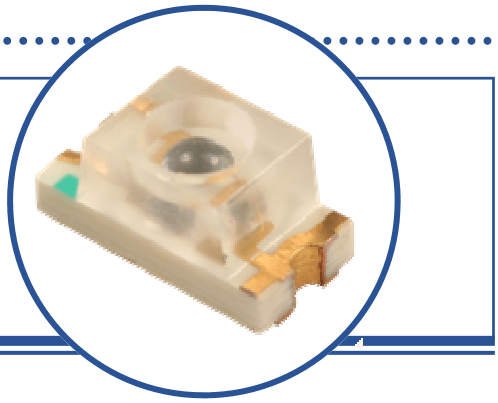
Silicon Phototransistor in Miniature SMT Package

TT electronics
OPTEK Technology

OP522

- High Photo Sensitivity
- Fast Response Time
- 1206 Package Size with Internal Lens

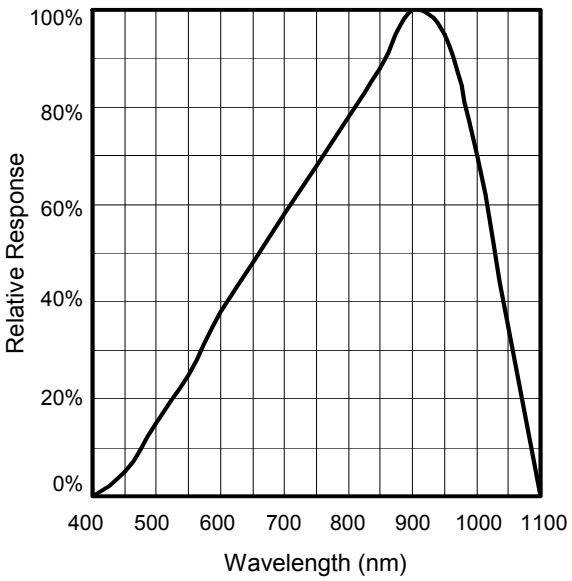


The OP522 is an NPN silicon phototransistor mounted in a miniature SMT package. The device incorporates an integral molded lens which enables a narrow acceptance angle and higher collector currents than devices without lenses. This device is packaged in a 1206 size chip carrier that is compatible with most automated mounting equipment. The OP522 is mechanically and spectrally matched to the OP250 series infrared LEDs.

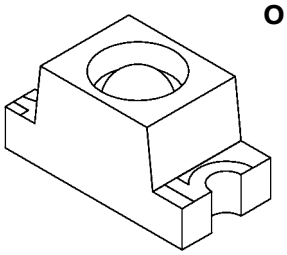
Applications

- Non-Contact Position Sensing
- Datum detection
- Machine automation
- Optical encoders

Relative Response vs. Wavelength



OP522



Pb
RoHS

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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A subsidiary of
TT electronics plc

SMT Silicon Phototransistor

OP522

Absolute Maximum Ratings

T_A = 25° C unless otherwise noted

Storage Temperature Range	-40° C to +85° C
Operating Temperature Range	-25° C to +85° C
Lead Soldering Temperature	260° C(1)
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector Current	20 mA
Power Dissipation	75 mW(2)

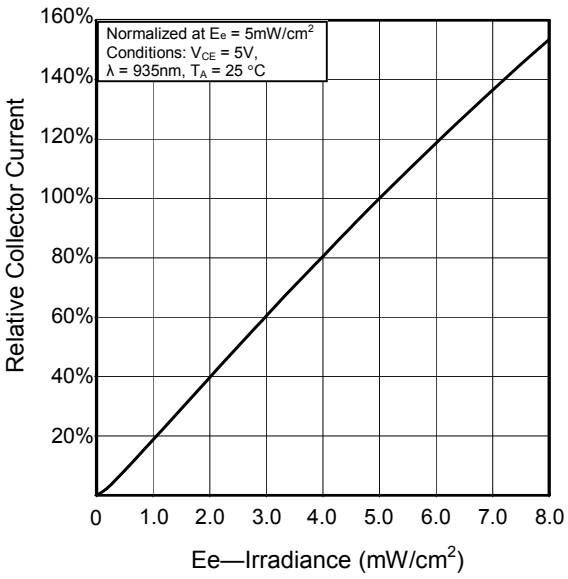
Notes:
1. Solder time less than 5 seconds at temperature extreme.
2. De-rate linearly at 2.17 mW/° C above 25° C.

Electrical Characteristics (T_A = 25°C unless otherwise noted)

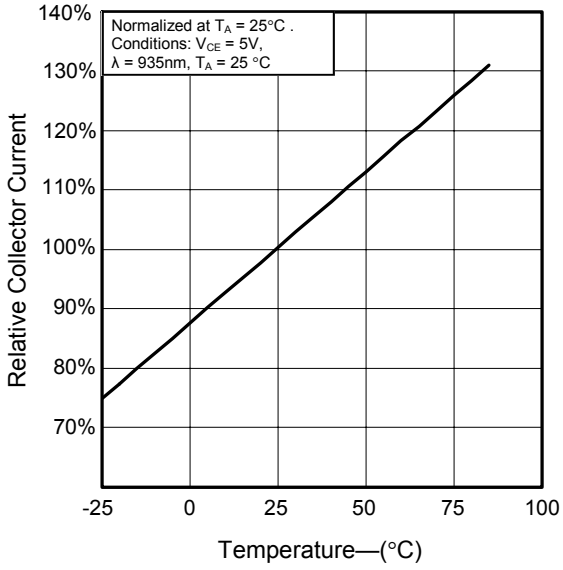
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
$I_{C(ON)}$	On-State Collector Current	0.5			mA	V_{CE} = 5.0V, E_e = 5.0mW/cm^2 (3)
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.4	V	I_C = 100µA, E_e = 2.0mW/cm^2 (3)
I_{CEO}	Collector-Emitter Dark Current			100	nA	V_{CE} = 5.0V, E_e = 0 (4)
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	I_C = 100µA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5			V	I_E = 100µA
t_r, t_f	Rise and Fall Times		15		µs	I_C = 1mA, R_L = 1KΩ

3. Light source is an unfiltered GaAs LED with a peak emission wavelength of 935nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the phototransistor being tested.
4. To Calculate typical collector dark current in µA, use the formula $I_{CEO} = 10^{(0.04\ T_A - 3/4)}$ where T_A is the ambient temperature in ° C.

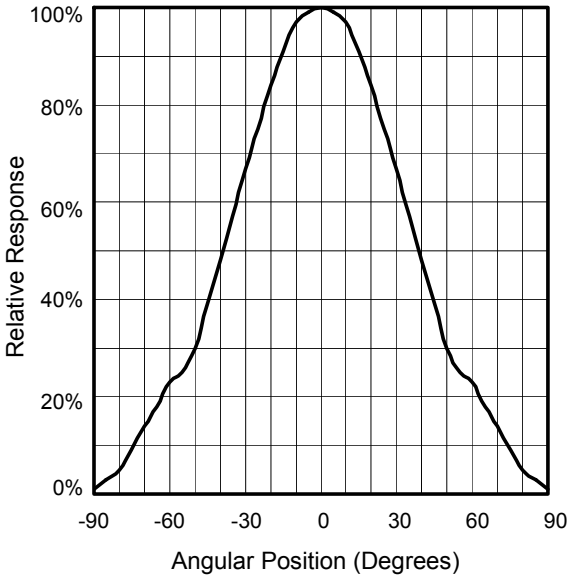
Relative On-State Collector Current vs. Irradiance



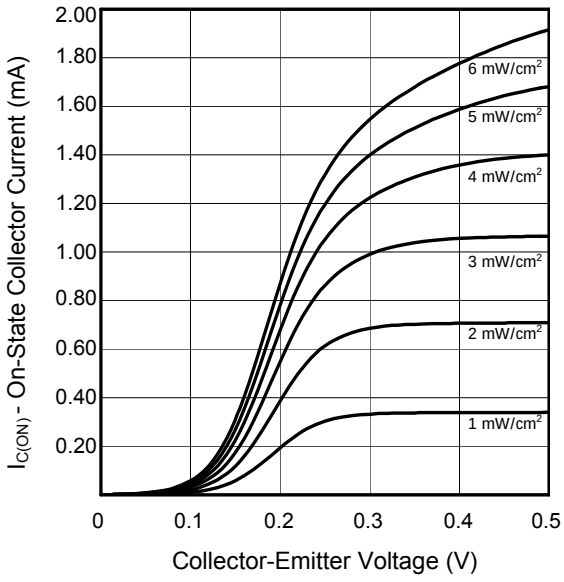
Relative On-State Collector Current vs. Temperature



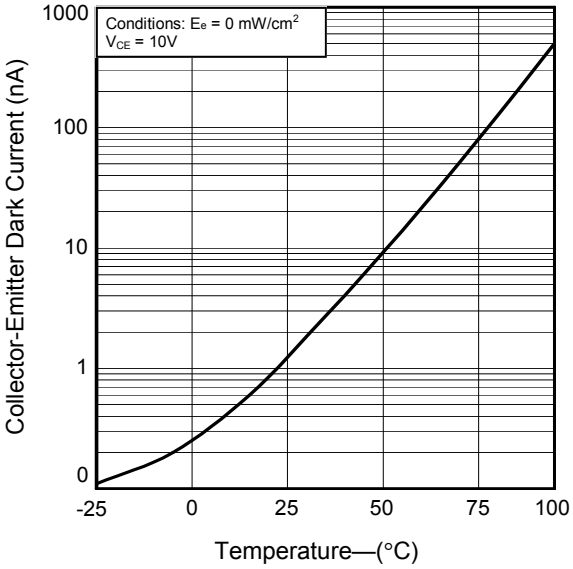
Relative Response vs.
Angular Position

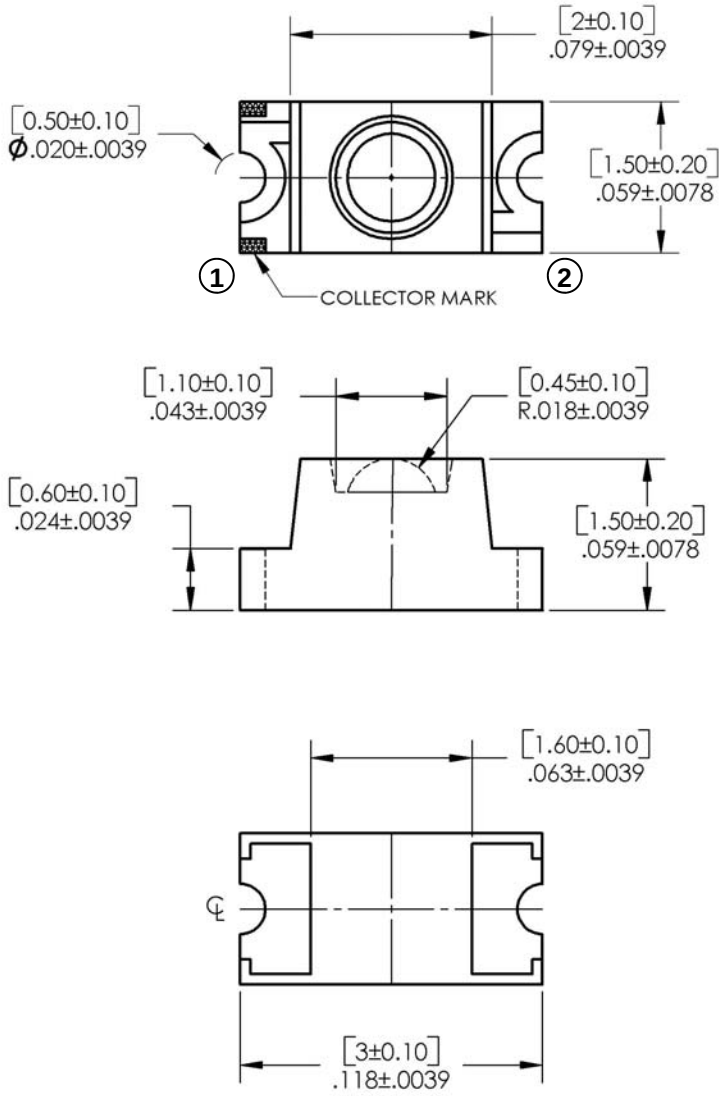


Relative On-State Collector Current
vs. Collector-Emitter Voltage



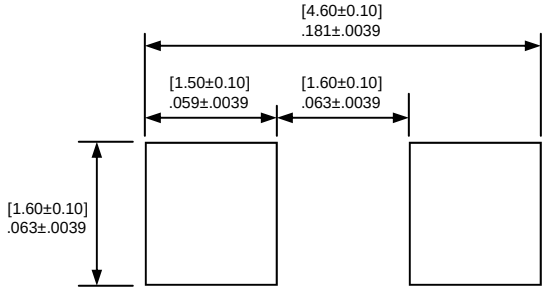
Collector-Emitter Dark Current
vs. Temperature





DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

RECOMMENDED SOLDER PADS



PIN	FUNCTION
1	Collector
2	Emitter