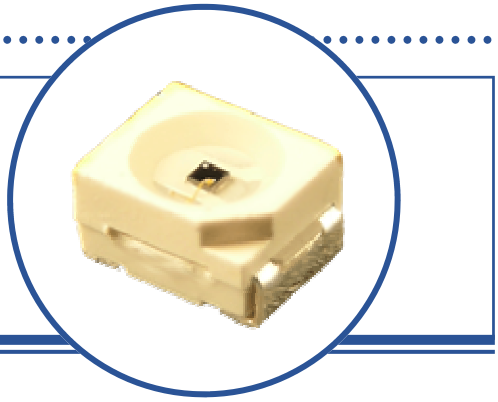
Silicon Phototransistor in SMT Plastic Package

OP580

- Wide Acceptance Angle
- Fast Response Time
- Plastic Leadless Chip Carrier (PLCC)

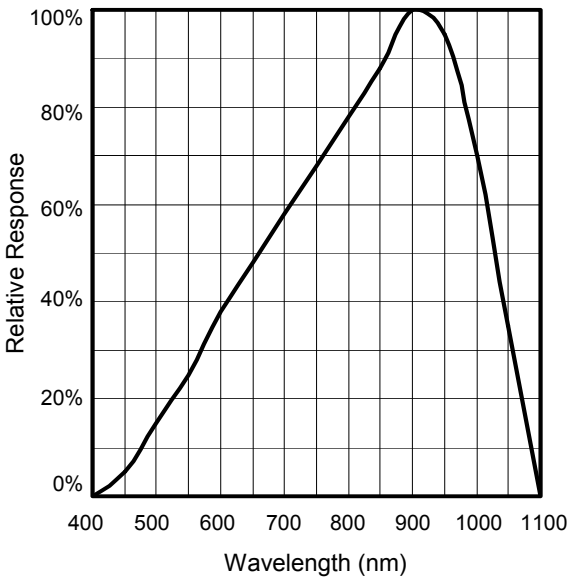


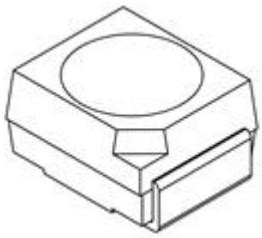
The OP580 is an NPN silicon phototransistor mounted in a miniature SMT package. The device has a flat window lens which enables a wide acceptance angle. This device is packaged in a plastic leadless chip carrier that is compatible with most automated mounting equipment. The OP580 is mechanically and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

Applications

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

Relative Response vs. Wavelength





OP580

RoHS

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

OPTEK Technology Inc.— 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (800) 341-4747 FAX: (972) 323– 2396 sensors@optekinc.com www.optekinc.com

A subsidiary of
TT electronics plc

SMT Silicon Phototransistor
OP580

Absolute Maximum Ratings
T_A = 25° C unless otherwise noted

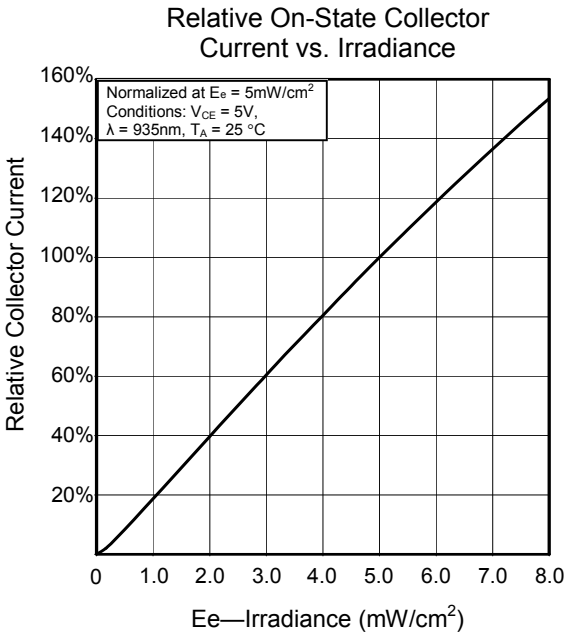
Storage Temperature Range	-40° C to +85° C
Operating Temperature Range	-25° C to +85° C
Lead Soldering Temperature	260° C(1)
Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Collector Current	20 mA
Power Dissipation	75 mW(2)

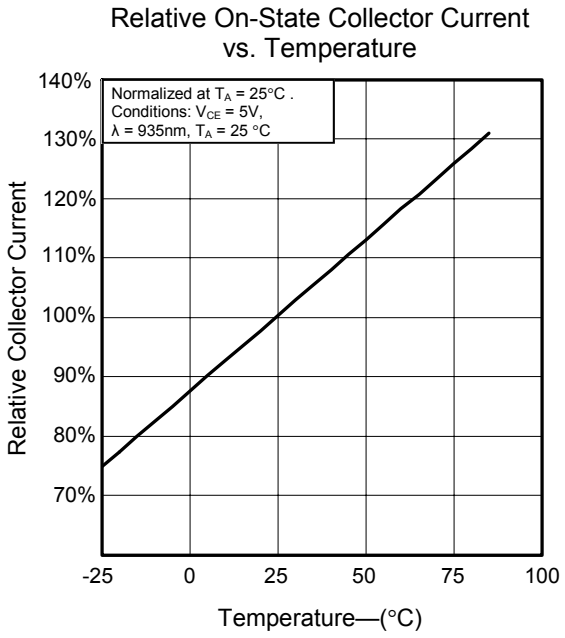
Notes:
1. Solder time less than 5 seconds at temperature extreme.
2. De-rate linearly at 2.17 mW/° C above 25° C.

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

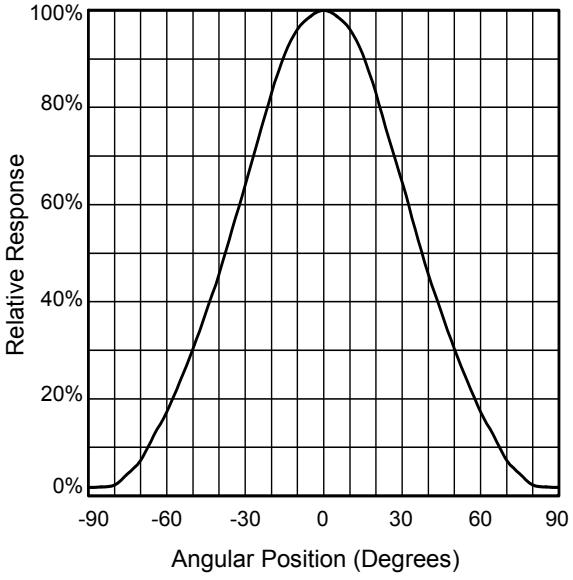
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
$I_{C(ON)}$	On-State Collector Current	1.0			mA	V_{CE} = 5.0V, E_e = 5.0mW/cm^2 (3)
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.4	V	I_C = 100µA, E_e = 2.0mW/cm^2 (3)
I_{CEO}	Collector-Emitter Dark Current			100	nA	V_{CE} = 5.0V, E_e = 0 (4)
$V_{(BR)CEO}$	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.

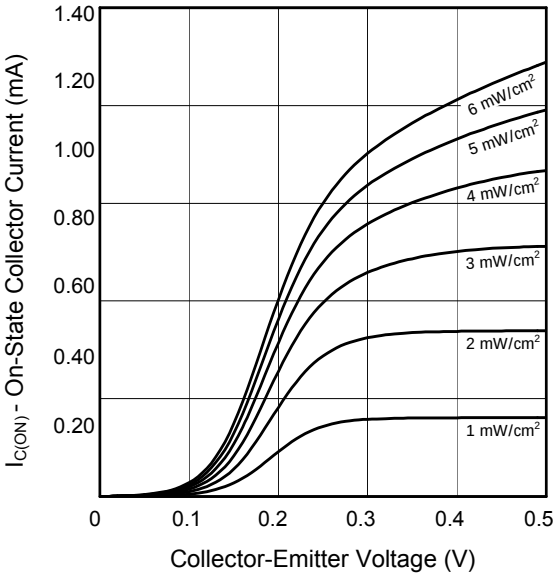




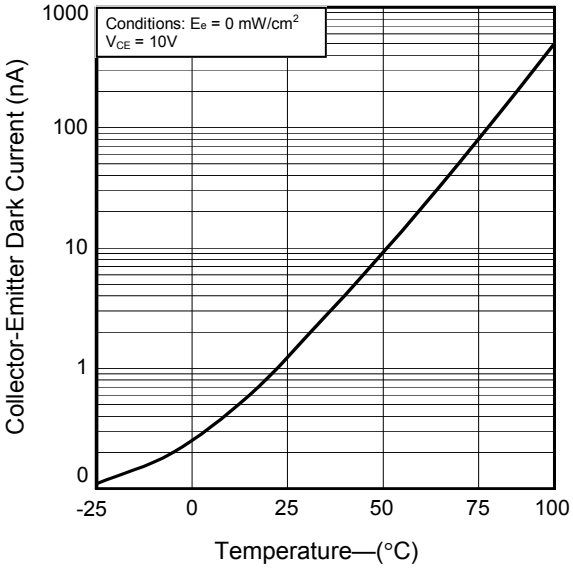
Relative Response vs.
Angular Position

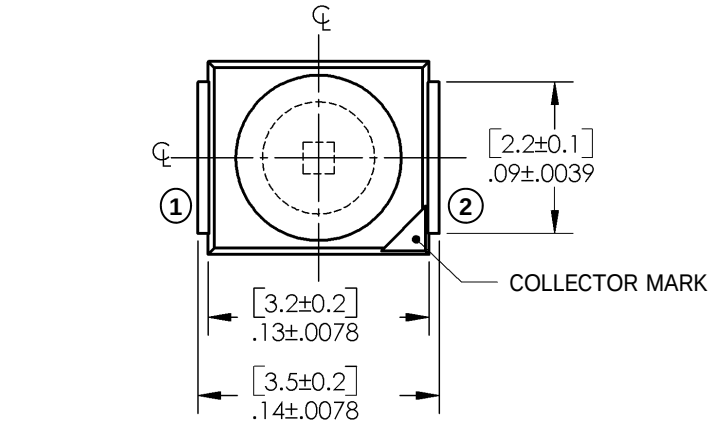


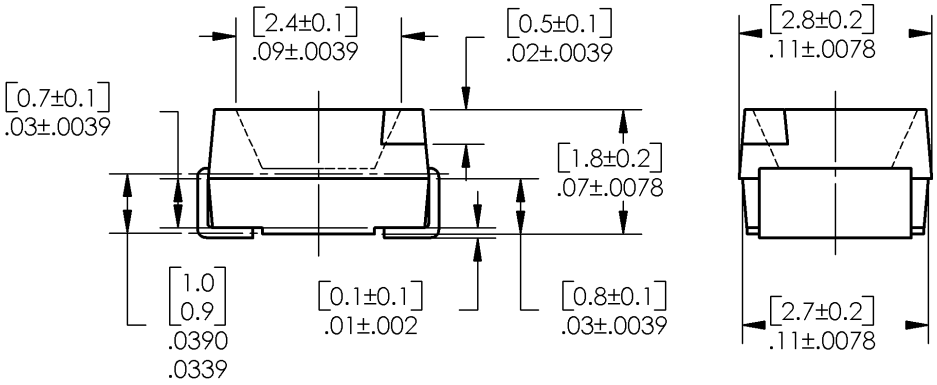
Relative On-State Collector Current
vs. Collector-Emitter Voltage

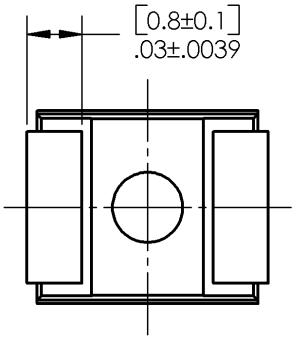


Collector-Emitter Dark Current
vs. Temperature









PIN	FUNCTION
1	Emitter
2	Collector

DIMENSIONS ARE IN INCHES
AND [MILLIMETERS].

RECOMMENDED SOLDER PADS

