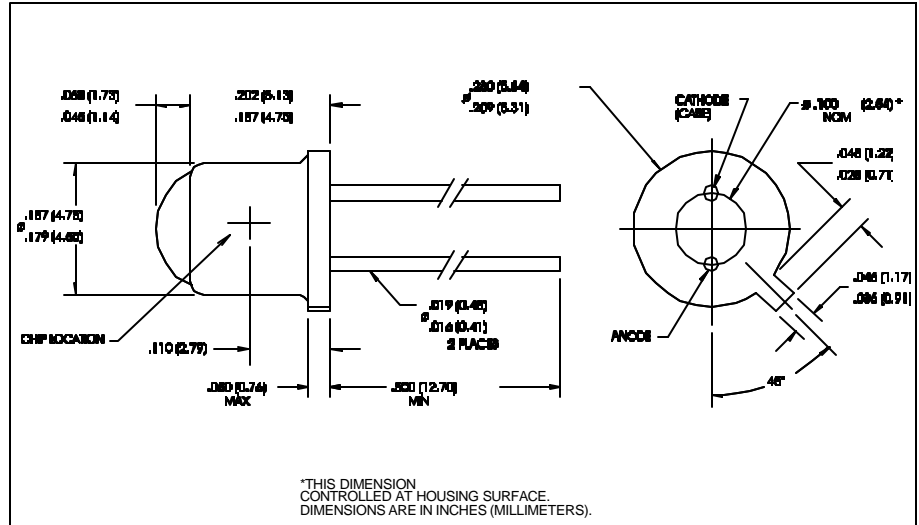


PIN Silicon Photodiode Type OP910



Features

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

Description

The OP910 consists of a PIN silicon photodiode mounted in a two-leaded hermetic TO-46 package. The narrow receiving angle has an acceptance half angle of $\pm 12^\circ$.

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

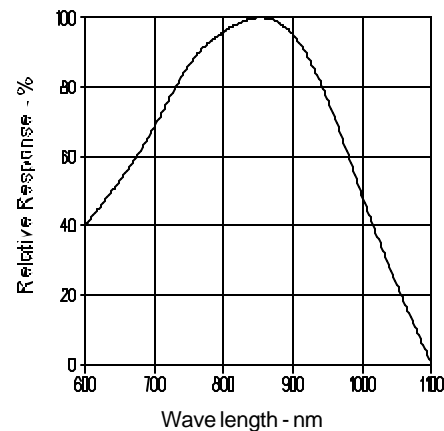
| | | |
|--|-------|---|
| Reverse Voltage | | 60 V |
| Storage Temperature Range | | -65°C to $+150^\circ\text{C}$ |
| Operating Temperature Range | | -65°C to $+125^\circ\text{C}$ |
| Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] | | 260°C ⁽¹⁾ |
| Power Dissipation | | 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 GaAlAs LED with a peak wavelength of 885 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°C .
- (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 $^\circ\text{C}$.
- (5) Derate linearly 2.5 mW/ $^\circ\text{C}$ above 25°C .

Typical Performance Curves

Typical Spectral Response



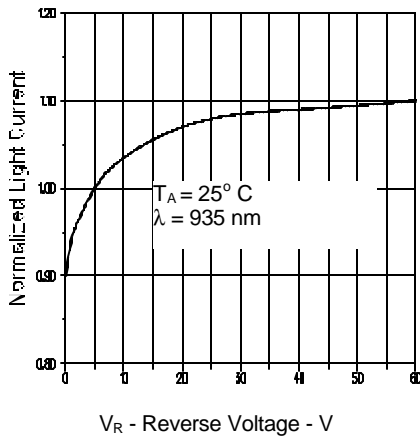
Type OP910

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

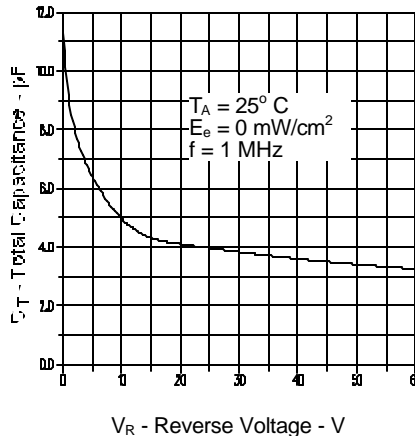
| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|-------------|---------------------------|-----|--------|-----|---------------|---|
| I_L | Light Current | 10 | 13 | | μA | $V_R = 20\text{ V}$, $E_e = .50\text{ mW/cm}^2$ note 2,3 |
| I_D | Dark Current | | 1 | 10 | nA | $V_R = 20\text{ V}$, $E_e = 0.0$ |
| $V_{(BR)R}$ | Reverse Voltage Breakdown | 100 | | | V | $I_R = 100\ \mu\text{A}$ |
| 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 | | +/- 12 | | degr. | $I_F = \text{Constant}$ |
| C_P | Capacitance | | 13 | | pF | $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E_e = 0$ |

Typical Performance Curves

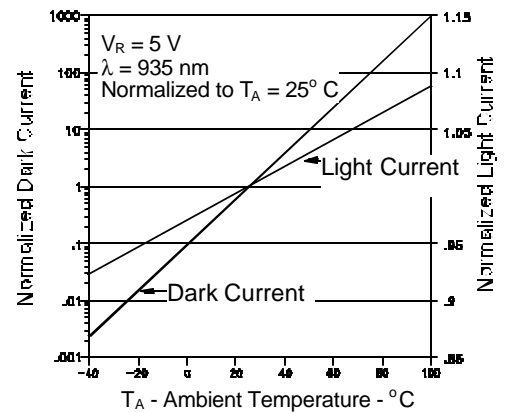
Normalized Light Current vs Reverse Voltage



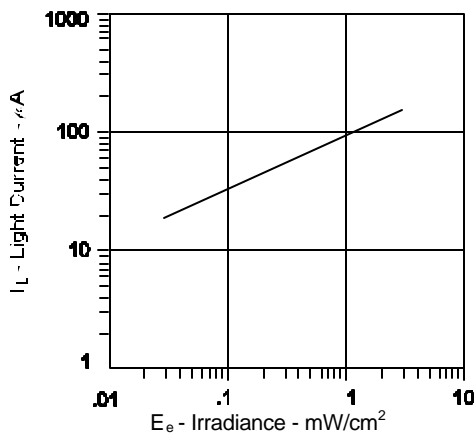
Total Capacitance vs Reverse Voltage



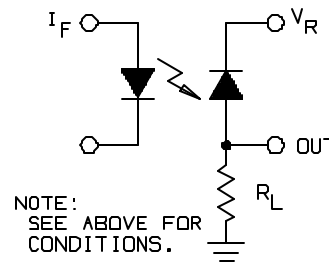
Normalized Light and Dark Current vs Ambient Temperature



Light Current vs Irradiance



Switching Time Test Circuit



Op tek 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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