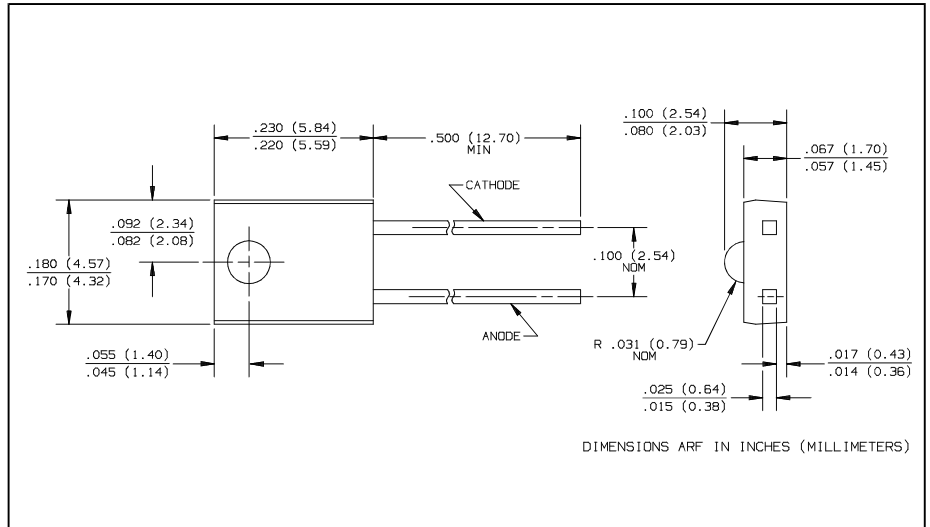


# PIN Silicon Photodiode

## Type OP950



### Features

- Wide receiving angle
- Linear response vs. irradiance
- Fast switching time
- Side-looking package ideal for space limited applications

### Description

The OP950 device consists of a PIN silicon photodiode molded in a clear epoxy package which allows spectral response from visible to infrared light wavelengths. The wide receiving angle provides relatively even reception over a large area. The side-looking package is designed for easy PC board mounting. This photodiode is mechanically and spectrally matched to Optek's GaAs and GaAlAs series of infrared emitting diodes.

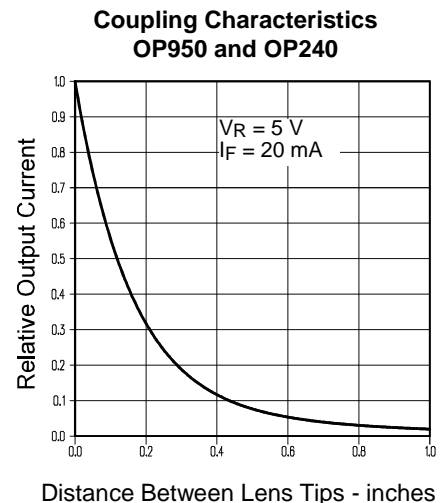
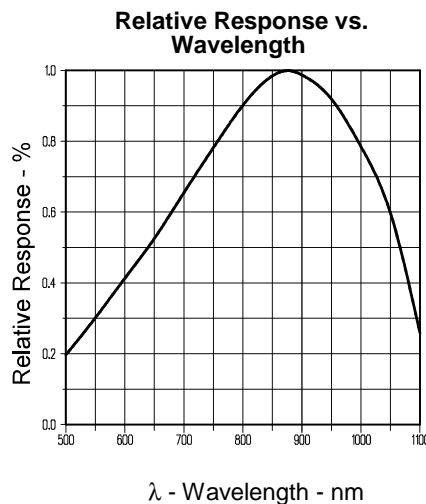
### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

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

#### 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  $1.67\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (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  $\mu\text{A}$ , use the formula  $I_D = 10^{(0.042 T_A - 1.5)}$  where  $T_A$  is ambient temperature in  $^\circ\text{C}$ .

### Typical Performance Curves



# Type OP950

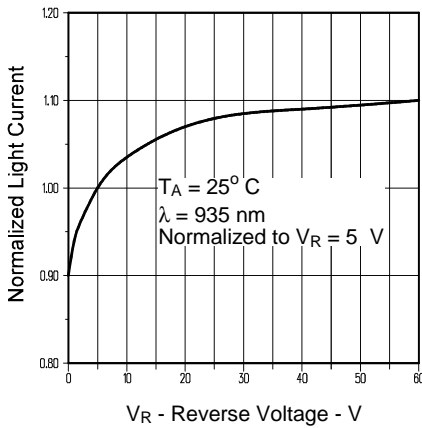
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$I_L$	Reverse Light Current	8		18	$\mu\text{A}$	$V_R = 5\text{ V}$ , $E_e = 1\text{ mW/cm}^2(3)$
$I_D$	Reverse Dark Current		1	60	nA	$V_R = 30\text{ V}$ , $E_e = 0$
$V_{(BR)}$	Reverse Breakdown Voltage	60			V	$I_R = 100\ \mu\text{A}$
$V_F$	Forward Voltage			1.2	V	$I_F = 1\text{ mA}$
$C_T$	Total Capacitance		4		pF	$V_R = 20\text{ V}$ , $E_e = 0$ , $f = 1.0\text{ MHz}$
$t_r, t_f$	Rise Time, Fall Time		5		ns	$V_R = 20\text{ V}$ , $\lambda = 850\text{ nm}$ , $R_L = 50\ \Omega$

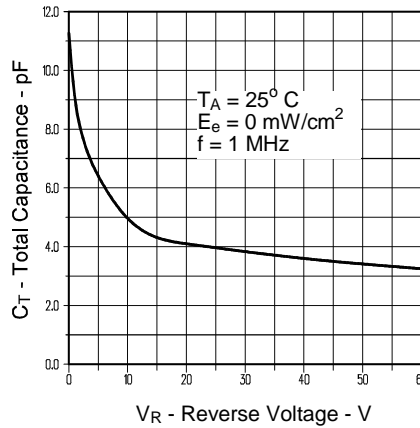
## Typical Performance Curves

PHOTOSENSORS

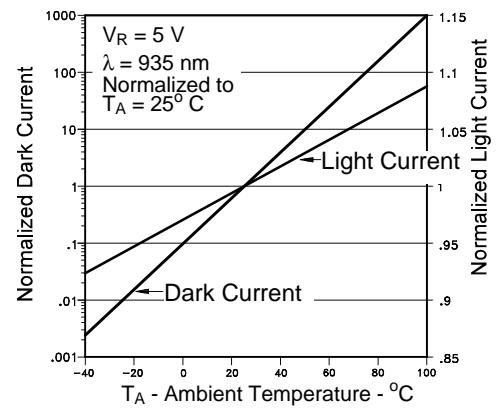
Normalized Light Current vs Reverse Voltage



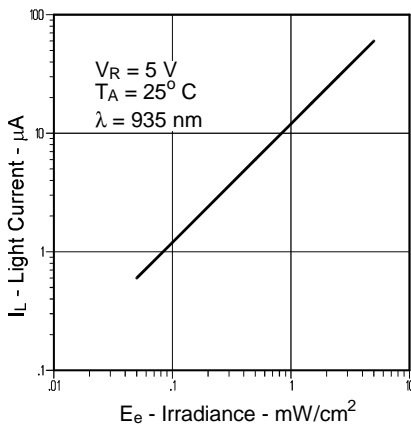
Total Capacitance vs Reverse Voltage



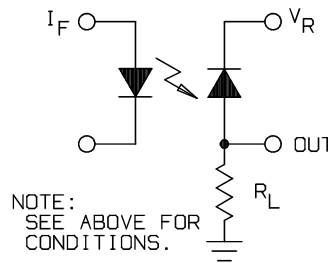
Normalized Light and Dark Current vs Ambient Temperature



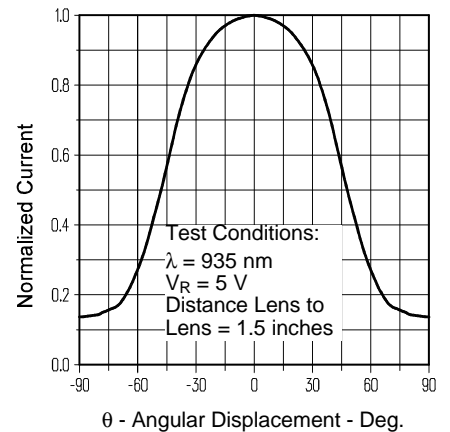
Light Current vs. Irradiance



Switching Time Test Circuit



Light Current vs. Angular Displacement



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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