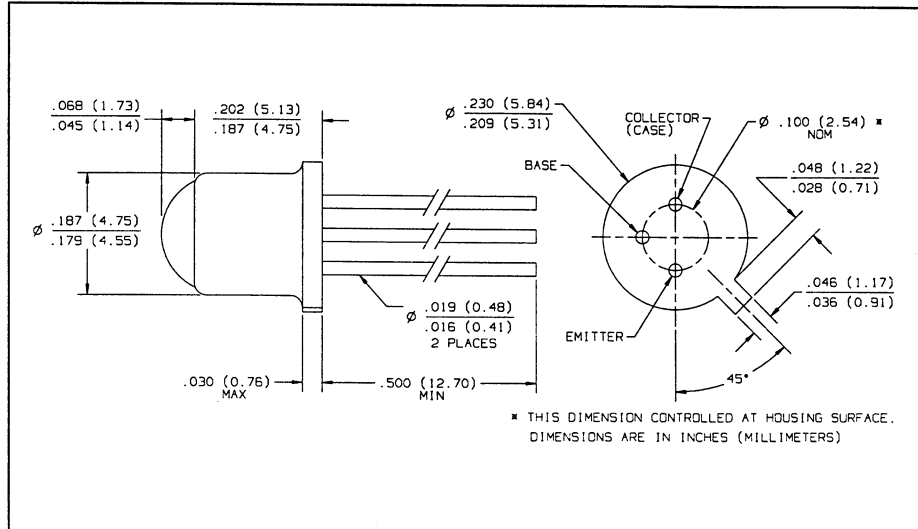
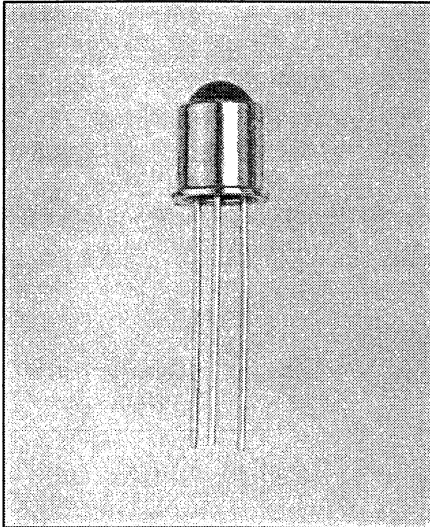


# NPN Silicon Phototransistors

## Types OP800A, OP800B, OP800C, OP800D



### Features

- Narrow receiving angle
- Variety of sensitivity ranges
- Enhanced temperature range
- TO-18 hermetically sealed package
- Mechanically and spectrally matched to the OP130 and OP230 series LED's
- TX-TXV process available (see Hi-Rel section)

### Description

The OP800 series devices consist of NPN silicon phototransistors mounted in hermetically sealed packages. The narrow receiving angle provides excellent on-axis coupling. These devices are 100% tested using infrared light for close correlation with Optek GaAs and GaAlAs emitters. TO-18 packages offer high power dissipation and superior hostile environment operation. The base lead is bonded to enable conventional transistor biasing.

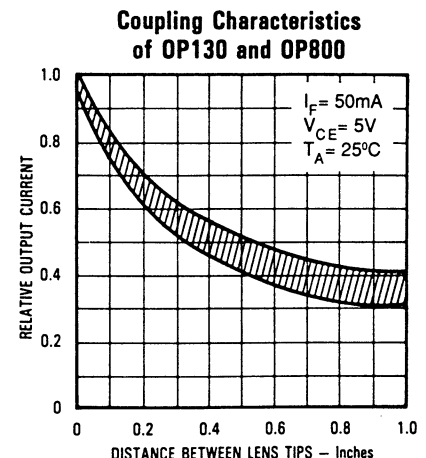
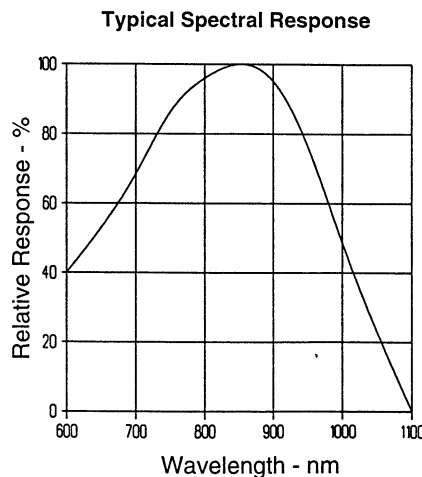
### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

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 Range [1/16 inch (1.6mm) 5 sec. 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 sec. max. 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 Performance Curves



# Types OP800A, OP800B, OP800C, OP800D

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 0.45 OP800C 0.90 OP800B 1.80 OP800A 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		$\mu\text{s}$	$V_{CC} = 5\text{ V}, I_C = 0.80\text{ mA}, R_L = 100\ \Omega, \text{ See Test Circuit}$
$t_f$	Fall Time		7.0		$\mu\text{s}$	

PHOTOSENSORS

## Typical Performance Curves

