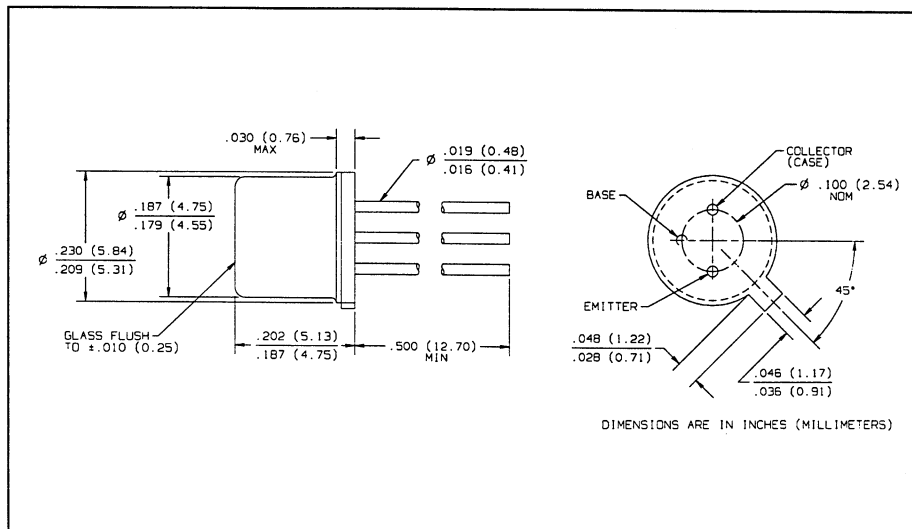
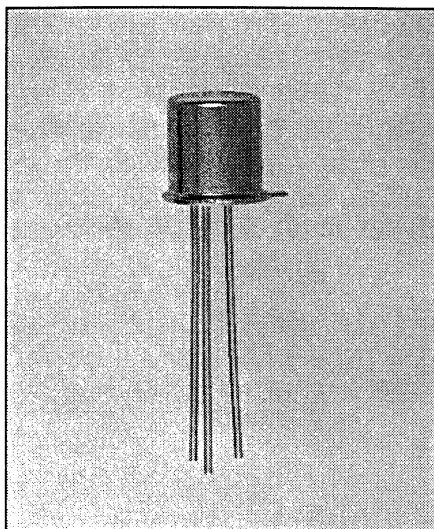


# NPN Silicon Phototransistors

## Types OP800WSL, OP801WSL, OP802WSL



### Features

- Wide receiving angle
- Variety of sensitivity ranges
- Enhanced temperature range
- TO-18 hermetically sealed package
- Mechanically and spectrally matched to the OP130W and OP231W series emitters

### Description

The OP800WSL series device consists of an NPN silicon phototransistor mounted in a hermetically sealed package. The wide receiving angle provides relatively even reception over a large area. TO-18 packages offer high power dissipation and superior hostile environment operation.

### Replaces

OP800W and K5201 series

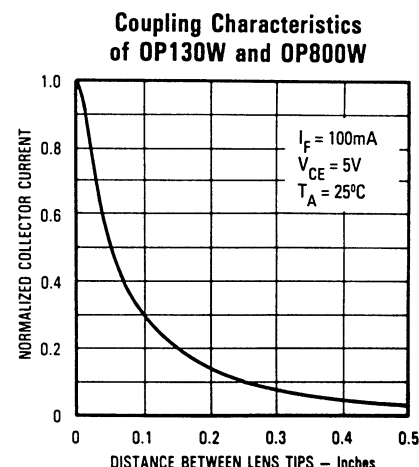
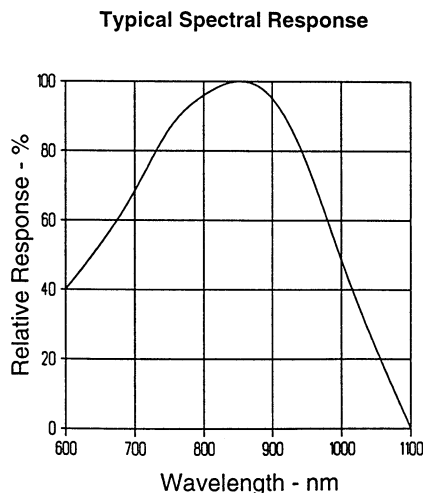
### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Collector-Emitter Voltage .....	30 V
Emitter-Collector Voltage .....	5.0 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 sec. with soldering iron] .....	$260^\circ\text{C}^{(1)}$
Power Dissipation .....	$250\text{mW}^{(2)}$

#### 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 an unfiltered tungsten bulb operating at  $CT = 2870\text{K}$  or equivalent infrared source.

### Typical Performance Curves



# Types OP800WSL, OP801WSL, OP802WSL

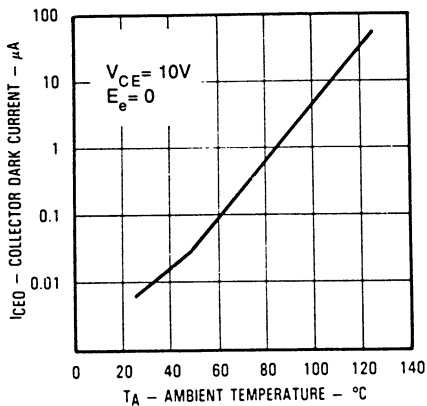
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}^{(3)}$	On-State Collector Current	OP800WSL OP801WSL OP802WSL	0.3 0.5 2.5		mA mA mA	$V_{CE} = 5\text{ V}, E_e = 5\text{ mW/cm}^2(4)$
$I_{CEO}$	Collector Dark Current			100	nA	$V_{CE} = 10\text{ V}, E_e = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	$I_C = 100\ \mu\text{A}$
$V_{(BR)ECO}$	Emitter-Collector 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		$\mu\text{s}$	

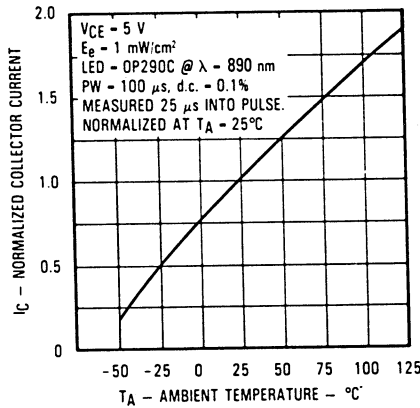
PHOTOSENSORS

## Typical Performance Curves

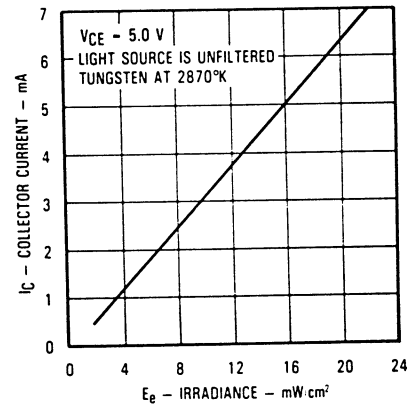
**Collector Dark Current vs. Ambient Temperature**



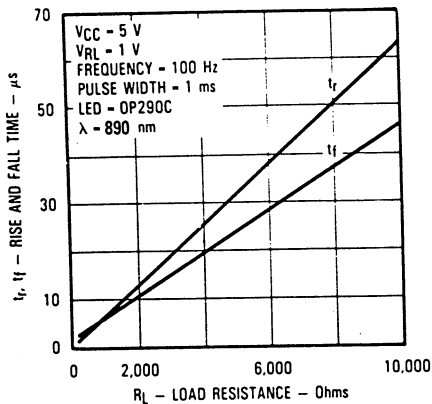
**Normalized Collector Current vs. Ambient Temperature**



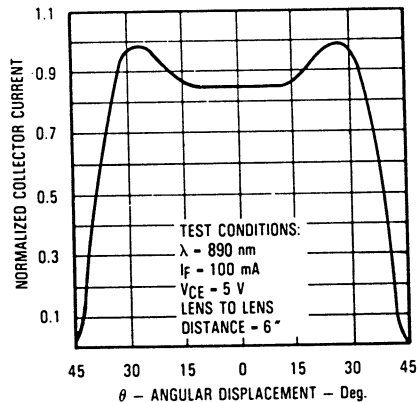
**Collector Current vs. Irradiance**



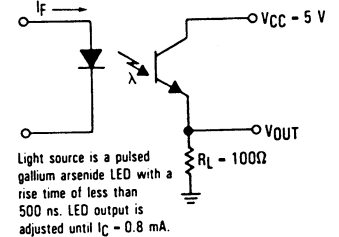
**Rise and Fall Time vs. Load Resistance**



**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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