PIN Silicon Photodiode

OP905, OP906



Features:

- Clear epoxy package
- Linear response vs. irradiance
- Fast switching time
- Narrow receiving angle
- T-1 package style
- Small package style ideal for space-limited applications

Description:

Each **OP905** and **OP906** device consists of a PIN silicon photodiode molded in a clear polysulfone package that allows spectral response from visible to infrared light wavelengths. The T-1 package style is ideal for space-limited applications. Both devices have a narrow receiving angle, which provides excellent on-axis coupling. Both are also 100% production tested using infrared light for close correlation with OPTEK's GaAs and GaAlAs emitters.

Please refer to Application Bulletin 210 for additional thermal design information.

Applications:

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

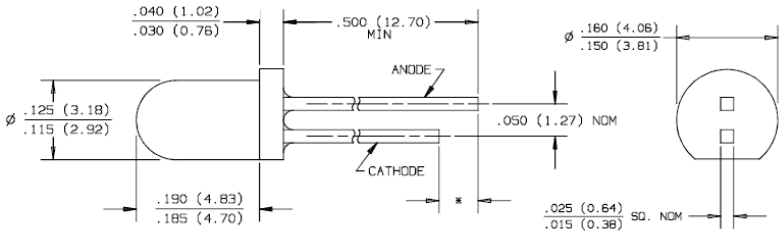
Ordering Information			
Part Number	**Sensor**	**Viewing Angle**	**Lead Length**
OP905	Photodiode	±17°	0.50"
OP906		±20°	

OP905 - OP906



Pin #	Diode
1	Anode
2	Cathode

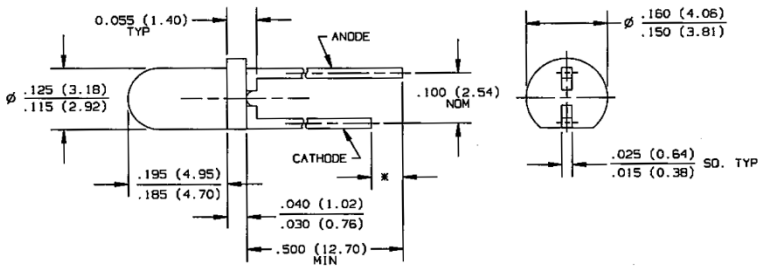
OP905



* FOR IDENTIFICATION PURPOSES ANODE LEAD IS .060 (1.52) NOM. LONGER THAN CATHODE LEAD.

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

OP906



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RoHS

CONTAINS POLYSULFONE

To avoid stress cracking, we suggest using ND Industries' **Vibra-Tite** for thread-locking. **Vibra-Tite** evaporates fast without causing structural failure in OPTEK'S molded plastics.

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Electrical Specifications

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

Reverse Breakdown Voltage	60 V
Storage & Operating Temperature Range	-40° C to +100° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from the case for 5 sec. with soldering iron] (1)	260° C
Reverse Breakdown Voltage	60 V
Power Dissipation (2)	100 mW

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

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_L (3)	Reverse Light Current OP905 OP906	 14 16	 - -	 32 35	µA	V_R = 5 V, E_E = 0.50 mW/cm²
I_D (4)	Reverse Dark Current	-	1	60	nA	V_R = 30 V, E_E = 0
$V_{(BR)}$	Reverse Breakdown Voltage	60	-	-	V	I_R = 100 µA
V_F	Forward Voltage	-	-	1.2	V	I_F = 1 mA
C_T	Total Capacitance	-	4	-	pF	V_R = 20 V, E_E = 0, f = 1.0 MHz
t_r	Rise Time	-	5	-	ns	V_R = 20 V, λ = 850 nm, R_L = 50 Ω
t_f	Fall Time	-	5	-		

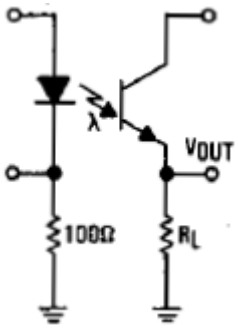
Notes:

(1) RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering. A maximum of 20 grams force may be applied to leads when soldering.

(2) Derate linearly 1.07 mW/° C above 25° C.

(3) Light source is an unfiltered GaAs LED with a peak emission wavelength of 935 nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the photodiode being tested.

(4) Calculate the typical dark current in nA using the formula $I_D = 10^{(0.042T_A - 1.5)}$ where T_A is ambient temperature in ° C.



Test Circuit

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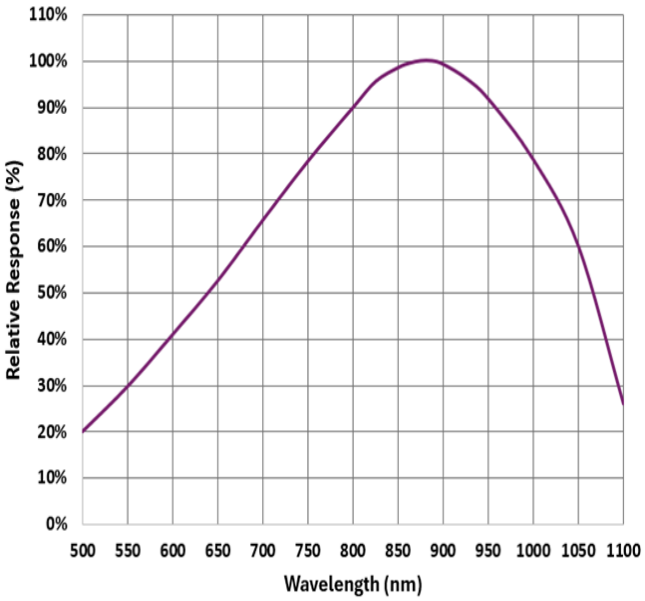
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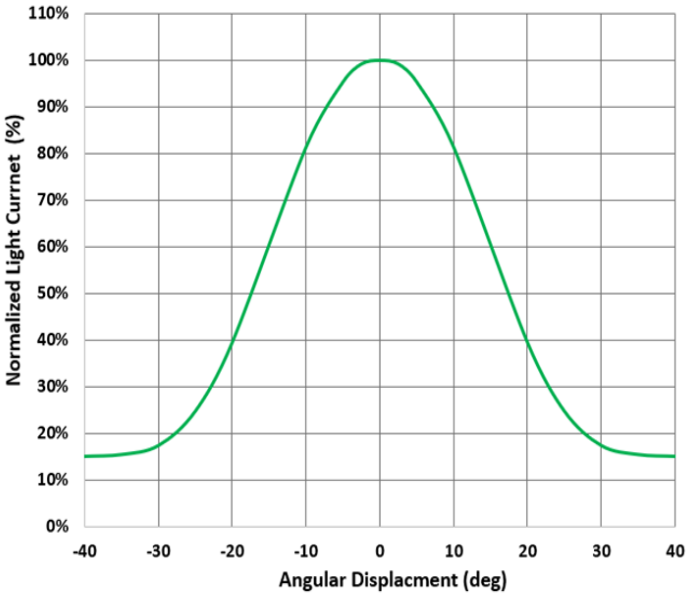
Typical Performance

OP905

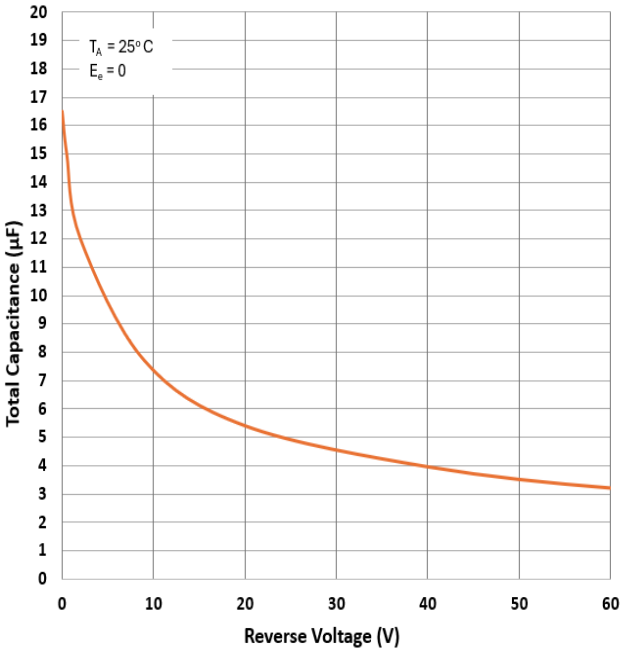
Typical Spectral Response



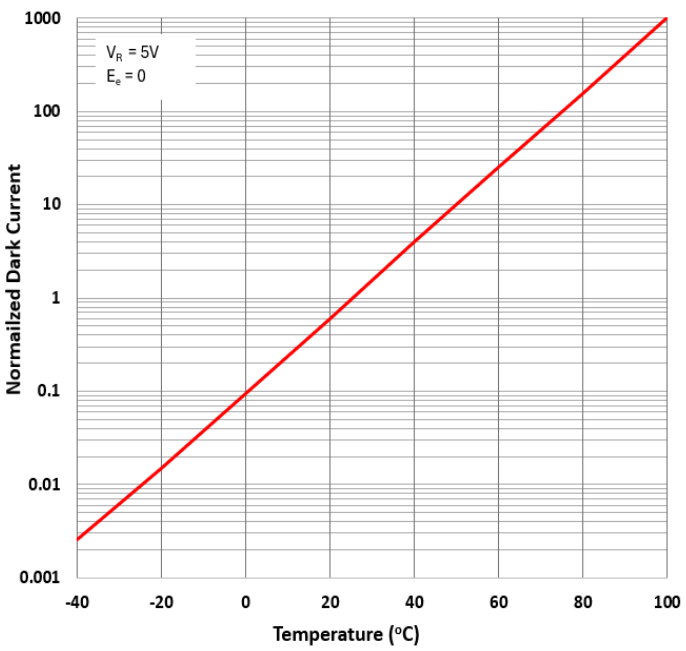
Light Current vs Angular Displacement



Total Capacitance vs Voltage



Normalized Dark Current vs Temperature



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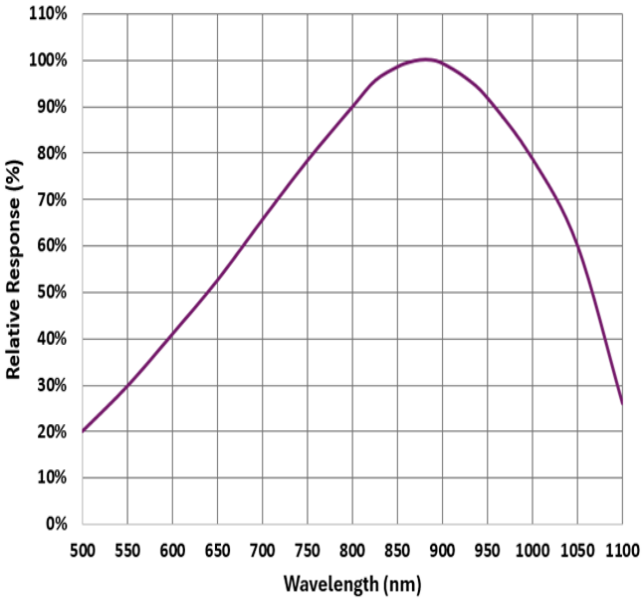
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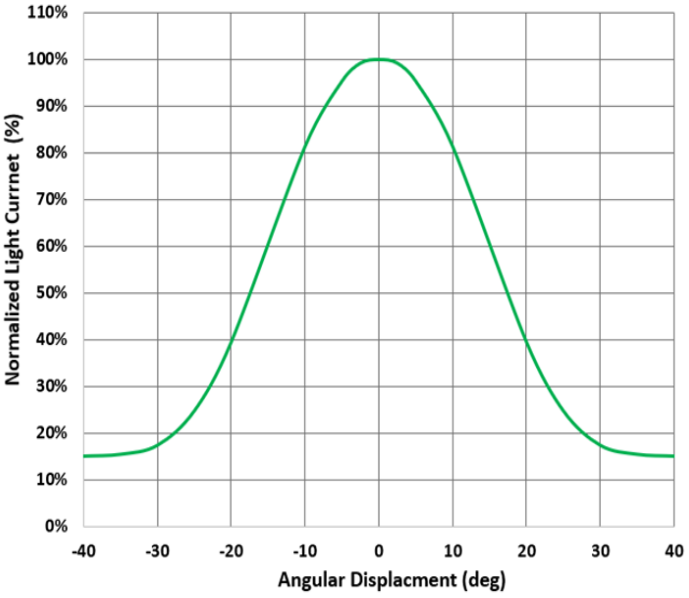
Typical Performance

OP906

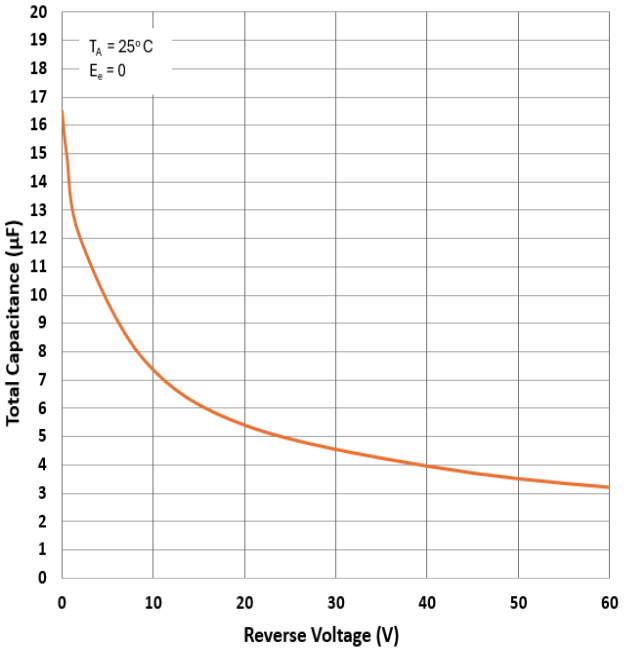
Typical Spectral Response



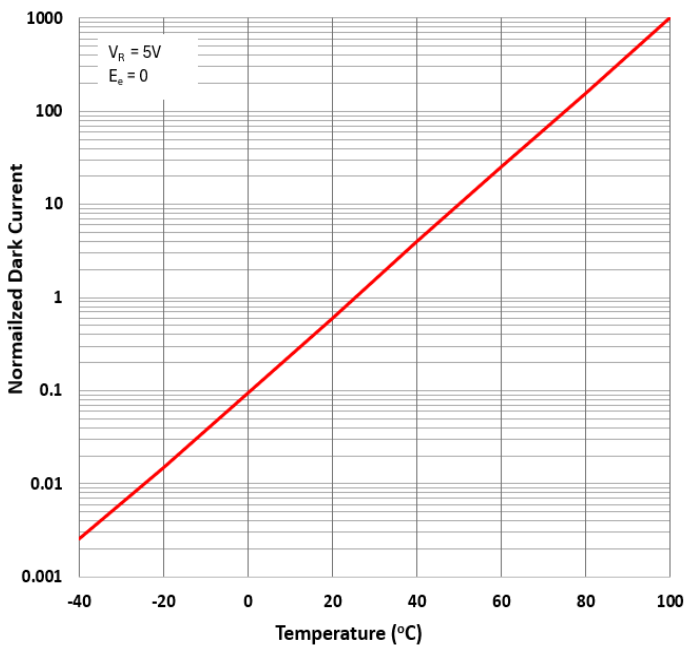
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