OPTEK

PIN Silicon Photodiode
Type OP910

*THIS DIMENSION
CONTROLLED AT HOUSING SURFACE.
DIMENSIONS ARE IN INCHES (MILLIMETERS).
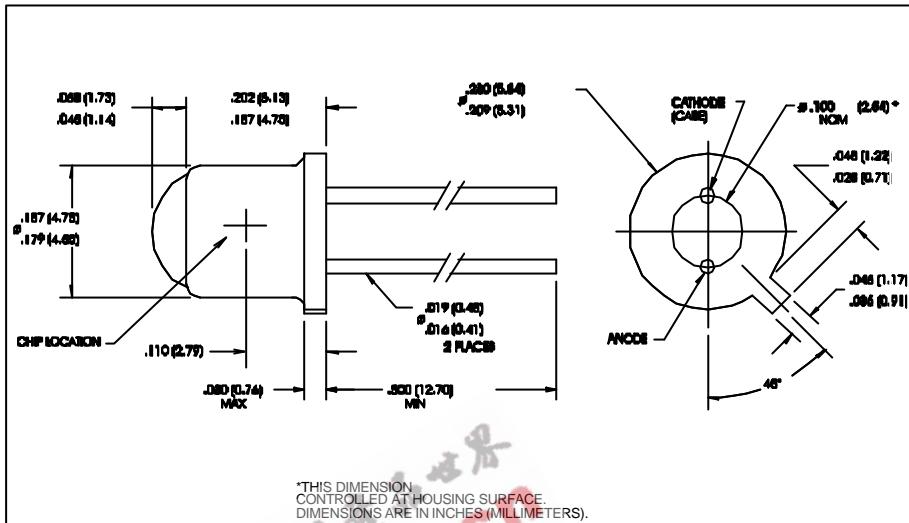
Features

- 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 ±12°.

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

Reverse Voltage . . . . 60 V
Storage Temperature Range . . . . -65° C to +150° C
Operating Temperature Range . . . . -65° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] . . . . 260° C[1]
Power Dissaipation . . . . 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 GaAIAs LED with a peak wave length 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 formual $I_D = 10^{(0.042 T_A t - 1.5)}$ where T_A is ambient temperature in ° C.
(5) Derate linearly 2.5 mw/° C above 25° C.

Typical Performance Curves

Typical Spectral Response

Wave length - nm
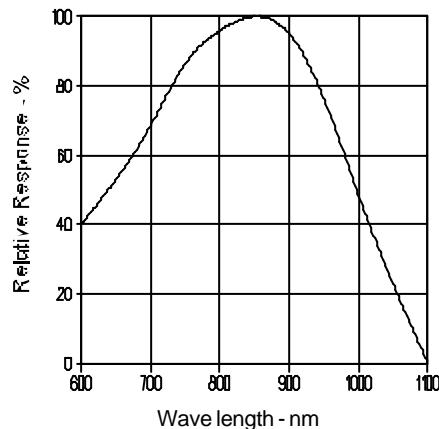
Type OP910

Electrical Characteristics ($T_A = 25^o$C un less oth er wise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_L	Light Current	10	13		μA	V_R = 20 V, E_e = .50 mW/cm^2 note 2,3
I_D	Dark Current		1	10	nA	V_R = 20 V, E_e = 0.0
$V_{(BR)R}$	Reverse Voltage Breakdown	100			V	I_R = 100 μA
t_r	Rise Time		10		nS	V_R = 20 V, R_L = 50 OHMS
t_f	Fall Time		10		nS	V_R = 20 V, R_L = 50 OHMS
$\varnothing$	Half Angle		+/- 12		degr.	I_F = Constant
C_P	Capacitance		13		pF	V_R = 0 V, F = 1 Mhz, E_e = 0

Typical Performance Curves

Normalized Light Current vs Reverse Voltage

$T_A = 25^o$ C
λ = 935 nm

V_R - Reverse Voltage - V

Total Capacitance vs Reverse Voltage

$T_A = 25^o$ C
E_e = 0 mW/cm^2
f = 1 MHz

V_R - Reverse Voltage - V

Normalized Light and Dark Current vs Ambient Temperature

V_R = 5 V
λ = 935 nm
Normalized to $T_A = 25^o$ C

Light Current

Dark Current

T_A - Ambient Temperature - ^{o}C

Light Current vs Irradiance

E_e - Irradiance - mW/cm^2
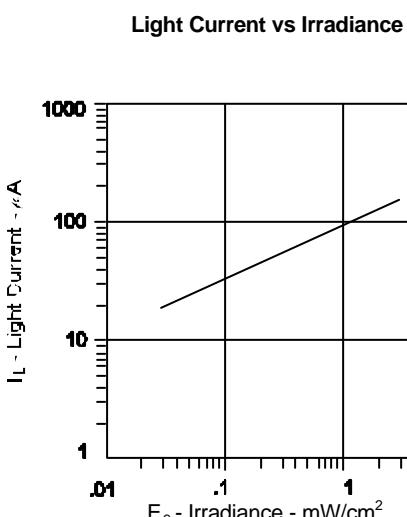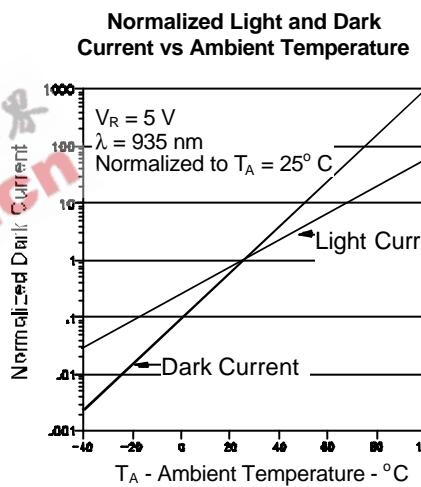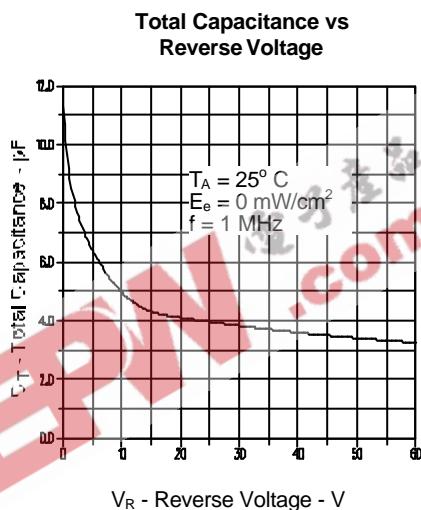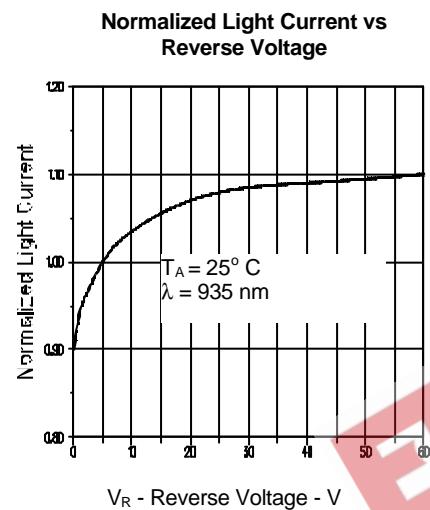
Switching Time Test Circuit

NOTE:
SEE ABOVE FOR
CONDITIONS.