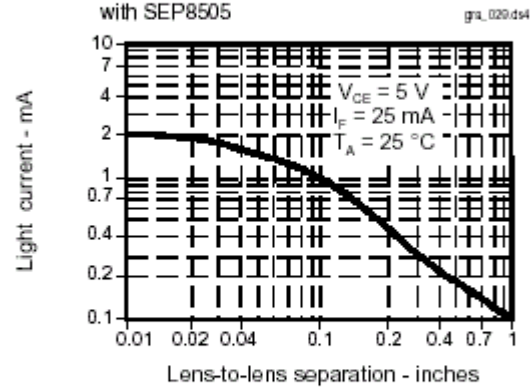


Fig. 6 Coupling Characteristics with SEP8505



All Performance Curves Show Typical Values

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