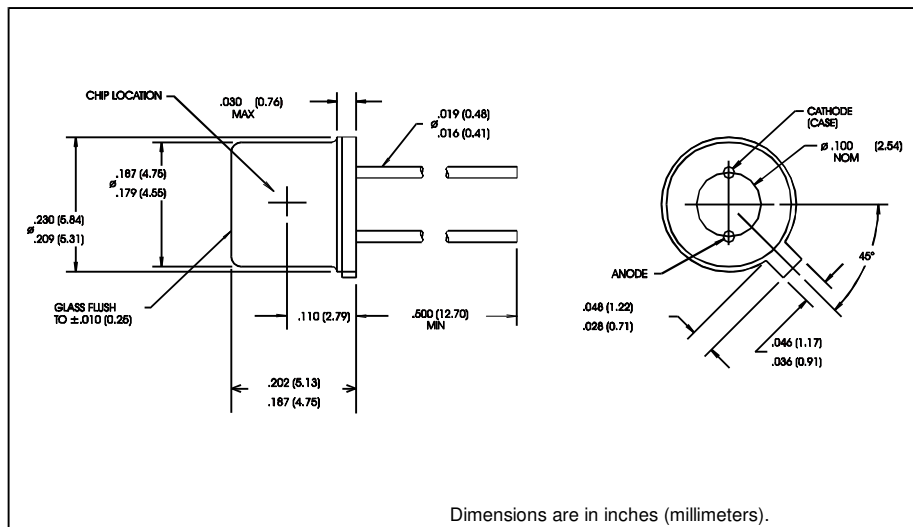


# PIN Silicon Photodiode

## Type OP910W



### Features

- Wide receiving angle
- Fast switching time
- Linear response vs. irradiance
- Enhanced temperature range

### Description

The OP910W consists of a PIN silicon photodiode mounted in a two-leaded hermetic TO-46 package. The flat lens has an acceptance half angle of  $\pm 40^\circ$ .

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

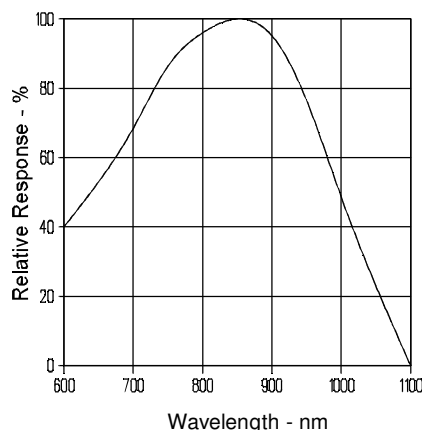
|                                                                                         |                                             |
|-----------------------------------------------------------------------------------------|---------------------------------------------|
| Reverse Voltage                                                                         | 60 V                                        |
| Storage Temperature Range                                                               | $-65^\circ\text{C}$ to $+150^\circ\text{C}$ |
| Operating Temperature Range                                                             | $-65^\circ\text{C}$ to $+125^\circ\text{C}$ |
| Lead Soldering Temperature [1/16 inch (1.6mm) from case for 5 sec. with soldering iron] | $200^\circ\text{C}^{(1)}$                   |
| Power Dissipation                                                                       | 250 mW                                      |

### Notes:

- (1) RMA Flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Light source is an unfiltered GaAs LED with a peak wavelength of 935 nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the photodiode being tested.
- (3) Junction temperature maintained at  $25^\circ\text{C}$ .
- (4) To calculate typical dark current in nA, use the formula  $I_D = 10^{(0.42 T_A - 1.5)}$  where  $T_A$  is ambient temperature in  $^\circ\text{C}$ .
- (5) Derate linearly 2.5 mW/ $^\circ\text{C}$  above  $25^\circ\text{C}$ .

### Typical Performance Curves

Typical Spectral Response



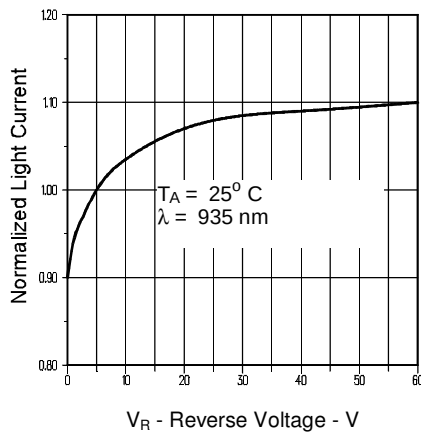
# Type OP910W

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

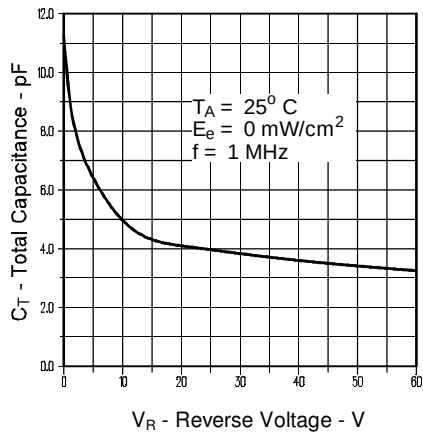
| SYMBOL      | PARAMETER                 | MIN | TYP   | MAX | UNITS         | TEST CONDITION                                             |
|-------------|---------------------------|-----|-------|-----|---------------|------------------------------------------------------------|
| $I_L$       | Light Current             | 1.7 | 2.4   |     | $\mu\text{A}$ | $V_R = 20\text{ V}$ , $E_e = .50\text{ mW/cm}^2$ note 2, 3 |
| $I_D$       | Dark Current              |     | 1     | 10  | nA            | $V_R = 20\text{ V}$ , $E_e = 0.0$                          |
| $V_{(BR)R}$ | Reverse Voltage Breakdown | 100 |       |     | V             | $I_R = 100\text{ }\mu\text{A}$                             |
| $t_r$       | Rise Time                 |     | 10    |     | nS            | $V_R = 20\text{ V}$ , $R_L = 50\text{ OHMS}$               |
| $t_f$       | Fall Time                 |     | 10    |     | nS            | $V_R = 20\text{ V}$ , $R_L = 50\text{ OHMS}$               |
| $\emptyset$ | Half Angle                |     | +/-40 |     | degr.         | $I_F = \text{Constant}$                                    |
| $C_P$       | Capacitance               |     | 13    |     | pF            | $V_R = 0\text{ V}$ , $F = 1\text{ Mhz}$ , $E_e = 0$        |
| $V_F$       | Forward Voltage           |     |       | 1.2 | V             | $I_F = 100\text{ mA}$                                      |

## Typical Performance Curves

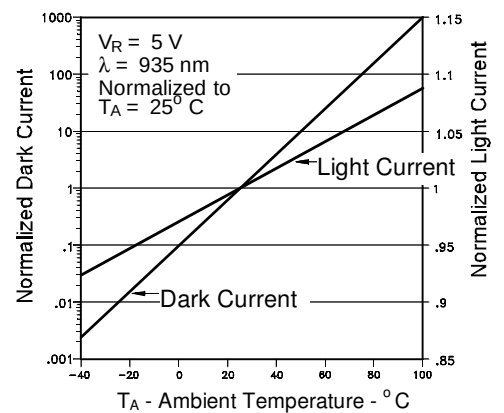
**Normalized Light Current vs. Reverse Voltage**



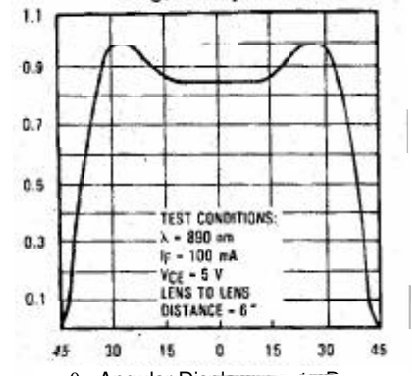
**Total Capacitance vs. Reverse Voltage**



**Normalized Light and Dark Current vs. Ambient Temperature**



**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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