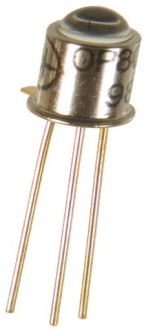
NPN Silicon Phototransistor

OP800A, OP800B, OP800C



Features:

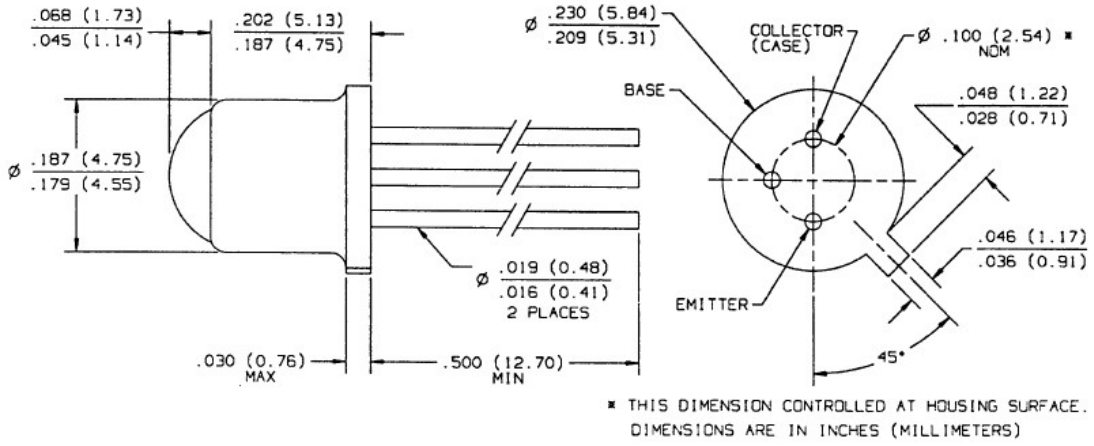
- Narrow receiving angle
- Suitable for applications from 400 nm to 1100 nm
- Variety of sensitivity ranges
- TO-18 hermetically sealed package
- Enhanced temperature range
- Base lead connection

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

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Electrical Specifications

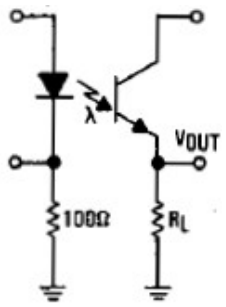
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

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° C
Operating Temperature Range	-65° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron] (1)	260° C
Power Dissipation (2)	250 mW

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

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

Notes:
1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
2. Derate linearly 2.30 mW/° 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 mW/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.



Test Circuit

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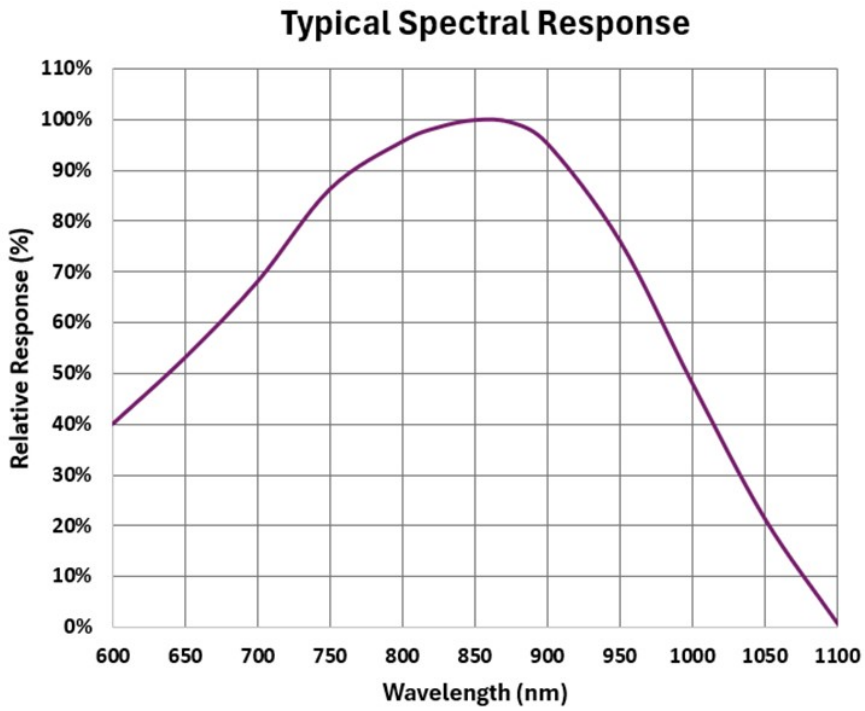
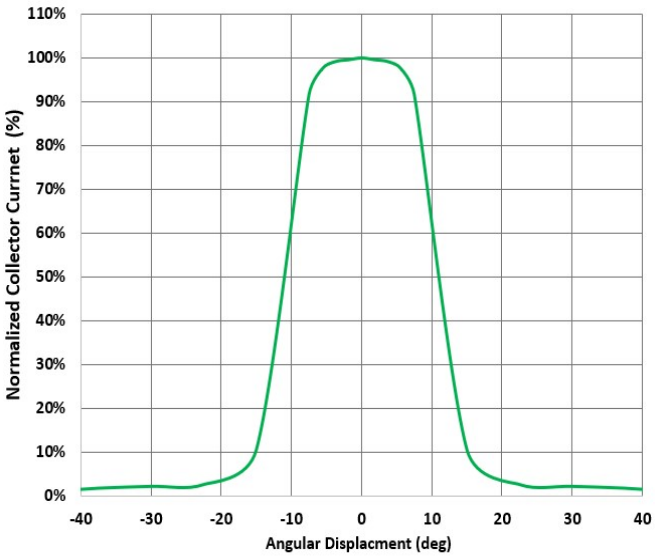
Typical Performance

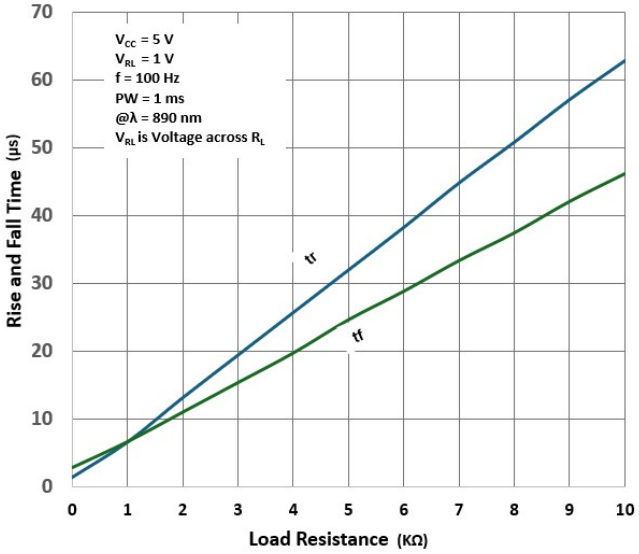


Typical Performance

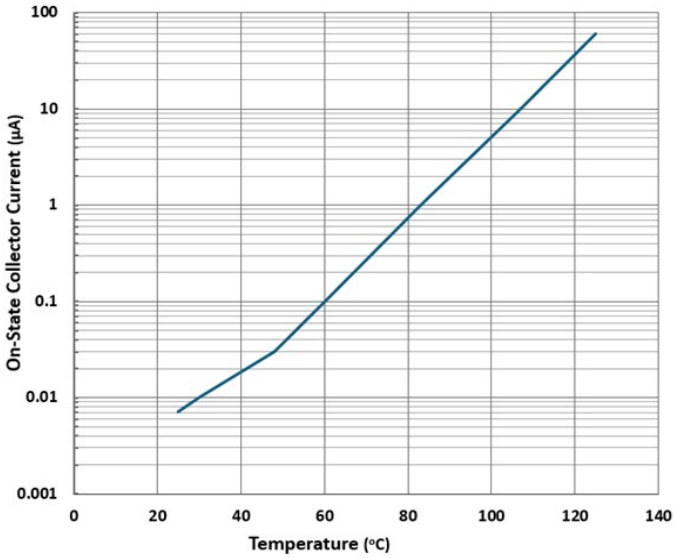
Normalized Collector Current vs Angular Displacement



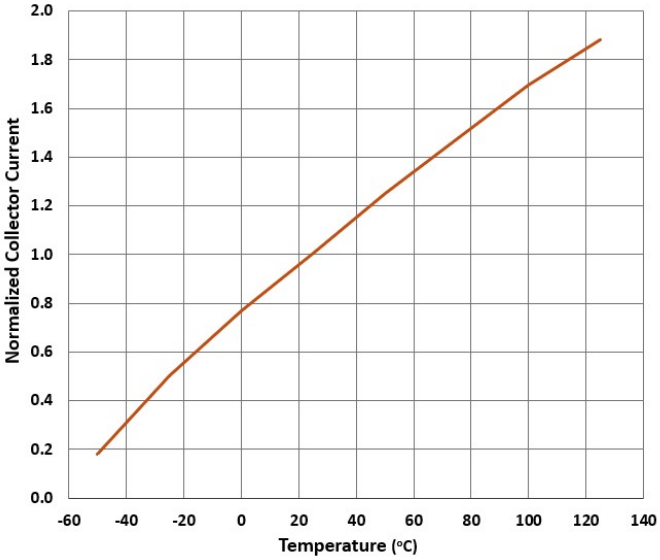
Rise and Fall Times vs Load Resistance



Collector Dark Current vs Temperature



Normalized Collector Current vs Temperature



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