

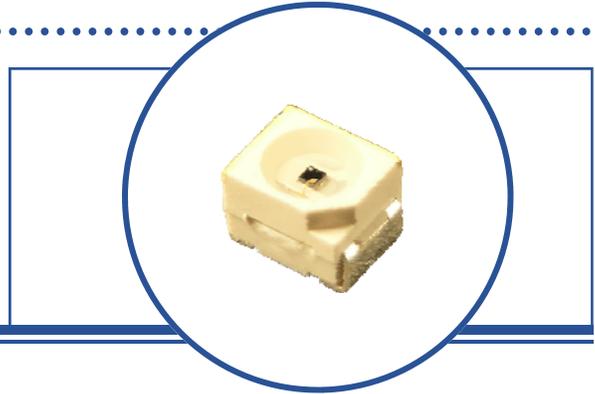
Silicon Phototransistor

OP580



Features:

- Wide acceptance angle
- Fast response time
- Plastic leadless chip carrier (PLCC)
- Moisture Sensitivity Level: MSL2 or >



Description:

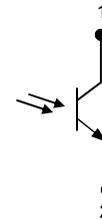
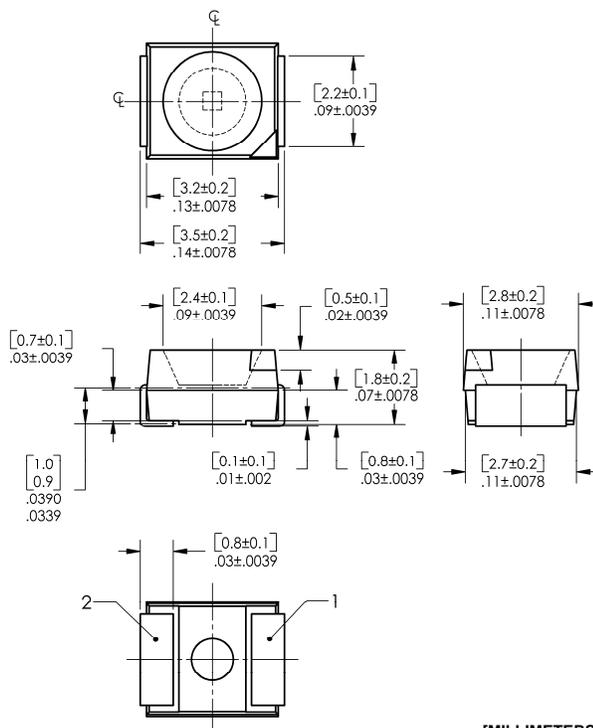
The **OP580** is an NPN silicon phototransistor mounted in a miniature SMD package. The device has a flat window lens, which enables a wide acceptance angle. It is packaged in a plastic leadless chip carrier that is compatible with most automated mounting equipment. *The OP580 is mechanically and spectrally matched to the OP280 infrared LED.*

Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.

Applications:

- Non-contact position sensing
- Datum detection
- Machine automation
- Optical encoders

Ordering Information			
Part Number	Sensor	Viewing Angle	Lead Length
OP580	Phototransistor	100°	N/A



Pin #	Transistor
1	Collector
2	Emitter



RoHS

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

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⁾

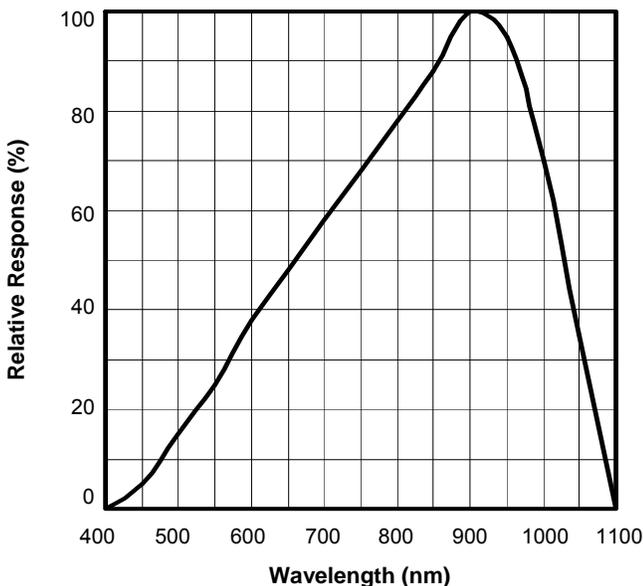
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}$	On-State Collector Current	1.0	-	-	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	$I_C = 100\ \mu\text{A}, E_E = 2.0\text{ mW/cm}^2$ ⁽³⁾
I_{CE0}	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	$I_C = 100\ \mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	$I_E = 100\ \mu\text{A}$
t_r, t_f	Rise Time , Fall Time	-	15	-	μs	$I_C = 1\text{ mA}, R_L = 1\text{ K}\Omega$

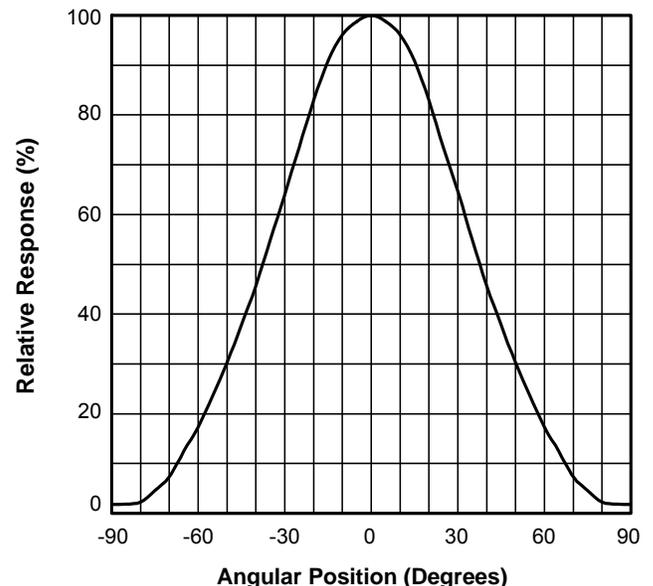
Notes:

- Solder time less than 5 seconds at temperature extreme.
- Derate linearly at 2.17 mW/° C above 25° C.
- $E_{E(APT)}$ is an unfiltered GaAs LED with a peak emission wavelength of 935 nm 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 $I_{CE0} = 10^{(0.04 T_A - 3.4)}$ where T_A is the ambient temperature in ° C.

Relative Response vs Wavelength

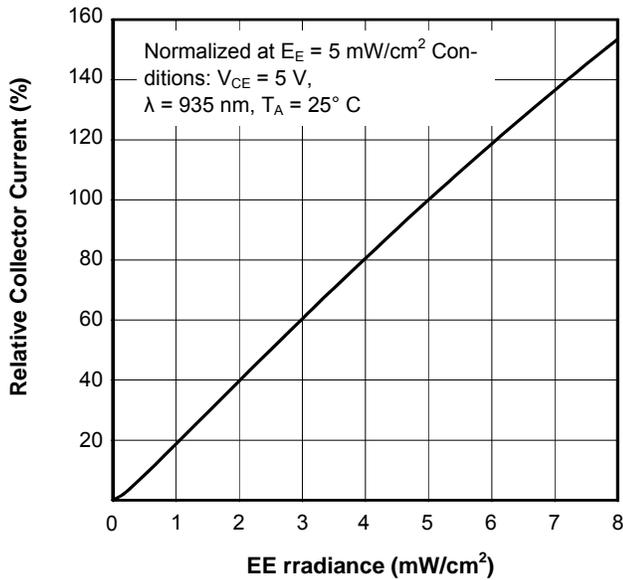


Relative Response vs Angular Position

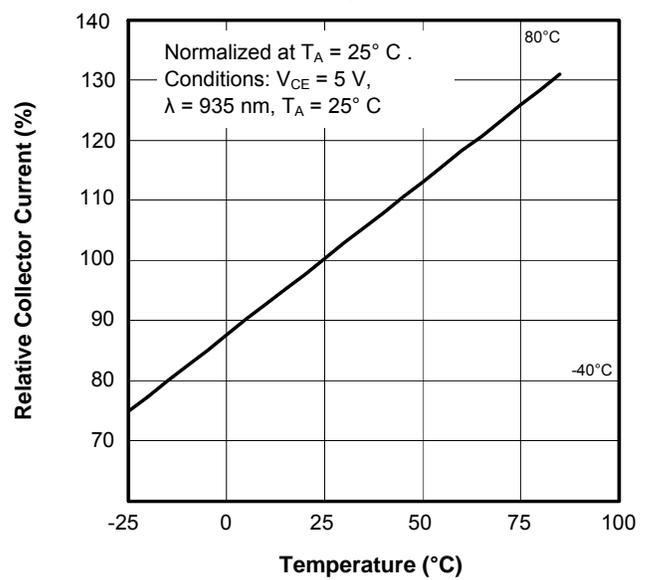


OPTeK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

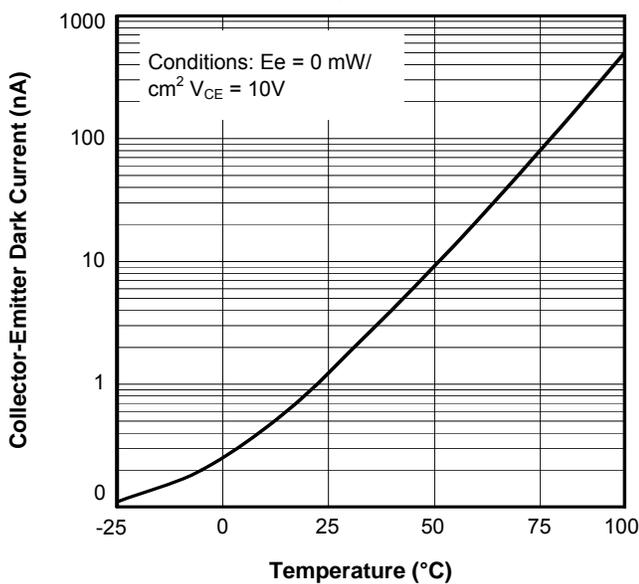
Relative On-State Collector Current vs Irradiance



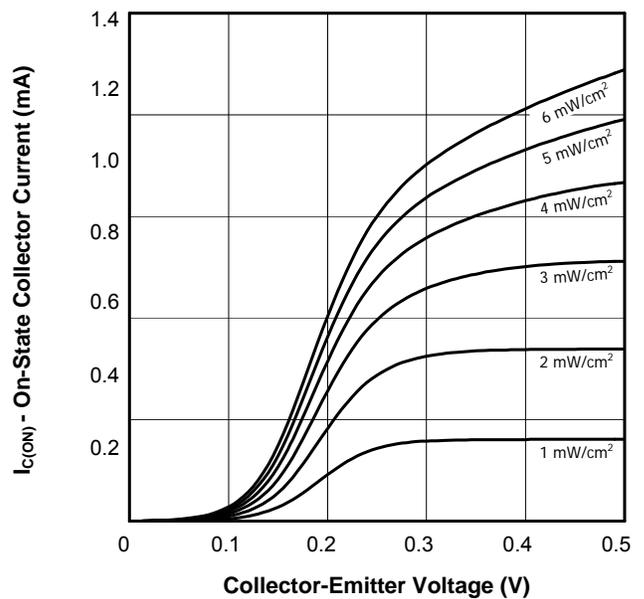
Relative On-State Collector Current vs Temperature



Collector-Emitter Dark Current vs Temperature



Relative On-State Collector Current vs Collector-Emitter Voltage



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