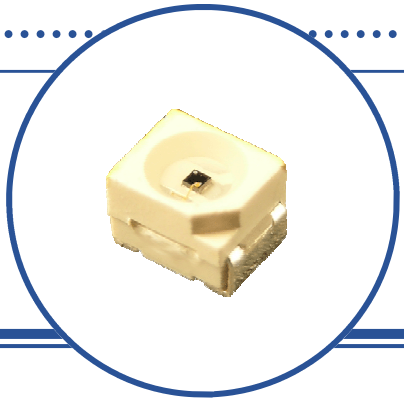
Silicon Photo Darlington in PLCC-2 Package

OP580DA

TT electronics
OPTEK Technology

Features:

- Wide acceptance angle
- High Current Gain
- Fast Response Time
- Plastic leadless chip carrier (PLCC)



Description:

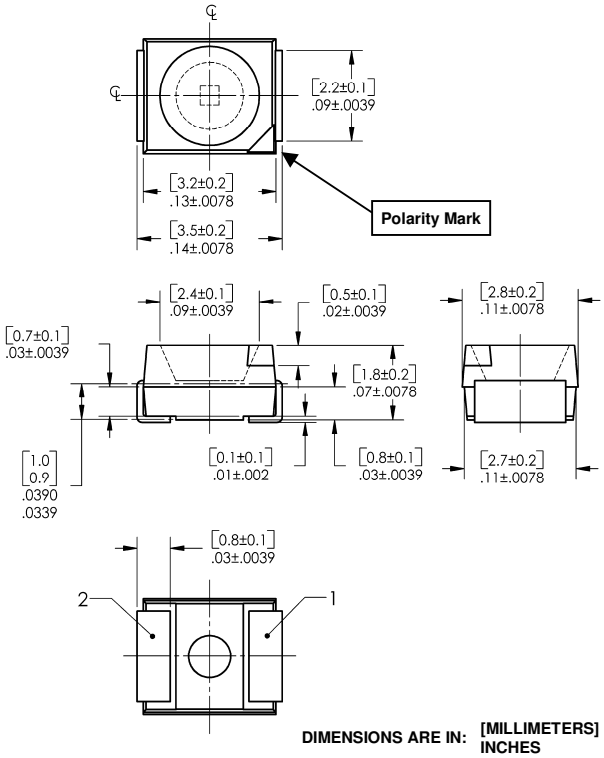
The **OP580DA** is an NPN silicon phototdarlington mounted in a miniature SMD package. This device has a flat window lens, which enables a wide acceptance angle. It is packaged in a plastic leadless chip carrier which is compatible with most automated mounting equipment. **OP580DA** are 100% production tested using infrared light for close correlation with Optek GaAs and GaAlAs emitters. Photo darlington devices are normally used in application where light signals are low and more current gain is needed than is possible with phototransistors.

***OP580DA** is mechanically and spectrally matched to the OP280 series infrared LEDs.*

Applications:

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

Ordering Information			
Part Number	**Sensor**	**Viewing Angle**	**Lead Length**
OP580DA	Photo Darlington	100°	N/A



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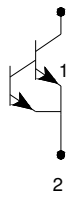

Pin #	Transistor
1	Collector
2	Emitter

DIMENSIONS ARE IN: **[MILLIMETERS] INCHES**

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: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 sensors@optekinc.com www.optekinc.com

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Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

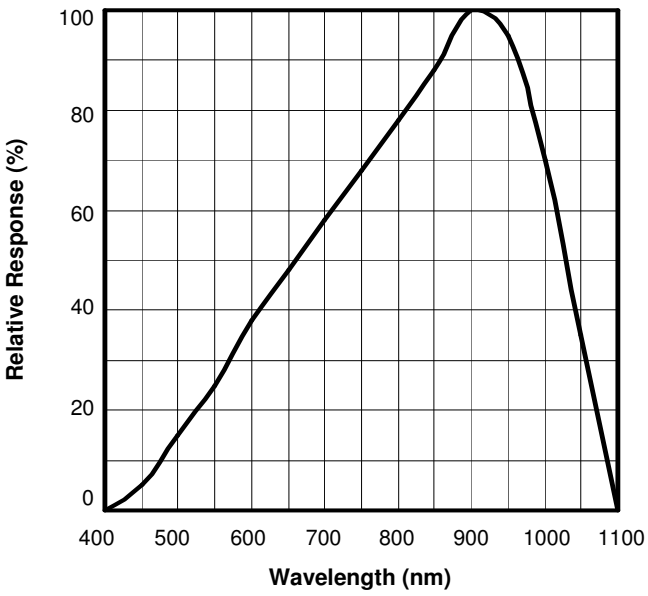
Storage Temperature Range	-40° C to +100° C
Operating Temperature Range	-25° C to +85° C
Lead Soldering Temperature	260° C(1)
Collector-Emitter Voltage	35 V
Emitter-Collector Voltage	5 V
Collector Current	32 mA
Power Dissipation	100 mW(2)

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

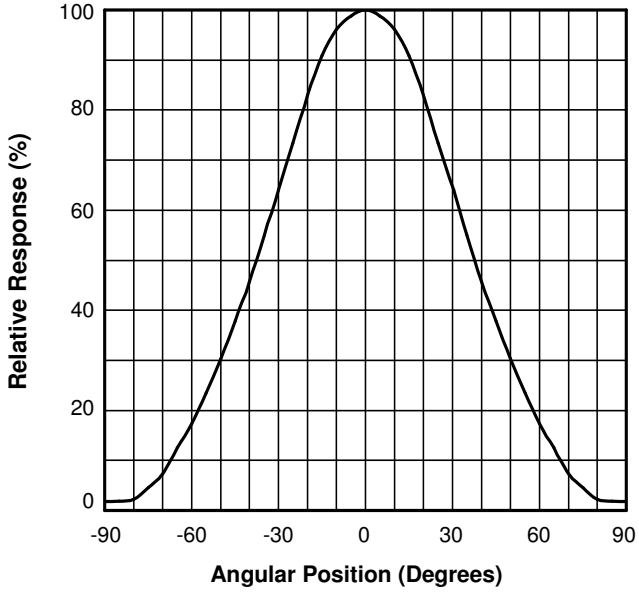
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}$	On-State Collector Current	10.0	-	-	mA	V_{CE} = 5.0 V, E_E = 0.15 mW/cm^2(3)
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	-	-	1.7	V	I_C = 1 mA, E_E = 0.15 mW/cm^2(3)
I_{CE0}	Collector-Emitter Dark Current	-	-	1.0	µA	V_{CE} = 5.0 V, E_E = 0(4)
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	35	-	-	V	I_C = 400 µA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5	-	-	V	I_E = 100 µA
t_r, t_f	Rise Time , Fall Time	-	50	-	µs	I_C = 1 mA, R_L = 1 KΩ

Notes:
1. Solder time less than 5 seconds at temperature extreme.
2. Derate linearly at 1.33 mW/° C above 25° C.
3. $E_{E(APT)}$ 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.
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 Wavelength



Relative Response vs Angular Position



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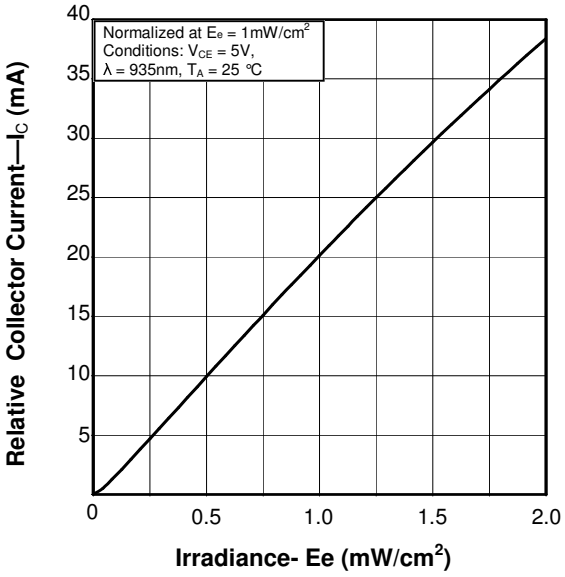
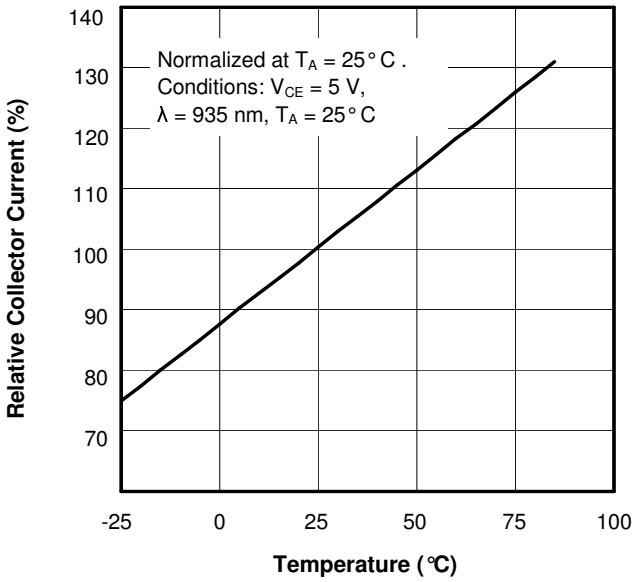
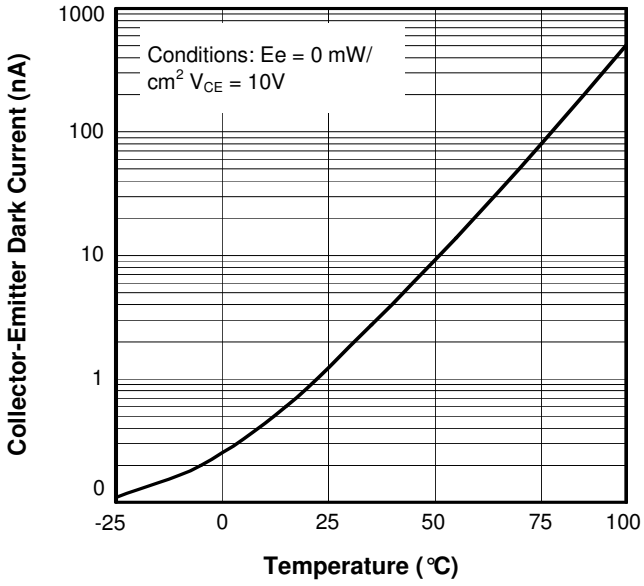
Relative Collector Current-I_C (mA) vs. Irradiance-Ee (mW/cm^2)



Relative On-State Collector Current vs Temperature



Collector-Emitter Dark Current vs Temperature



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