



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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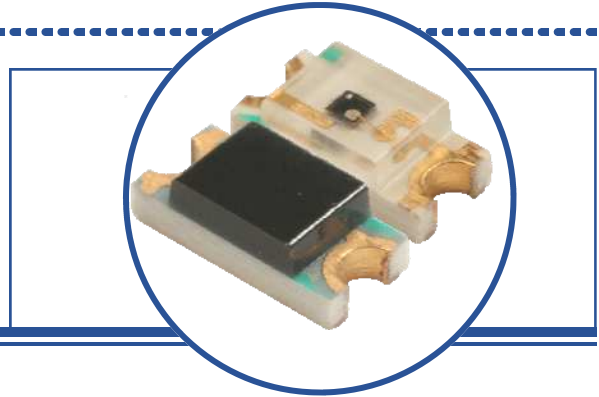


SMD Silicon Phototransistor

OP520, OP521

OP520, OP521

- High Photo Sensitivity
- Fast Response Time
- 1206 Package Size
- Opaque or Water Clear Flat Lens

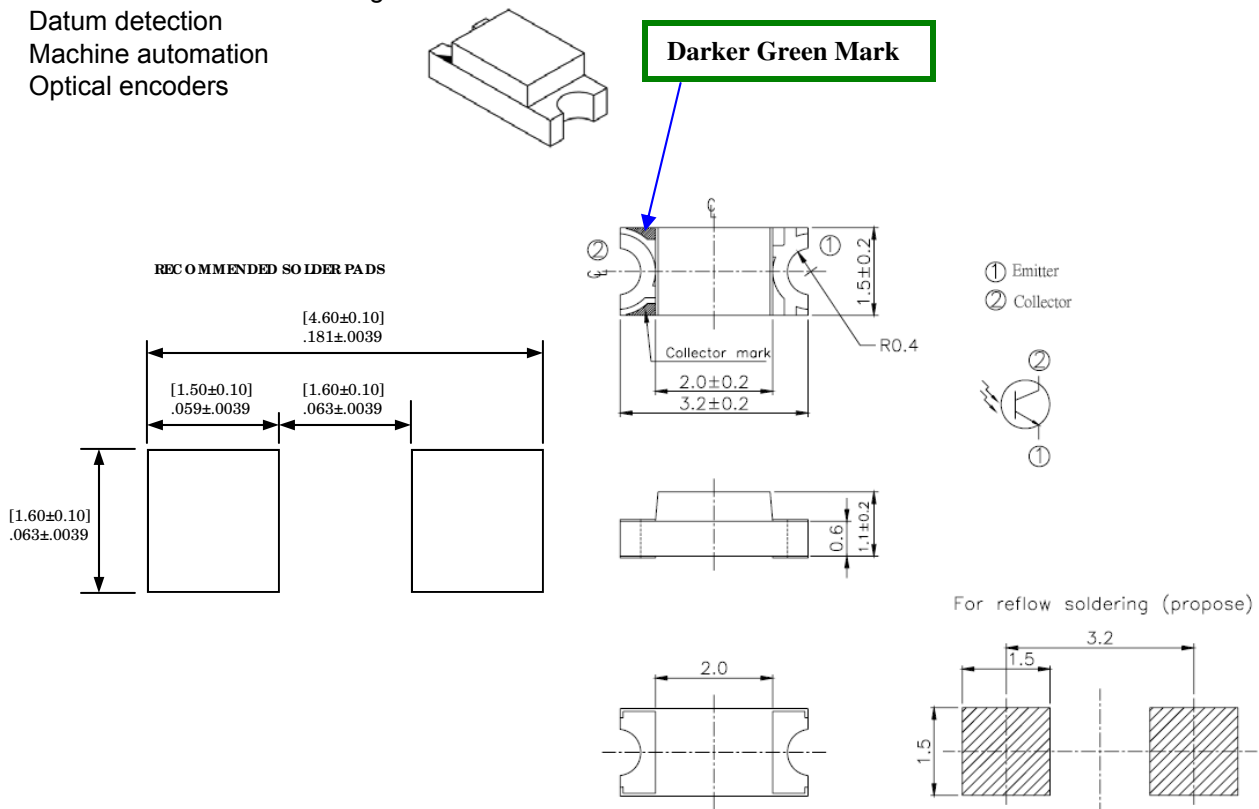


Description:

The OP520 and OP521 are NPN silicon phototransistor mounted in miniature SMT packages. Both the OP520 and OP521 have a flat lens however, the OP520 lens is opaque to shield the device from stray light. These sensors are packaged in 1206 size chip carriers that are compatible with most automated mounting equipment. The OP520 and OP521 are mechanically and spectrally matched to the OP250 series infrared LEDs.

Applications

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



- Notes:** 1. All dimensions are in millimeters
2. Tolerances unless dimensions ±0.1mm

RoHS

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

SMD Silicon Phototransistor

OP520, OP521



Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ 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⁾

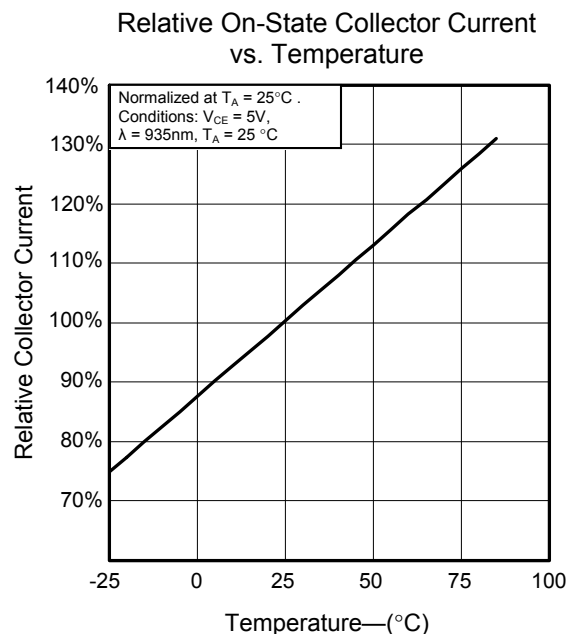
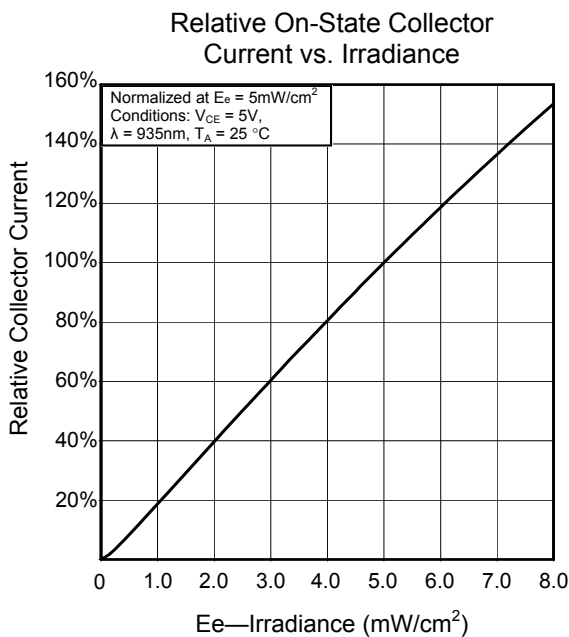
Notes:

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

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
$I_{C(ON)}$	On-State Collector Current	0.25			mA	$V_{CE} = 5.0\text{V}$, $E_e = 5.0\text{mW/cm}^2$ ⁽³⁾
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.4	V	$I_C = 100\mu\text{A}$, $E_e = 5.0\text{mW/cm}^2$ ⁽³⁾
I_{CEO}	Collector-Emitter Dark Current			100	nA	$V_{CE} = 5.0\text{V}$, $E_e = 0$ ⁽⁴⁾
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	$I_C = 100\mu\text{A}$, $E_e = 0$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5			V	$I_E = 100\mu\text{A}$, $E_e = 0$
t_r , t_f	Rise and Fall Times		15		μs	$I_C = 1\text{mA}$, $R_L = 1\text{K}\Omega$

- 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.
- To Calculate typical collector dark current in μA , use the formula $I_{CEO} = 10^{(0.04T_A - 3.4)}$ where T_A is the ambient temperature in ° C.

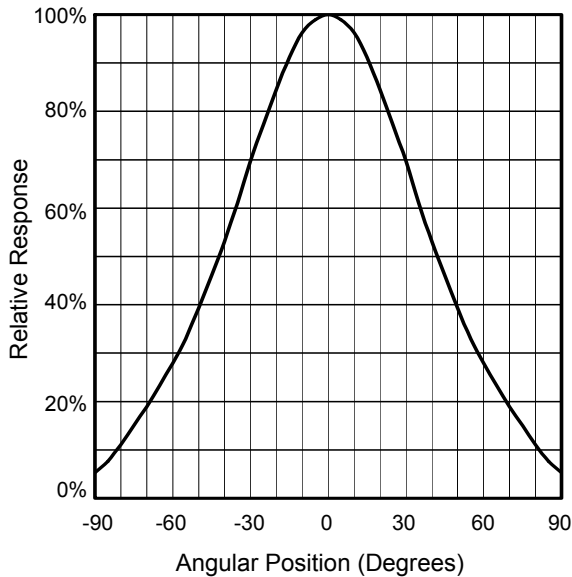


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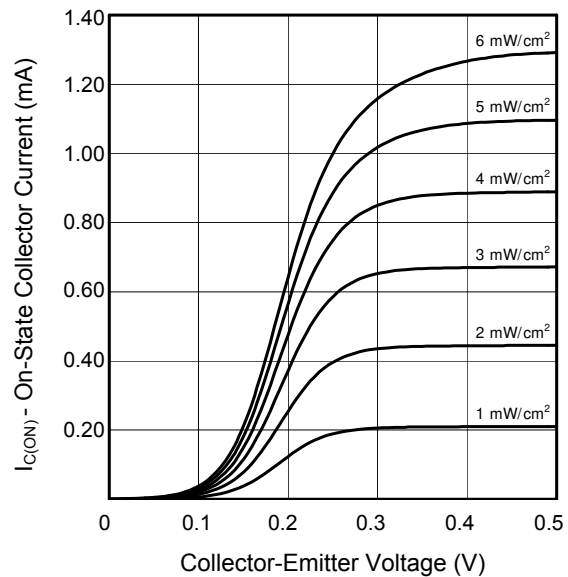
SMD Silicon Phototransistor

OP520, OP521

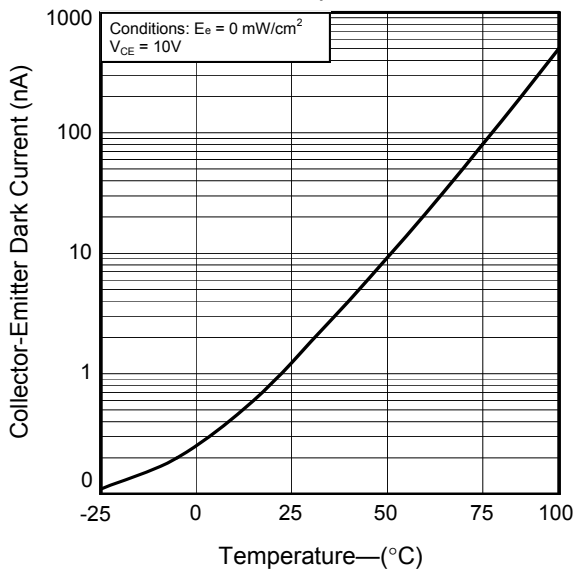
Relative Response vs. Angular Position



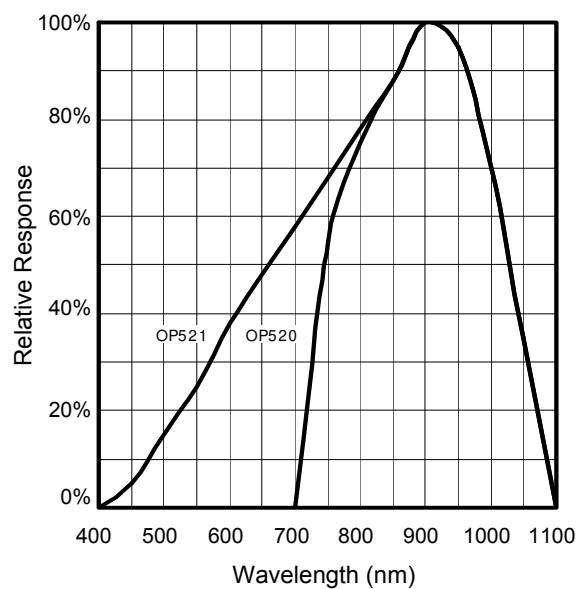
Relative On-State Collector Current vs. Collector-Emitter Voltage



Collector-Emitter Dark Current vs. Temperature



Relative Response vs. Wavelength



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