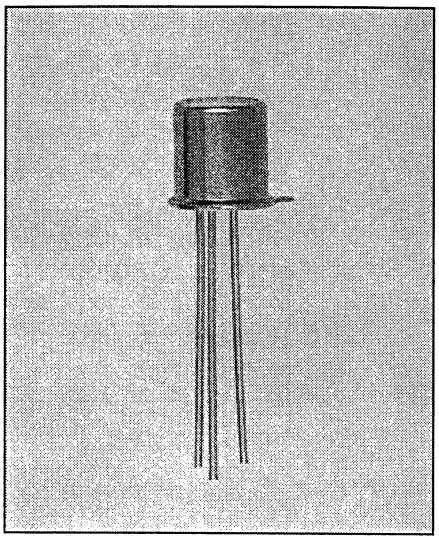
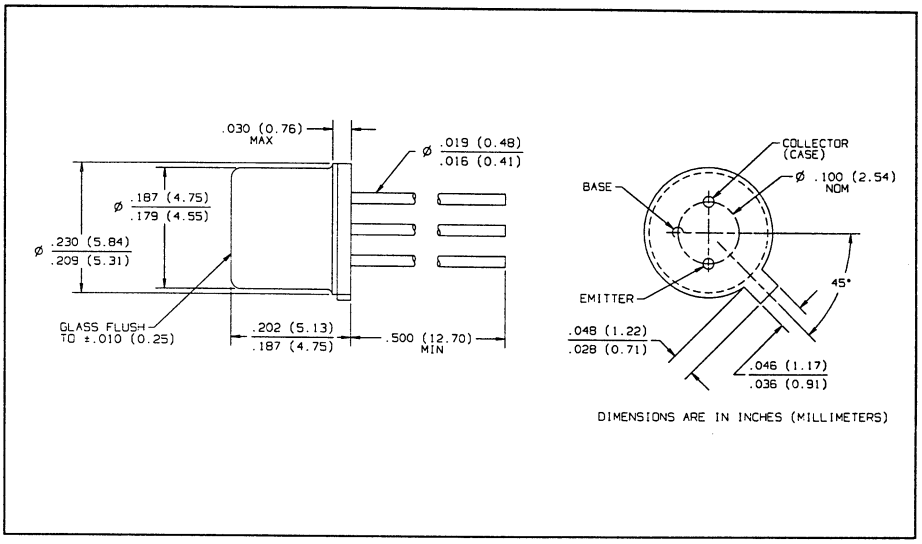
NPN Silicon Photodarlington
Type OP830WSL





Features

- Wide receiving angle
- Enhanced temperature range
- Excellent thermal characteristics
- TO-18 hermetically sealed package
- Mechanically and spectrally matched to the OP130W and OP231W series of infrared emitting diodes

Description

The OP830WSL consists of an NPN silicon photodarlington mounted in a hermetically sealed package. The wide receiving angle provides relatively even reception over a large area. 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

OP830W and K9030 series

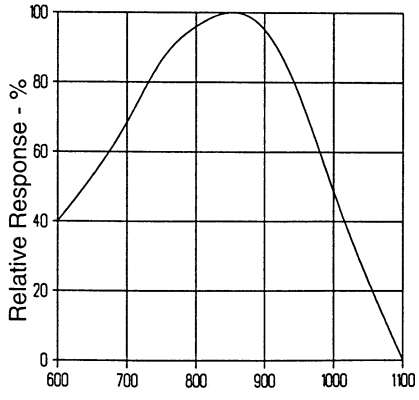
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Collector-Emitter Voltage	15 V
Emitter-Collector Voltage	5 V
Continous Collector Current	50 mA
Storage Temperature Range	-65° C to +150° C
Operating Temperature Range	-55° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	260° C(1)
Power Dissipation	250 mW(2)

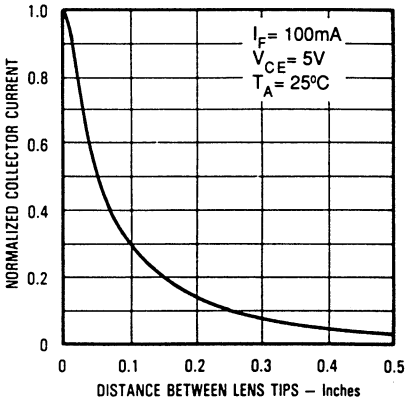
Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
(2) Derate linearly 2.5 mW/° C above 25° C.
(3) Junction temperature maintained at 25° C.
(4) Light source is an unfiltered tungsten bulb operating at CT = 2870 K or equivalent infrared source.

Typical Performance Curves

Typical Spectral Response



Coupling Characteristics of OP130W and OP830WSL



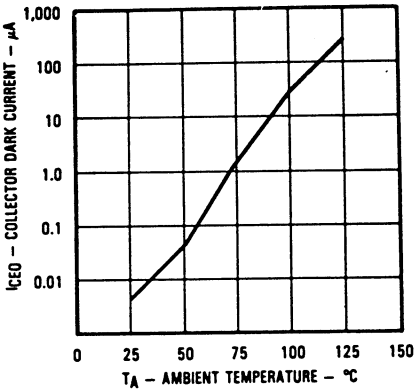
OP830WSL

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

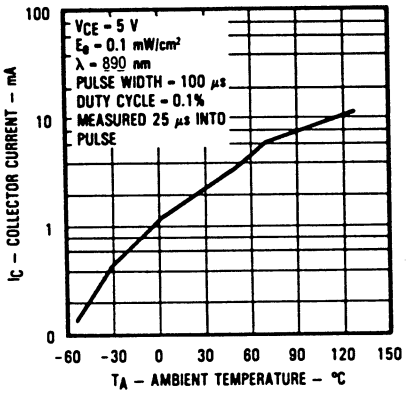
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_{C(ON)}$[3]	On-State Collector Current	4			mA	V_{CE} = 5 V, E_e = 0.5 mW/cm^2[4]
I_{CEO}	Collector Dark Current			1.0	µA	V_{CE} = 10 V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	15			V	I_C = 100 µA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0			V	I_E = 100 µA
$V_{CE(SAT)}$[3]	Collector-Emitter Saturation Voltage			1.20	V	I_C = 1.0 mA, E_e = 0.5 mW/cm^2[4]

Typical Performance Curves

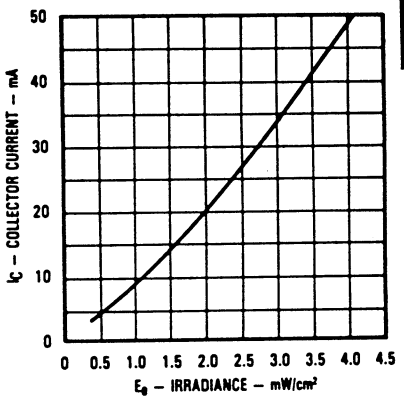
Collector Dark Current vs. Ambient Temperature



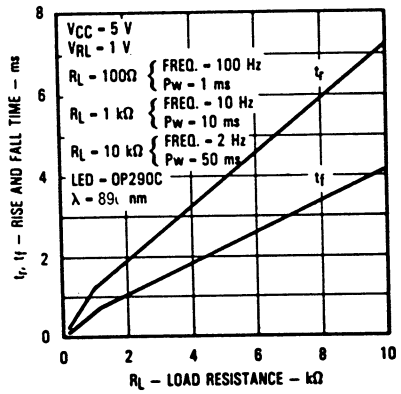
Collector Current vs. Ambient Temperature



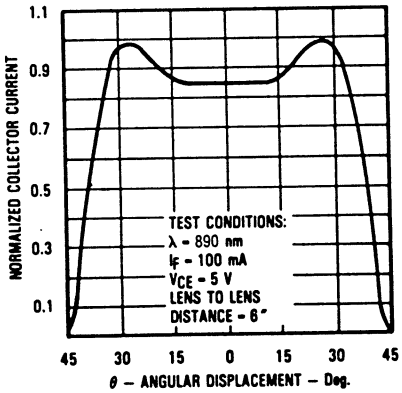
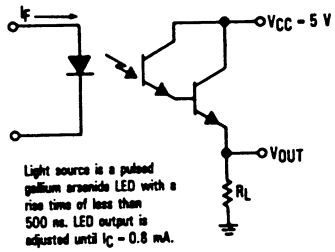
Collector Current vs. Irradiance



Rise and Fall Time vs. Load Resistance



Normalized Collector Current vs. Angular Displacement



Switching Time Test Circuit