PN Silicon Photodiode

OP900SL

Features:

- Narrow receiving angle
- Enhanced temperature range
- Ideal for direct mounting to PCBoard
- Fast switching speed
- Linear response vs.irradiance
- Mechanically and spectrally matched to OP123 emitters

Description:

Each **OP900SL** consists of a PN junction silicon photodiode mounted in a miniature glass-lensed hermetically sealed "pill" package. The lensing effect allows an acceptance half-angle of 18°, when measured from the optical axis to the half-power point.

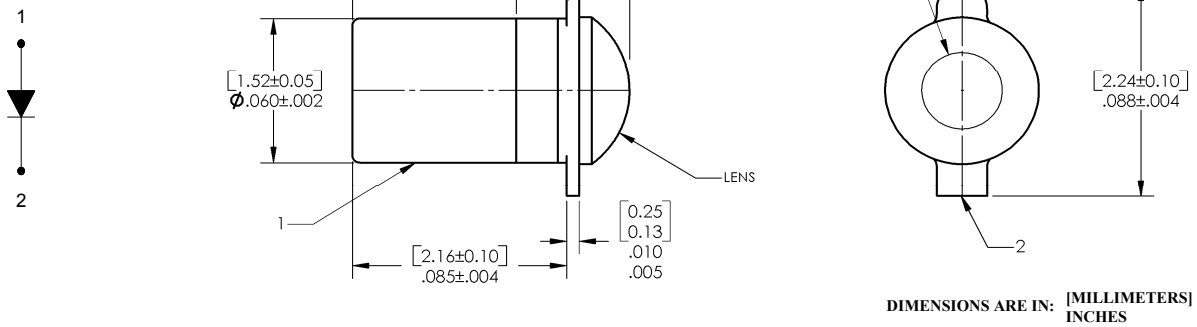
The OP900SL is mechanically and spectrally matched to the OP123 series emitters.

Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data, and to Application Bulletin 202 for pill-type soldering to PCBoard.

Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

Ordering Information		
Part Number	**Sensor**	**Viewing Angle**
OP900SL	Photodiode	35°



DIMENSIONS ARE IN: [MILLIMETERS] INCHES

Pin #	Sensor
1	Collector / Cathode
2	Emitter / Anode

RoHS

General Note
TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

OPTEK Technology, Inc.
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www.optekinc.com | www.ttelectronics.com

Electrical Specifications

Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)	
Reverse Voltage	100 V
Operating Temperature Range	-65° C to +150° C
Storage Temperature Range	-65° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 seconds with soldering iron]	260° C(1)
Power Dissipation	50 mW(2)

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_L	Light Current	8	14	-	µA	V_R = 10 V, E_E = 20 mW/cm^2 (3)(4)
I_D	Dark Current	-	-	10	nA	V_R = 10 V, E_E = 0(3)
$V_{(BR)R}$	Reverse Voltage Breakdown	100	150	-	V	I_R = 100 µA
t_r	Rise Time	-	100	-	ns	V_R = 50 V, I_L = 8 µA, R_L = 1 kΩ (see test circuit)
t_f	Fall Time	-	100	-		

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
(2) Derate linearly 0.5 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..

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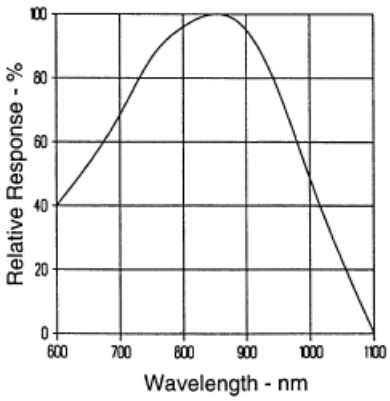
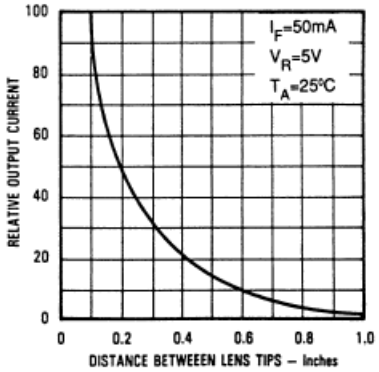
Performance

OP900SL

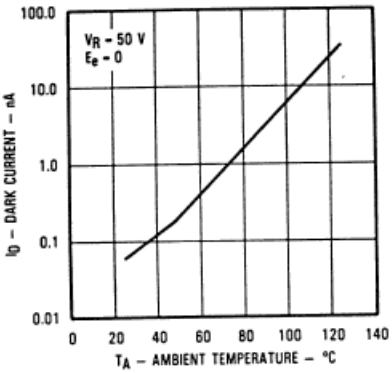
Typical Spectral Response



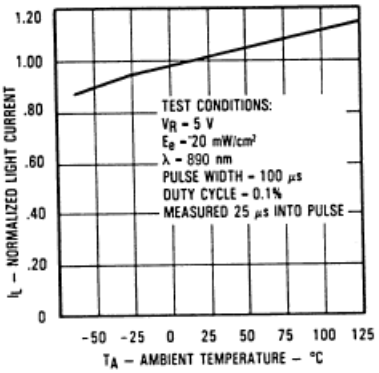
Coupling Characteristics of OP123 and OP900SL



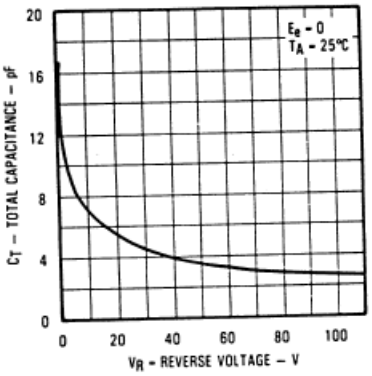
Dark Current vs. Ambient Temperature



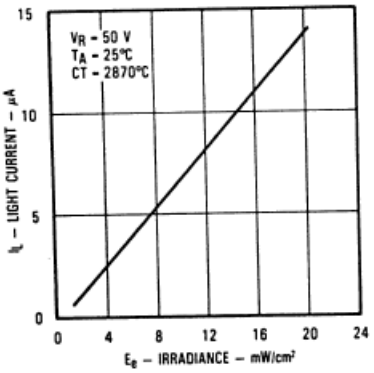
Normalized Light Current vs. Ambient Temperature



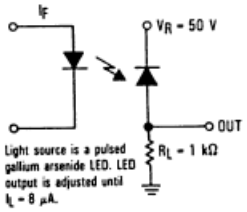
Total Capacitance vs. Reverse Voltage



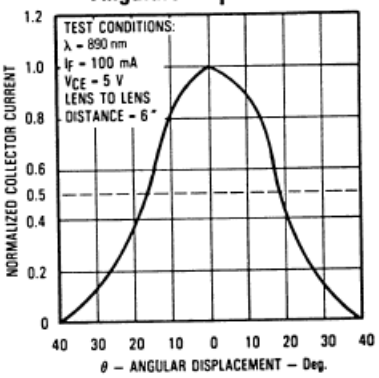
Light Current vs. Irradiance



Switching Time Test Circuit



Light Current vs. Angulars Displacement



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