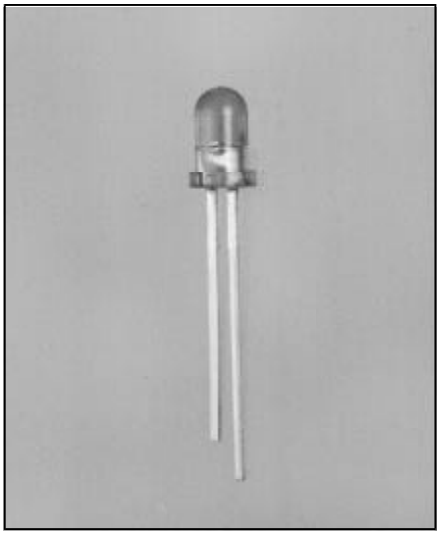
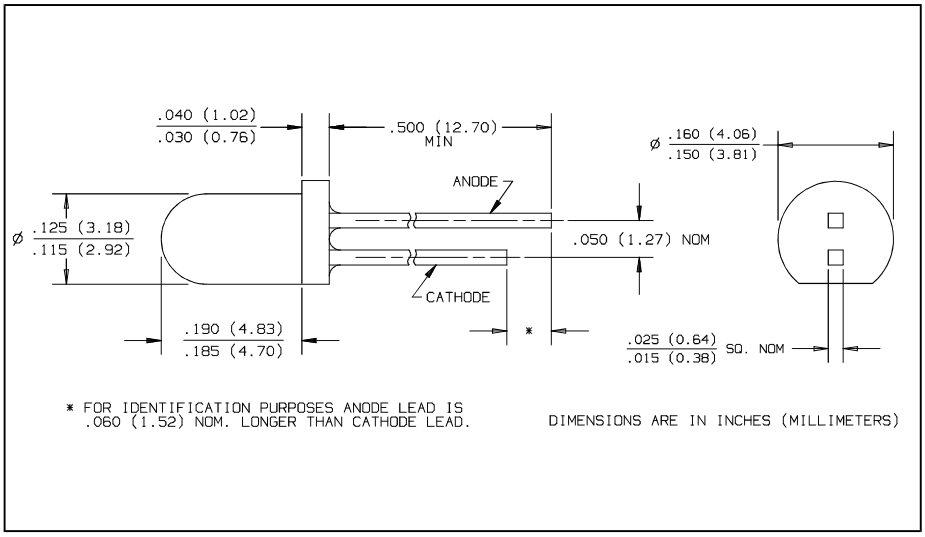
PIN Silicon Photodiode
Type OP905





Features

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

Description

The OP905 device consists of a PIN silicon photodiode molded in a clear epoxy package which allows spectral response from visible to infrared light wavelengths. The narrow receiving angle provides excellent on-axis coupling. These devices are 100% production tested using infrared light for close correlation with Optek's GaAs and GaAlAs emitters.

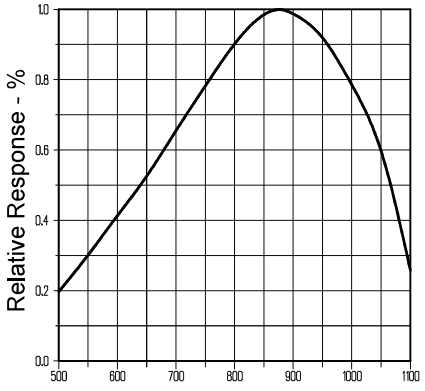
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

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

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. Max. 20 grams force may be applied to leads when soldering.
(2) Derate linearly 1.67 mW/° C above 25° C.
(3) Light source is an unfiltered GaAs LED with a peak emission wavelength of 935nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the photodiode being tested.
(4) To calculate typical dark current in nA, use the formula $I_D = 10^{(0.042\ T_A - 1.5)}$ where T_A is ambient temperature in ° C.

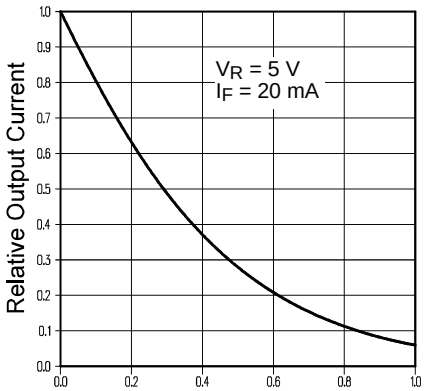
Typical Performance Curves

Relative Response vs. Wavelength



λ - Wavelength - nm

Coupling Characteristics OP905 and OP265



Distance Between Lens Tips - inches

Type OP905

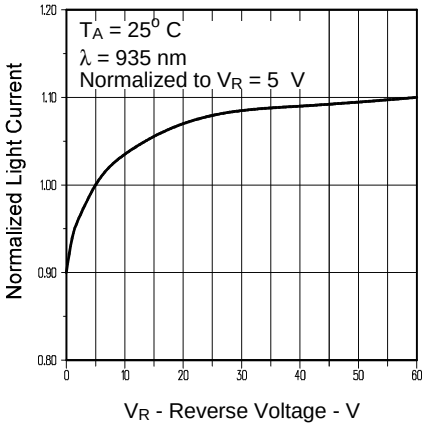
Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_L	Reverse Light Current	14		32	µA	V_R = 5 V, Ee = 0.50 mW/cm^2(3)
I_D	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, t_f	Rise Time, Fall Time		5		ns	V_R = 20 V, λ = 850 nm, R_L = 50 Ω

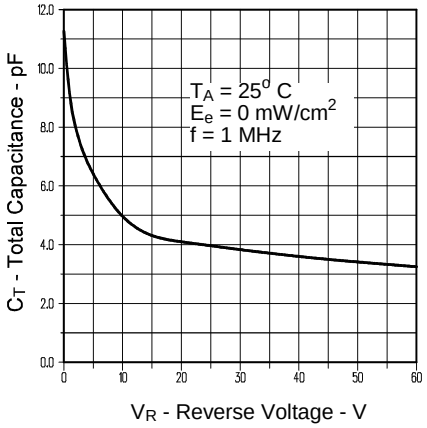
PHOTOSENSORS

Typical Performance Curves

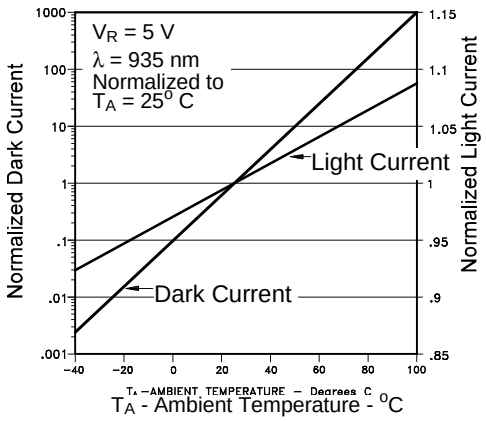
Normalized Light Current vs Reverse Voltage



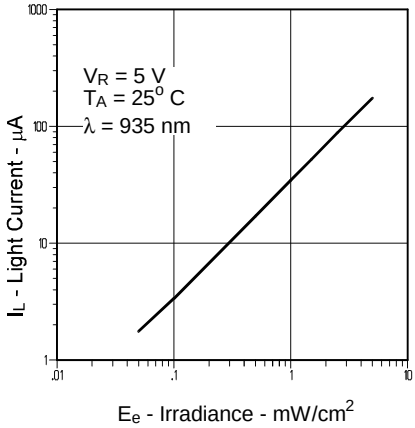
Total Capacitance vs Reverse Voltage



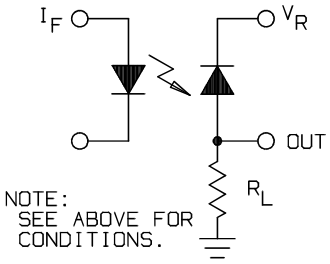
Normalized Light and Dark Current vs Ambient Temperature



Light Current vs. Irradiance



Switching Time Test Circuit



Light Current vs. Angular Displacement