

FEATURES

- **ULTRA HIGH SPEED RESPONSE**
 $t_r, t_f = 50 \text{ ns TYP}$
- **COINCIDENCE OF THE WAVELENGTH OF MAXIMUM SENSITIVITY WITH THAT OF AN INFRARED LED: $\lambda_{MAX} = 940 \text{ nm TYP}$**
- **HIGH SENSITIVITY**
 $I_L = 5 \mu\text{A TYP @ } V_R = 5 \text{ V, } H = 0.1 \text{ mW/cm}^2$
- **WIDE DYNAMIC RANGE**

DESCRIPTION

The PH302 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.

APPLICATIONS

- **PHOTOSENSOR FOR TV REMOTE CONTROL**

ELECTRO-OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

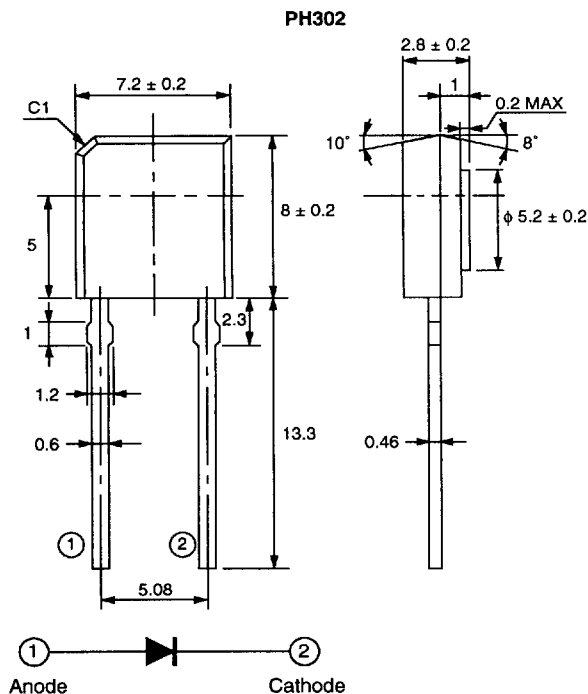
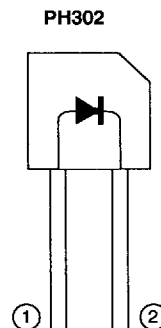
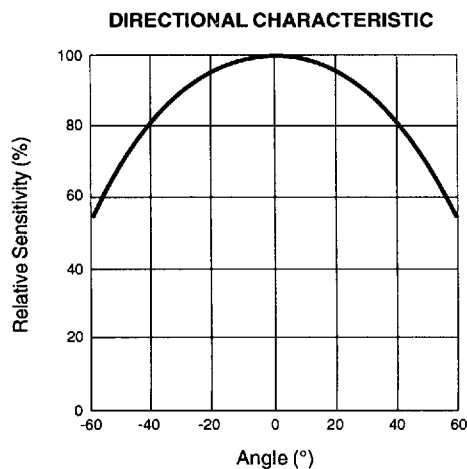
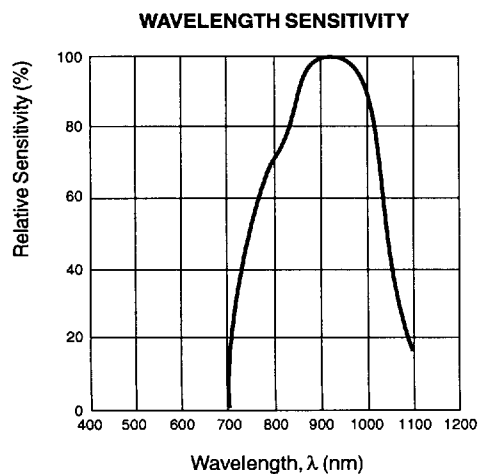
PART NUMBER			PH302		
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
I_R	Dark Current, $V_R = 10 \text{ V}$	nA			30
$\lambda_{S\text{MAX}}$	Wavelength of maximum sensitivity	nm		940	
η	Quantum yield (Electron per photon), $\lambda = 940 \text{ nm}$			0.88	
S_{IR}	Spectral sensitivity, $V_R = 5 \text{ V}$	nA/lx	35	50	
S	Spectral sensitivity, $\lambda = 940 \text{ nm}$	A/W		0.6	
V_L	Open circuit voltage, $E_v = 100 \text{ lx}$	mV		285	
V_L	Open circuit voltage, $E_v = 1000 \text{ lx}$	mV		365	
t_r, t_f	Rise Time, Fall Time, $R_L = 1 \text{ k}\Omega$, $V_R = 0 \text{ V}$, $\lambda = 940 \text{ nm}$	ns		125	
t_r, t_f	Rise Time, Fall Time, $R_L = 1 \text{ k}\Omega$, $V_R = 5 \text{ V}$, $\lambda = 940 \text{ nm}$	ns		50	
C_t	Capacitance, $V_R = 5 \text{ V}$, $f = 1 \text{ MHz}$	pF		14	
A	Radiant sensitive area	mm^2		9	

ABSOLUTE MAXIMUM RATINGS¹ ($T_A = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V_R	Reverse Voltage	V	32
P_D	Power Dissipation	mW	150
T_{STG}	Storage Temperature	$^\circ\text{C}$	-40 to +80

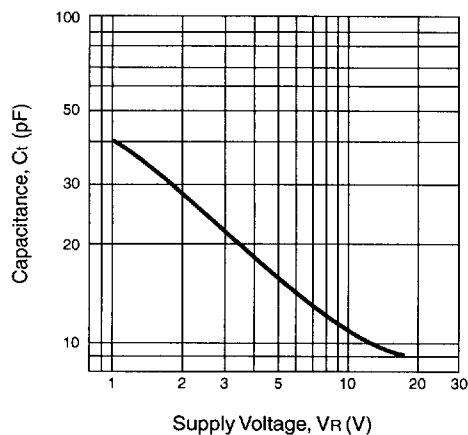
Note:

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

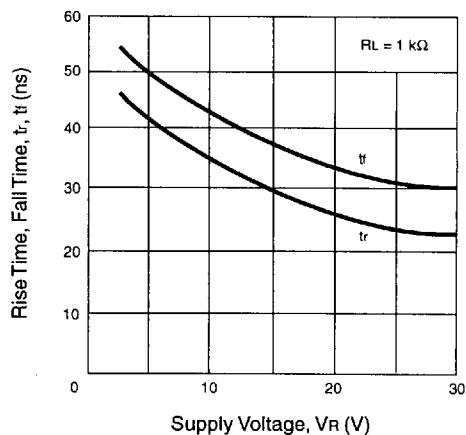
OUTLINE DIMENSIONS (Units in mm)**CONNECTION DIAGRAM****TYPICAL PERFORMANCE CURVES** ($T_A = 25^\circ\text{C}$)

TYPICAL PERFORMANCE CURVES (TA = 25 °C)

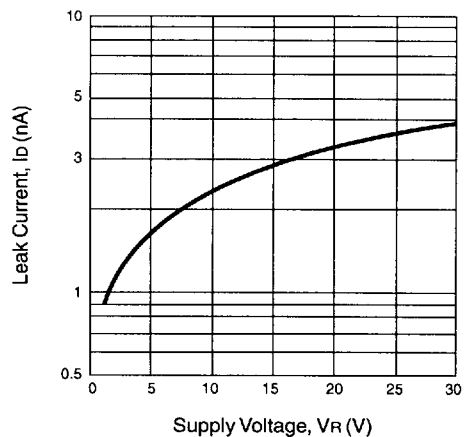
**CAPACITANCE
vs. SUPPLY VOLTAGE**



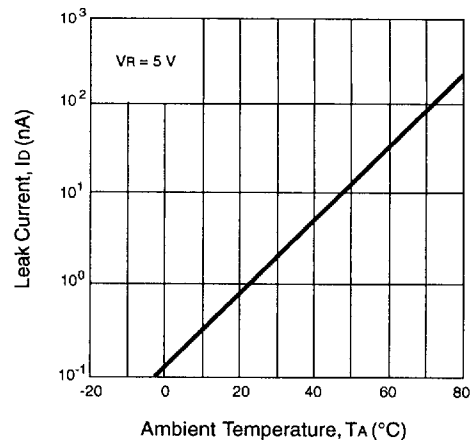
**RISE TIME, FALL TIME
vs. SUPPLY VOLTAGE**



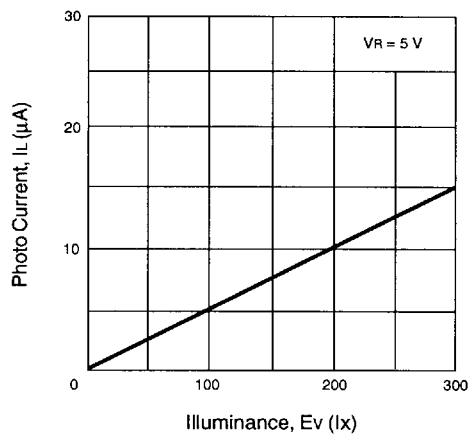
**LEAK CURRENT
vs. SUPPLY VOLTAGE**



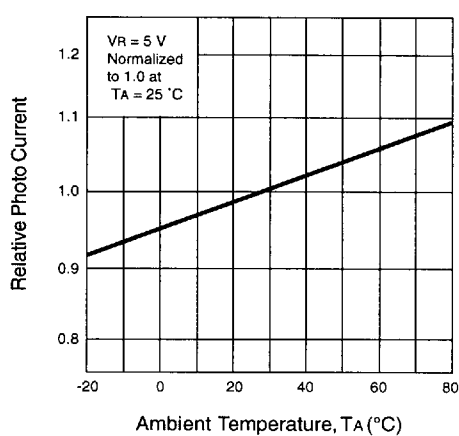
**LEAK CURRENT
vs. AMBIENT TEMPERATURE**



**PHOTO CURRENT
vs. ILLUMINANCE**

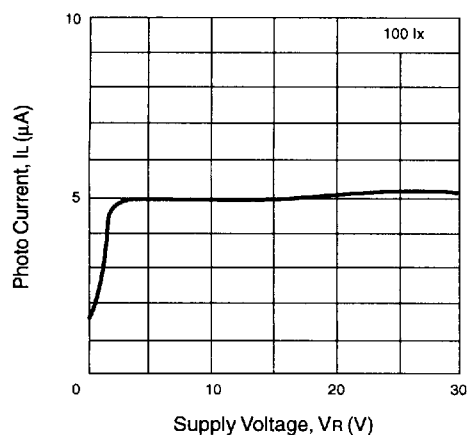


**RELATIVE PHOTO CURRENT
vs. AMBIENT TEMPERATURE**

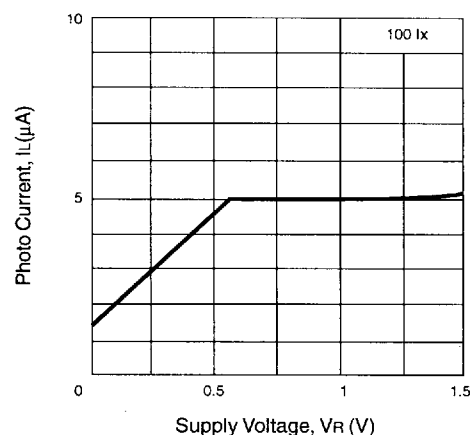


TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)

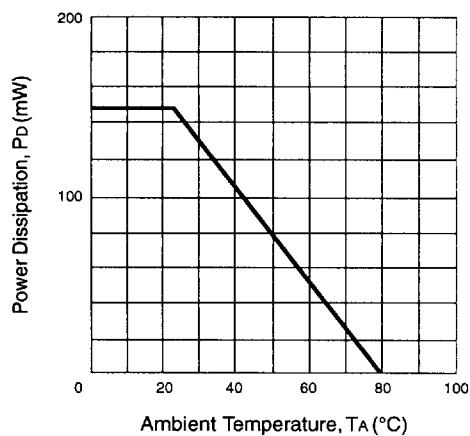
**PHOTO CURRENT
vs. SUPPLY VOLTAGE**



**PHOTO CURRENT
vs. SUPPLY VOLTAGE**



**POWER DISSIPATION vs.
AMBIENT TEMPERATURE**



**PHOTO CURRENT
vs. ILLUMINANCE**

