

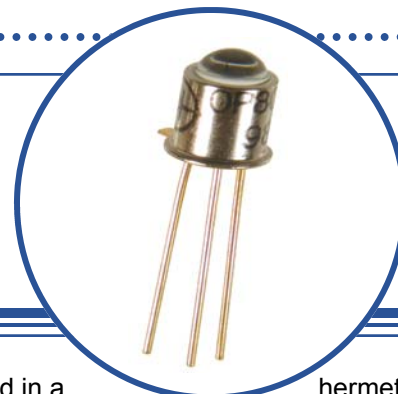
# NPN Silicon Phototransistor

## OP800A, OP800B, OP800C, OP800D



### Features:

- Narrow receiving angle
- Suitable for applications from 400nm to 1100
- Variety of sensitivity ranges
- TO-18 hermetically sealed package
- Enhanced temperature range
- Base lead connection

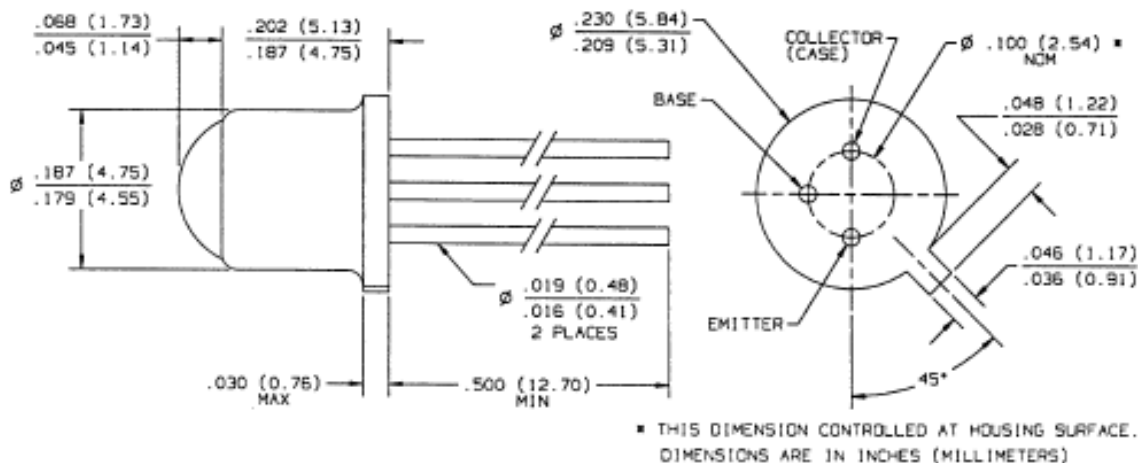


### Description:

The OP800 Series device consist of a NPN silicon phototransistor mounted in a hermetically sealed package. The narrow receiving angle provides excellent on-axis coupling. TO-18 package offer high power dissipation and hostile environment operation. The base lead is bonded to enable conventional transistor biasing.

### Applications:

- Industrial and commercial electronics
- Distance sensing
- Harsh environment
- Photointerrupters



RoHS

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

# NPN Silicon Phototransistor

## OP800A, OP800B, OP800C, OP800D



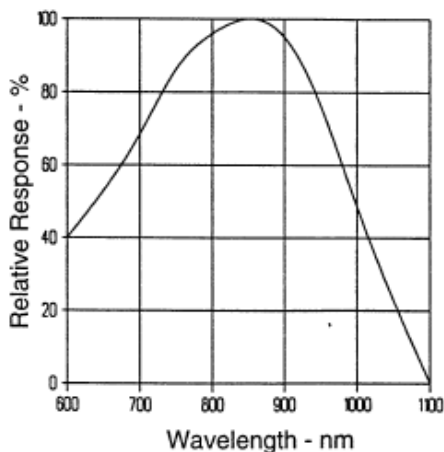
### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Collector-Base Voltage	30 V
Collector-Emitter Voltage	30 V
Emitter-Base Voltage	5 V
Emitter-Collector Voltage	5 V
Continuous Collector Current	50 mA
Storage Temperature Range	$-65^\circ\text{C}$ to $+150^\circ\text{C}$
Operating Temperature Range	$-65^\circ\text{C}$ to $+125^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	$260^\circ\text{C}^{(2)}$
Power Dissipation	$250\text{ mW}^{(3)}$

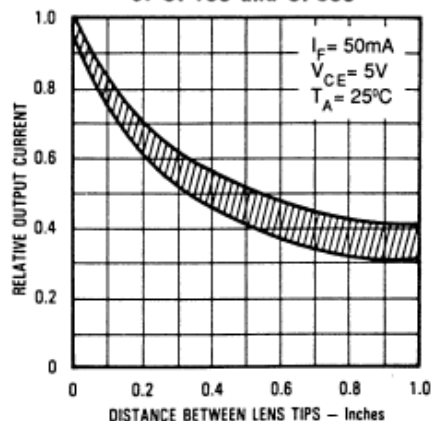
#### Notes:

1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
2. Derate linearly  $2.5\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .
3. Junction temperature maintained at  $25^\circ\text{C}$ .
4. Light source is a GaAlAs LED, 890 nm peak emission wavelength, providing a  $0.5\text{ mW}/\text{cm}^2$  radiant intensity on the unit under test. The intensity level is not necessarily uniform over the lens area of the unit under test.

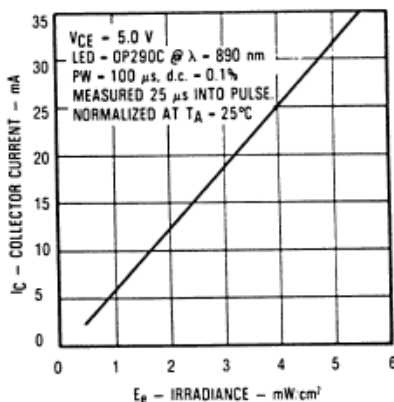
Typical Spectral Response



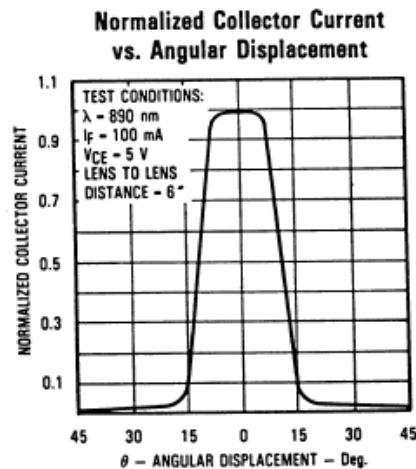
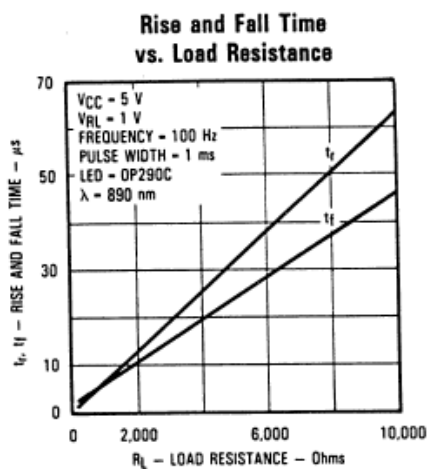
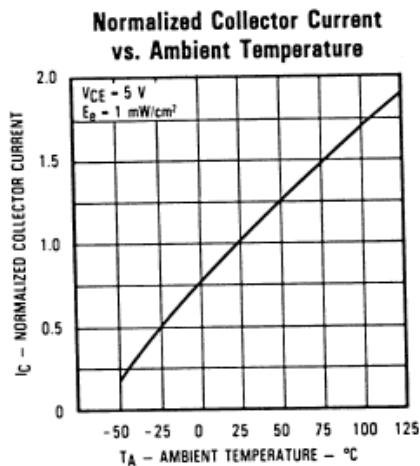
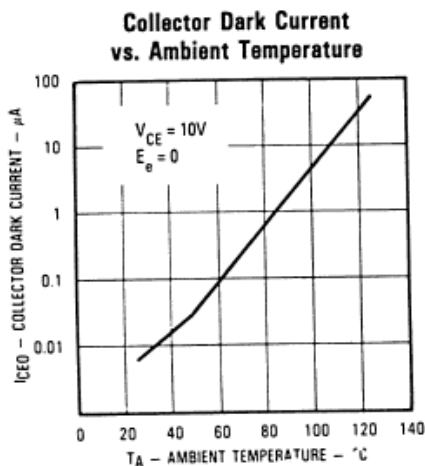
Coupling Characteristics of OP130 and OP800



Collector Current vs. Irradiance



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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}^{(3)}$	On-State Collector Current OP800D OP800C OP800B OP800A	0.45 0.90 1.80 3.60	- - - -	- 3.60 5.40 -	mA mA mA mA	$V_{CE} = 5 \text{ V}$ , $E_E = 0.5 \text{ mW/cm}^2^{(4)}$
$I_{CEO}$	Collector Dark Current	-	-	100	nA	$V_{CE} = 10 \text{ V}$ , $E_E = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30	-	-	V	$I_C = 100 \mu\text{A}$
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	30	-	-	V	$I_C = 100 \mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0	-	-	V	$I_E = 100 \mu\text{A}$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5.0	-	-	V	$I_E = 100 \mu\text{A}$
$V_{CE(SAT)}^{(3)}$	Collector-Emitter Saturation Voltage	-	-	0.40	V	$I_C = 0.15 \text{ mA}$ , $E_E = 0.5 \text{ mW/cm}^2^{(4)}$
$t_r$	Rise Time	-	7.0	-	$\mu\text{s}$	$V_{CC} = 5 \text{ V}$ , $I_C = 0.80 \text{ mA}$ , $R_L = 100 \Omega$ (See Test Circuit)
$t_f$	Fall Time	-	7.0	-	$\mu\text{s}$	

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