

### FEATURES

- **ULTRA HIGH SPEED RESPONSE**  
 $t_r, t_f \approx 30$  ns
- **COINCIDENCE OF THE WAVELENGTH OF MAXIMUM SENSITIVITY WITH THAT OF AN INFRARED LED:**  $\lambda_{s,MAX} = 990$  nm
- **HIGH SENSITIVITY**  
 $5 \mu\text{A TYP @ } V_R = 5 \text{ V, } H = 0.1 \text{ mW/cm}^2$
- **WIDE DYNAMIC RANGE**

### DESCRIPTION

The PH310 is a photodiode with PIN structure. It has a wide photo-receiving area and high speed response enabling applications for various remote controlling equipment. The resin material used for the package has a filter effect to pass only infrared rays.

### ELECTRO-OPTICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

SYMBOLS	PARAMETERS	UNITS	PART NUMBER		
			PH310		
			MIN	TYP	MAX
I <sub>R</sub>	Dark Current, V <sub>R</sub> = 10 V	nA			10
$\lambda_{s,MAX}$	Wavelength of maximum sensitivity	nm		990	
$\eta$	Quantum yield (Electron per photon), $\lambda = 940$ nm			0.88	
S	Spectral sensitivity, V <sub>R</sub> = 5 V	nA/lx	25	32	
S <sub>IR</sub>	Spectral sensitivity, V <sub>R</sub> = 5 V, H = 0.1 mW/cm <sup>2</sup> *	$\mu\text{A}$	4.0	5.0	
t <sub>r</sub> , t <sub>f</sub>	Rise and fall time of the photocurrent from 10% to 90% and 90% to 10% of the final value, R <sub>L</sub> = 1 k $\Omega$ , V <sub>R</sub> = 0 V, $\lambda = 940$ nm	ns		120	
t <sub>r</sub> , t <sub>f</sub>	Rise and fall time of the photocurrent from 10% to 90% and 90% to 10% of the final value, R <sub>L</sub> = 1 k $\Omega$ , V <sub>R</sub> = 5 V, $\lambda = 940$ nm	ns		30	
C <sub>t</sub>	Capacitance, V <sub>R</sub> = 5 V, f = 1 MHz	pF		11	
A	Radiant sensitive area	mm <sup>2</sup>		5.3	

\*  $\lambda = 940$  nm

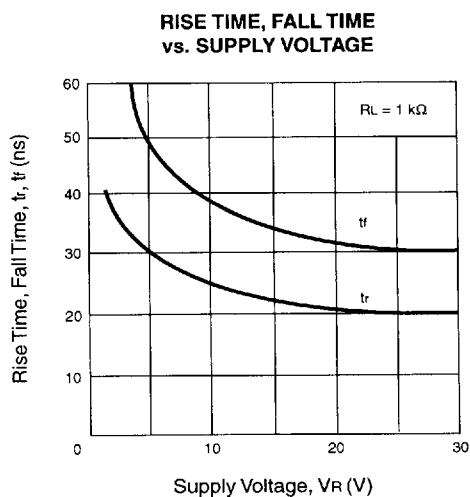
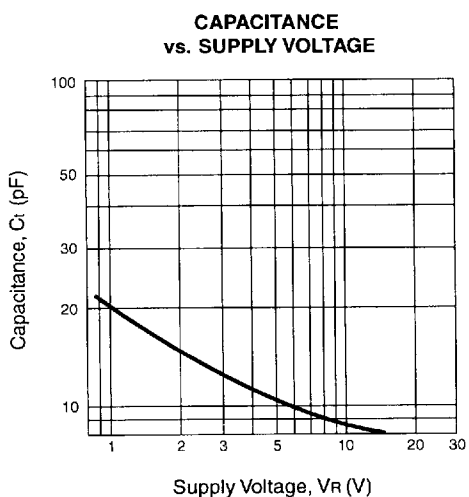
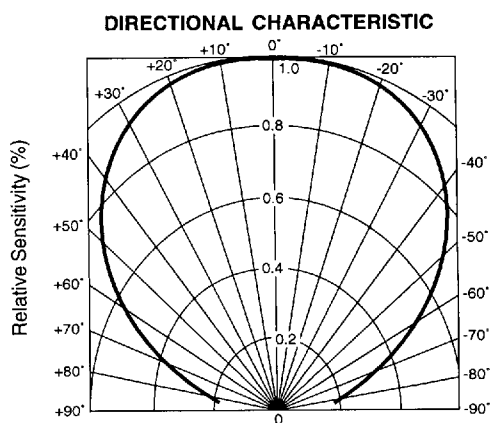
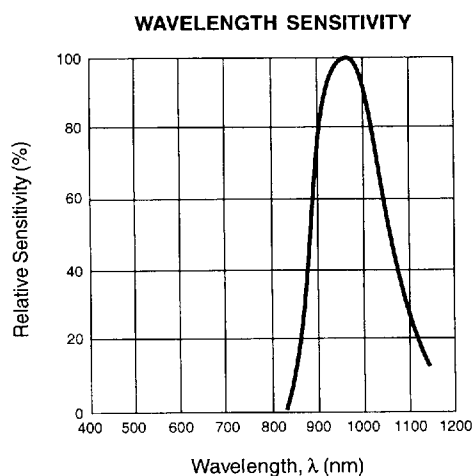
**ABSOLUTE MAXIMUM RATINGS<sup>1</sup>** (T<sub>A</sub> = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V <sub>R</sub>	Reverse Voltage	V	32
P <sub>D</sub>	Power Dissipation	mW	150
T <sub>OP</sub>	Operating Temperature	°C	-30 to +85
T <sub>STG</sub>	Storage Temperature	°C	-40 to +100

Note:

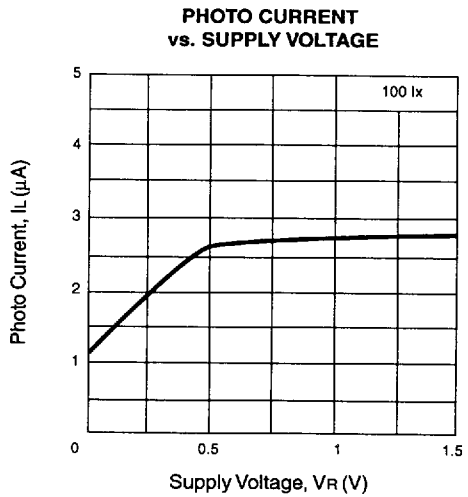
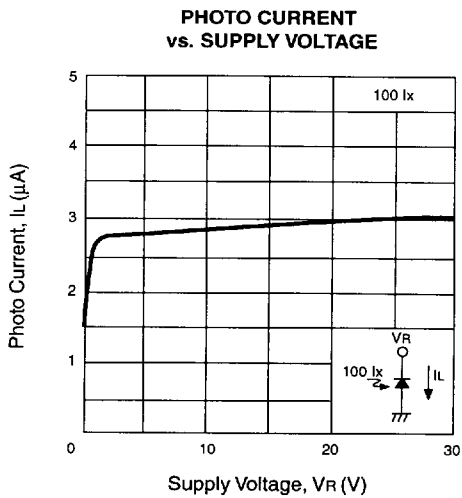
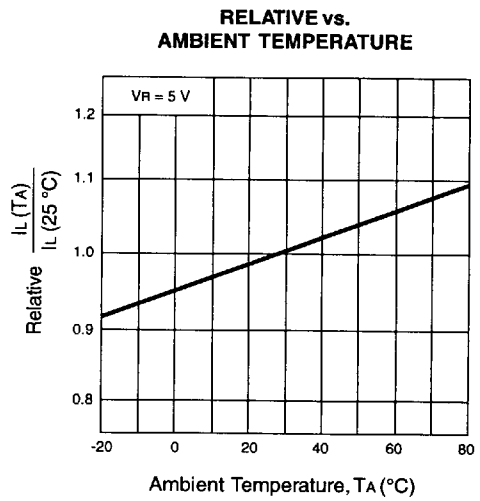
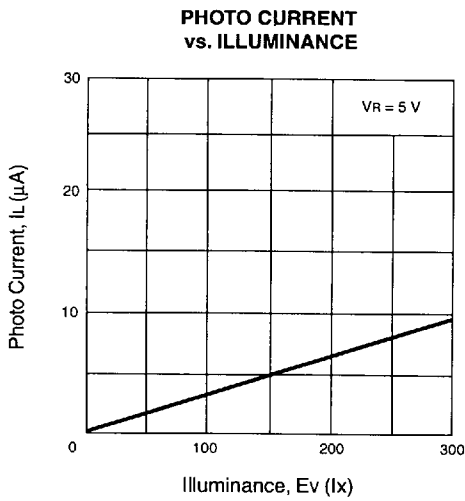
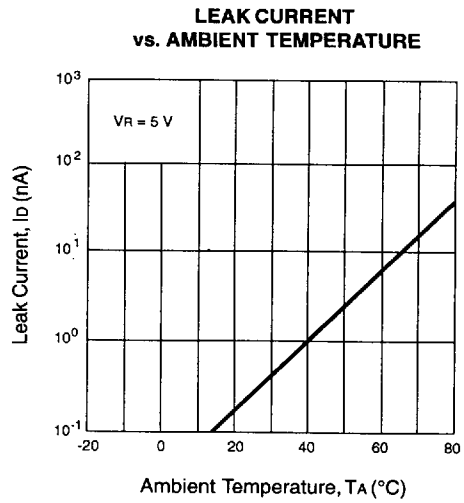
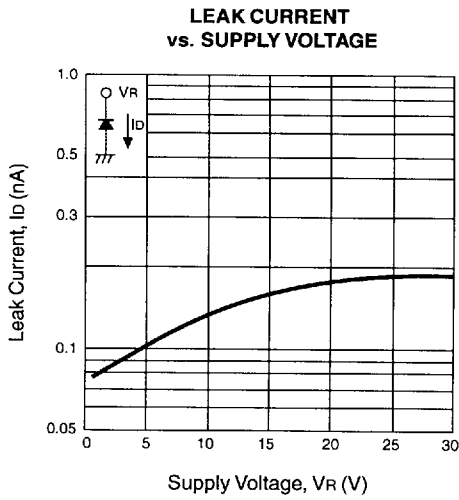
1. Operation in excess of any one of these parameters may result in permanent damage.

**TYPICAL PERFORMANCE CURVES** (T<sub>A</sub> = 25 °C)

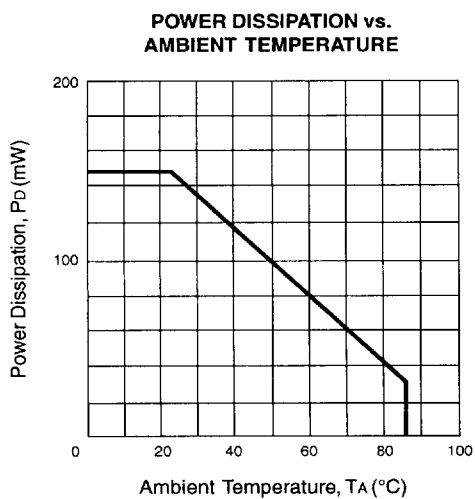


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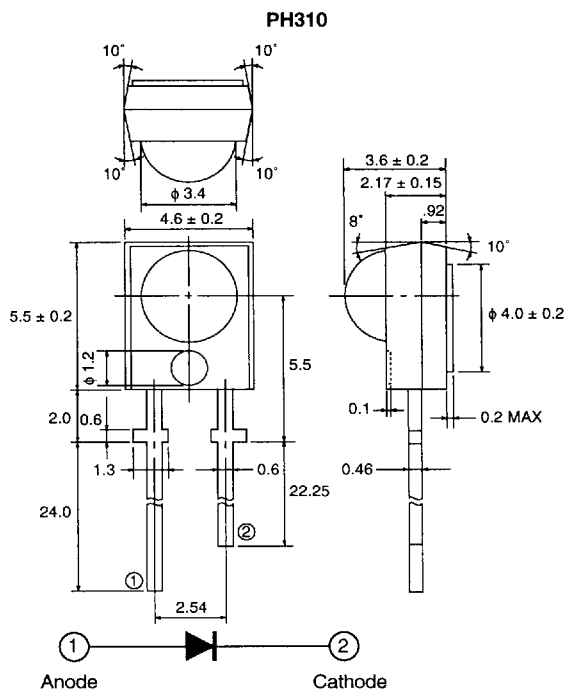
TYPICAL PERFORMANCE CURVES (TA = 25 °C)



**TYPICAL PERFORMANCE CURVES** ( $T_A = 25\text{ }^\circ\text{C}$ )



**OUTLINE DIMENSIONS** (Units in mm)



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