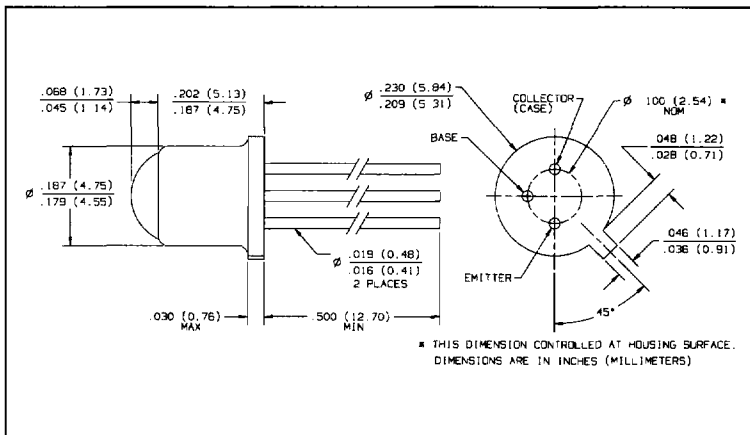
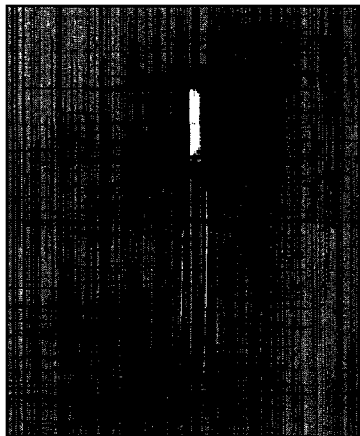


NPN Silicon Phototransistors

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.

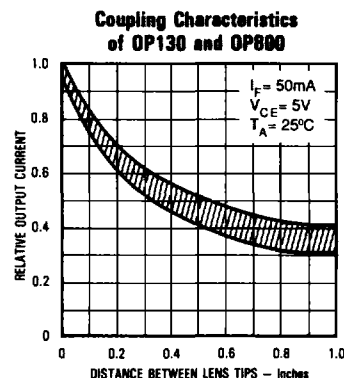
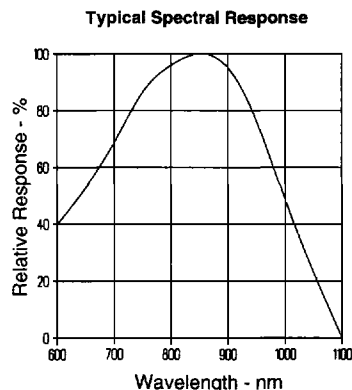
Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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°C to $+150^\circ\text{C}$
Operating Temperature Range	-65°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°C .
- (3) Junction temperature maintained at 25°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



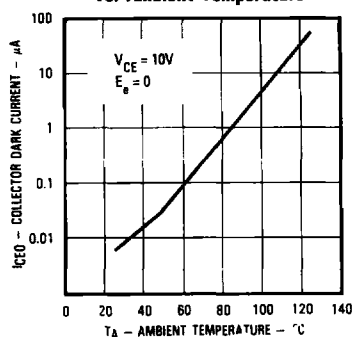
Types OP800A, OP800B, OP800C, OP800D

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

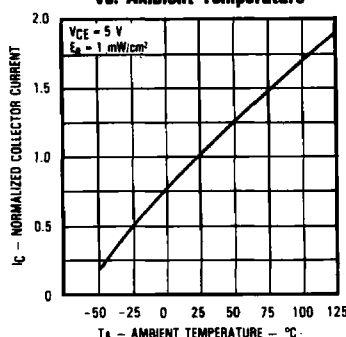
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}^{(3)}$	On-State Collector Current	OP800D 0.45 OP800C 0.90 OP800B 1.80 OP800A 3.60		3.60 5.40	mA mA mA mA	$V_{CE} = 5\text{ V}$, $E_o = 0.5\text{ mW/cm}^2^{(4)}$
I_{CEO}	Collector Dark Current			100	nA	$V_{CE} = 10\text{ V}$, $E_o = 0$
$V_{(BR)CEO}$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

Typical Performance Curves

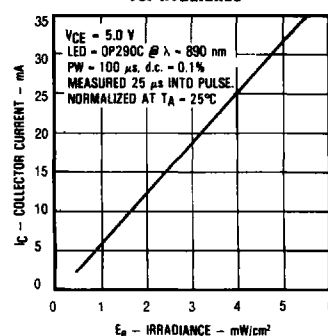
Collector Dark Current
vs. Ambient Temperature



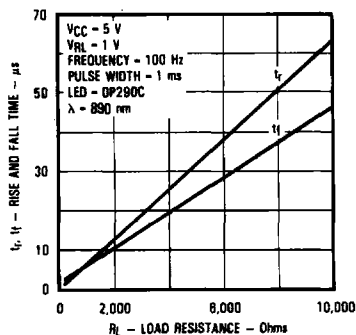
Normalized Collector Current
vs. Ambient Temperature



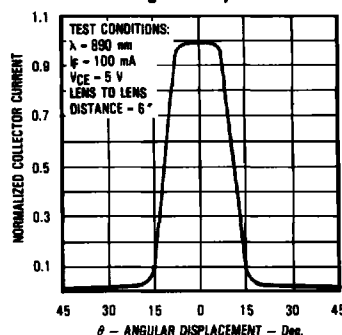
Collector Current
vs. Irradiance



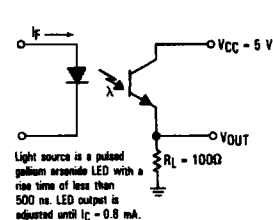
Rise and Fall Time
vs. Load Resistance



Normalized Collector Current
vs. Angular Displacement



Switching Time
Test Circuit



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

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