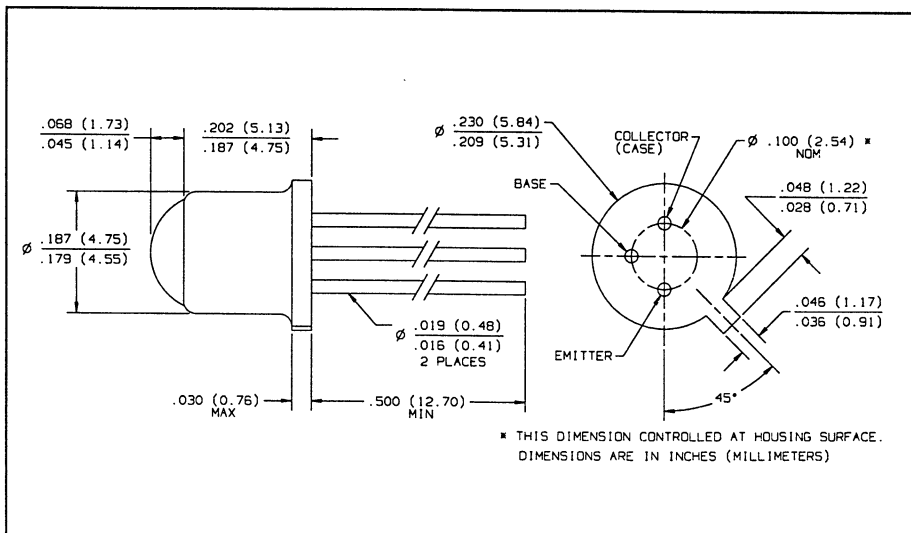
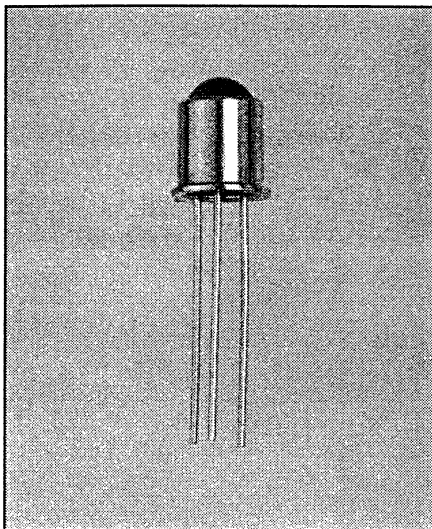


# NPN Silicon Photodarlington Type OP830SL



## Features

- Narrow receiving angle
- Enhanced temperature range
- Excellent thermal characteristics
- TO-18 hermetically sealed package
- Mechanically and spectrally matched to the OP130 and OP231 series of infrared emitting diodes

## Description

The OP830SL consists of an NPN silicon photodarlington mounted in a hermetically sealed package. The narrow receiving angle provides excellent on-axis coupling. Photodarlington devices are normally used in applications where light signal levels are low and more current gain is needed than is possible with phototransistors. TO-18 packages offer high power dissipation and superior hostile environment operation.

## Replaces

OP830 and K9020 series

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

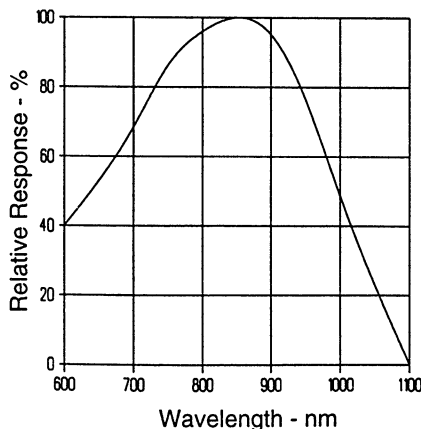
Collector-Emitter Voltage	15 V
Emitter-Collector Voltage	5 V
Continuous Collector Current	50 mA
Storage Temperature Range	$-65^\circ\text{C}$ to $+150^\circ\text{C}$
Operating Temperature Range	$-65^\circ\text{C}$ to $+125^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	$260^\circ\text{C}$ <sup>(1)</sup>
Power Dissipation	250 mW <sup>(2)</sup>

### Notes:

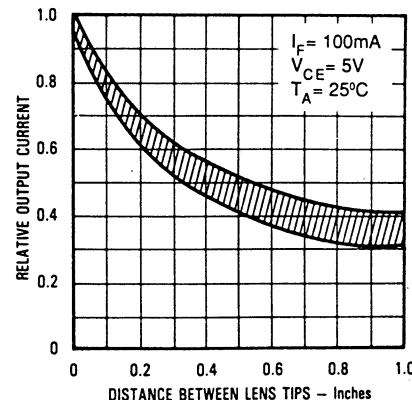
- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Derate linearly 2.5 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (3) Junction temperature maintained at  $25^\circ\text{C}$ .
- (4) Light source is an unfiltered tungsten bulb operating at  $CT = 2870\text{ K}$  or equivalent infrared source.

## Typical Performance Curves

Typical Spectral Response



Coupling Characteristics of OP130 and OP830

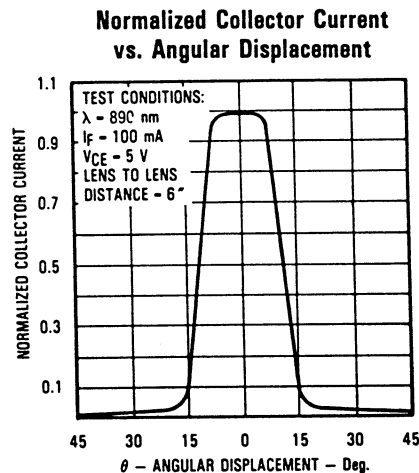
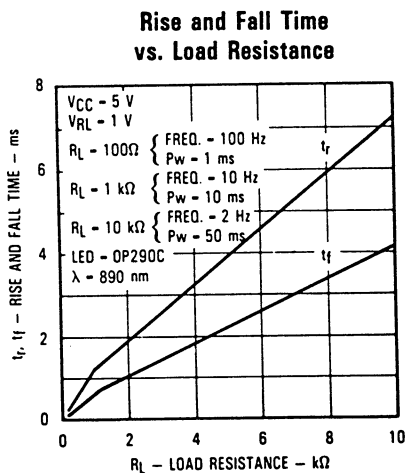
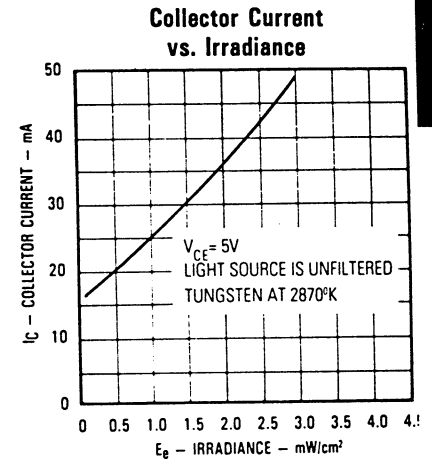
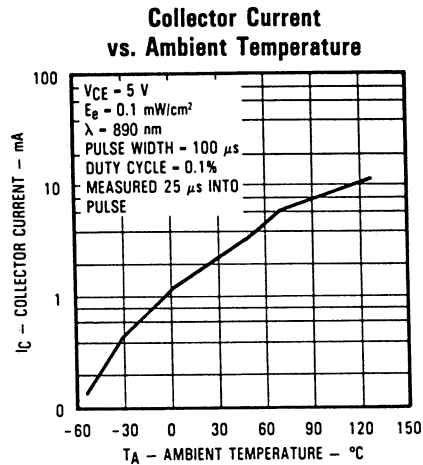
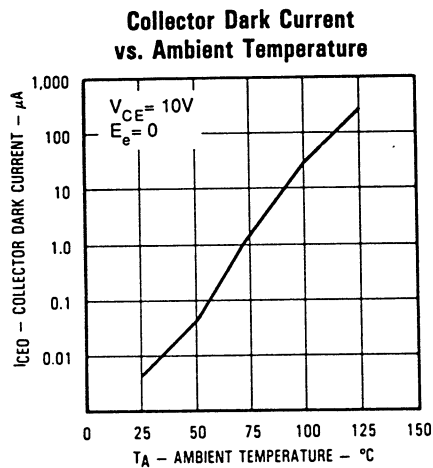


# Type OP830SL

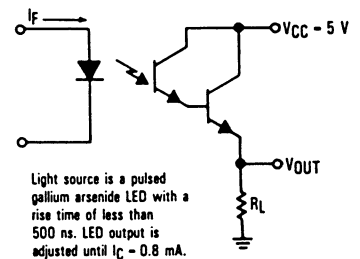
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}^{(3)}$	On-State Collector Current	15			mA	$V_{CE} = 5\text{ V}$ , $E_e = 0.5\text{ mW/cm}^2(4)$
$I_{CEO}$	Collector Dark Current			1.0	$\mu\text{A}$	$V_{CE} = 10\text{ V}$ , $E_e = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	15			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			1.20	V	$I_C = 1.0\text{ mA}$ , $E_e = 0.5\text{ mW/cm}^2(4)$

## Typical Performance Curves



## Switching Time Test Circuit



PHOTOSENSORS