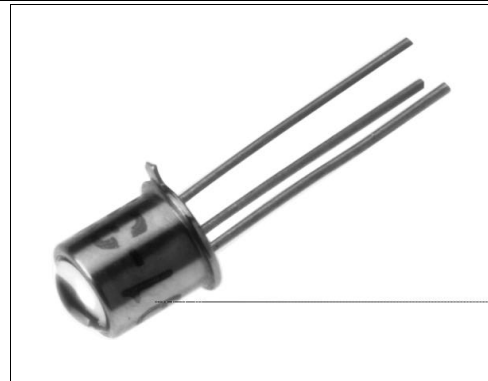


SD5491

Silicon Phototransistor

FEATURES

- TO-18 metal can package
- 12° (nominal) acceptance angle
- Wide operating temperature range (-55°C to +125°C)
- Fast response time
- Wide sensitivity ranges
- External base connection for added control
- Mechanically and spectrally matched to SE3450/5450, SE3455/5455 and SE3470/5470 infrared emitting diodes



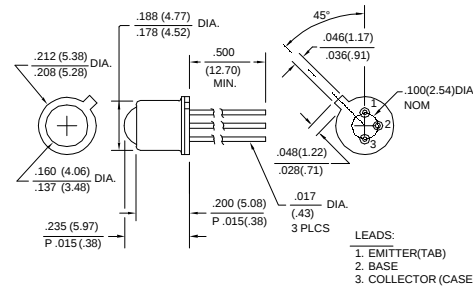
INFRA-70.TIF

DESCRIPTION

The SD5491 is an NPN silicon phototransistor mounted in a TO-18 metal can package. A biconvex lens provides high optical sensitivity with a narrow acceptance angle to enable maximum radiation coupling. The TO-18 package offers protection against harsh environments as well as excellent thermal characteristics.

OUTLINE DIMENSIONS in inches (mm)

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



DIM_016.dwg

SD5491

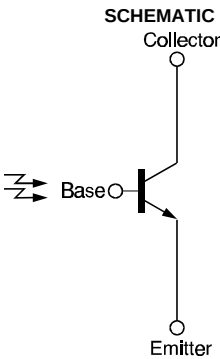
Silicon Phototransistor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)						
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Light Current	I _L				mA	V _{CE} =5 V H=1.5 mW/cm ² (1)
SD5491-001		0.50				
SD5491-002		0.50	3.00			
SD5491-003		2.00	5.00			
SD5491-004		4.00	8.00			
SD5491-005		7.00	22.0			
SD5491-006		15.0				
Collector Dark Current	I _{CEO}			100	nA	V _{CE} =10 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	V _{CE(SAT)}			0.4	V	I _C =0.4 mA H=1.5 mW/cm ²
Angular Response (2)	Ø		12		degr.	I _F =Constant
Rise And Fall Time	t _r , t _f		2.0		µs	V _{CC} =5 V, I _L =1 mA R _L =100 Ω

Notes
1. The radiation source is an IRED with a peak wavelength of 935 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	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.



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

SD5491

Silicon Phototransistor

SWITCHING TIME TEST CIRCUIT

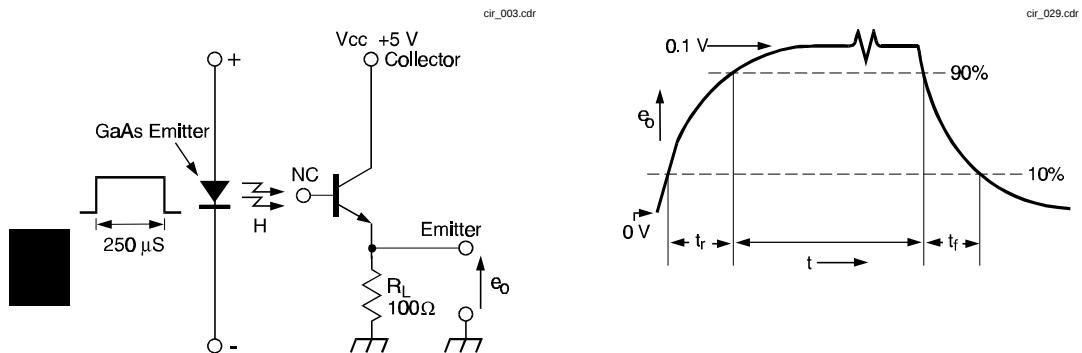


Fig. 1 Responsivity vs Angular Displacement

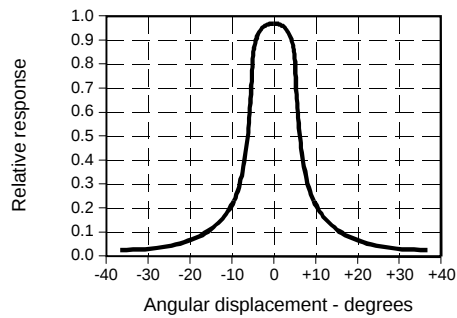


Fig. 2 Collector Current vs Irradiance

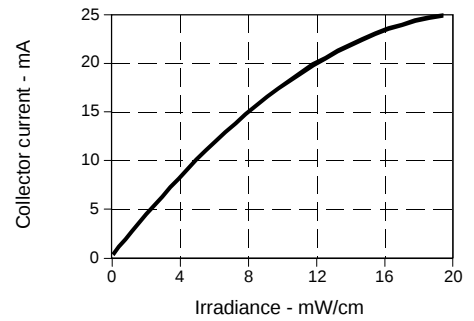


Fig. 3 Dark Current vs Temperature

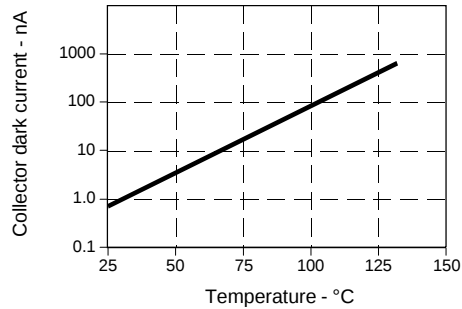
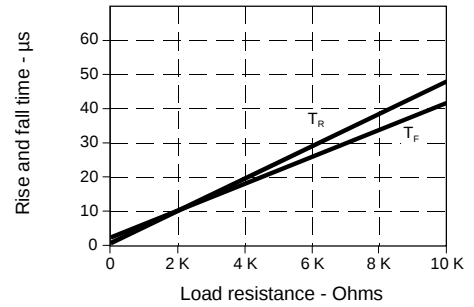


Fig. 4 Rise and Fall Time vs Load Resistance



SD5491

Silicon Phototransistor

Fig. 5 Spectral Responsivity

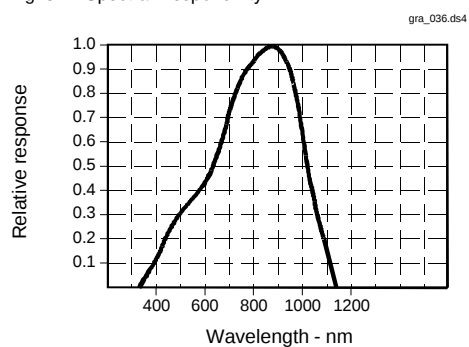


Fig. 6 Coupling Characteristics with SE5470

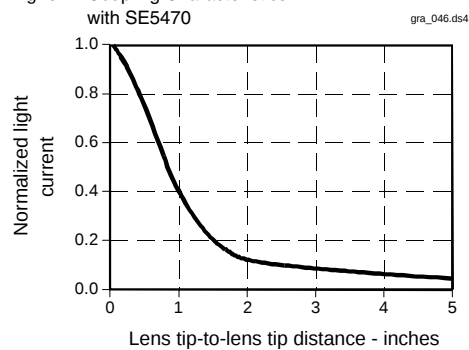
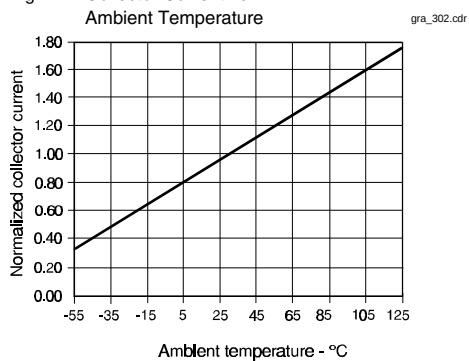


Fig. 7 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values