

FEATURES

- **ULTRA HIGH SPEED RESPONSE**
tr, tf = 50 ns TYP
- **COINCIDENCE OF THE WAVELENGTH OF MAXIMUM SENSITIVITY WITH THAT OF AN INFRARED LED: $\lambda_{MAX} = 940$ nm TYP**
- **HIGH SENSITIVITY**
IL = 5 μ A TYP @ VR = 5 V, H = 0.1 mW/cm²
- **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 (TA = 25°C)

PART NUMBER			PH302		
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
IR	Dark Current, VR = 10 V	nA			30
λ_{SMAX}	Wavelength of maximum sensitivity	nm		940	
η	Quantum yield (Electron per photon), $\lambda = 940$ nm			0.88	
SIR	Spectral sensitivity, VR = 5 V	nA/lx	35	50	
S	Spectral sensitivity, $\lambda = 940$ nm	A/W		0.6	
VL	Open circuit voltage, Ev = 100 lx	mV		285	
VL	Open circuit voltage, Ev = 1000 lx	mV		365	
tr, tf	Rise Time, Fall Time, RL = 1 k Ω , VR = 0 V, $\lambda = 940$ nm	ns		125	
tr, tf	Rise Time, Fall Time, RL = 1 k Ω , VR = 5 V, $\lambda = 940$ nm	ns		50	
Ct	Capacitance, VR = 5 V, f = 1 MHz	pF		14	
A	Radiant sensitive area	mm ²		9	

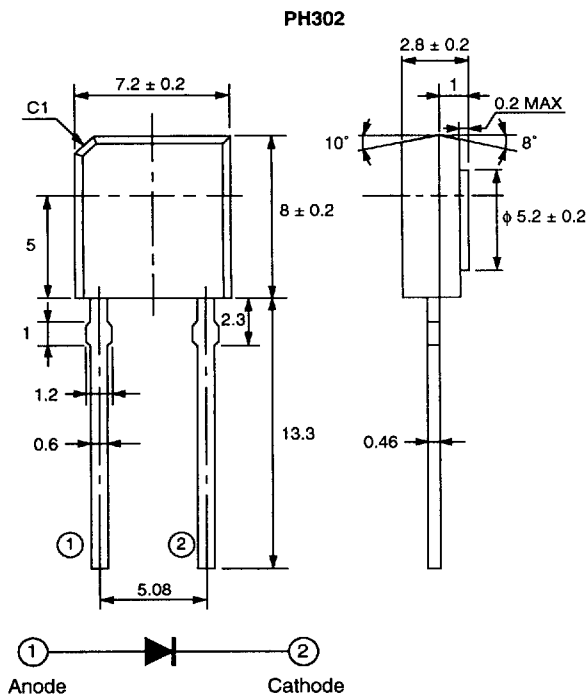
ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _R	Reverse Voltage	V	32
P _D	Power Dissipation	mW	150
T _{STG}	Storage Temperature	°C	-40 to +80

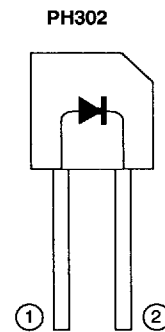
Note:

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

OUTLINE DIMENSIONS (Units in mm)

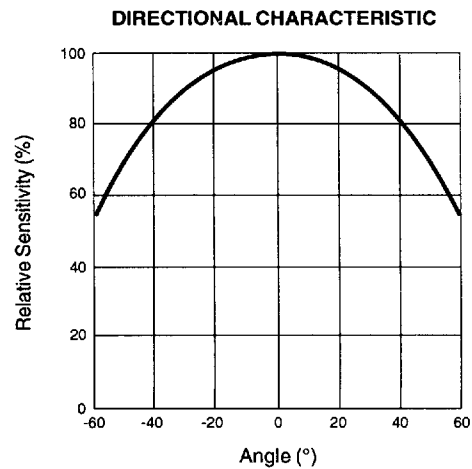
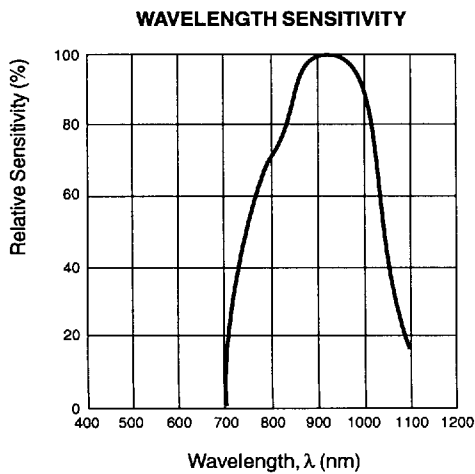


CONNECTION DIAGRAM



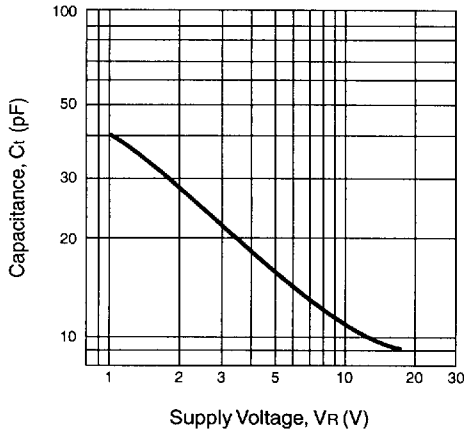
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TYPICAL PERFORMANCE CURVES (T_A = 25 °C)

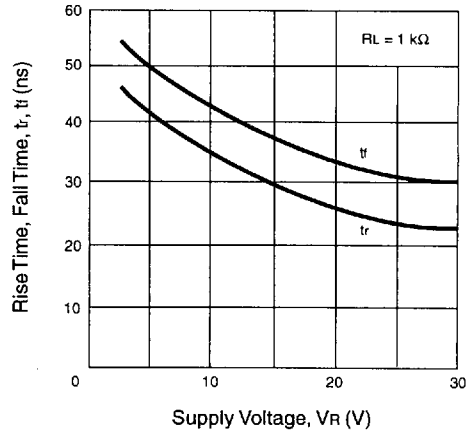


TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)

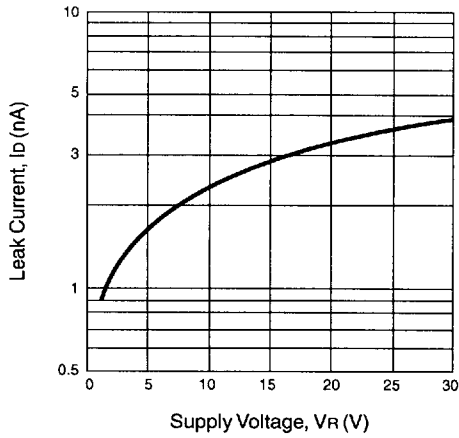
CAPACITANCE vs. SUPPLY VOLTAGE



RISE TIME, FALL TIME vs. SUPPLY VOLTAGE



LEAK CURRENT vs. SUPPLY VOLTAGE



LEAK CURRENT vs. AMBIENT TEMPERATURE

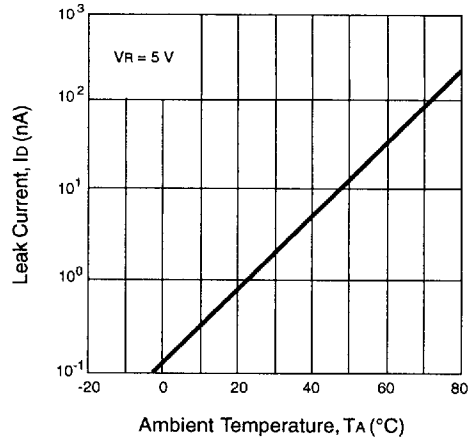
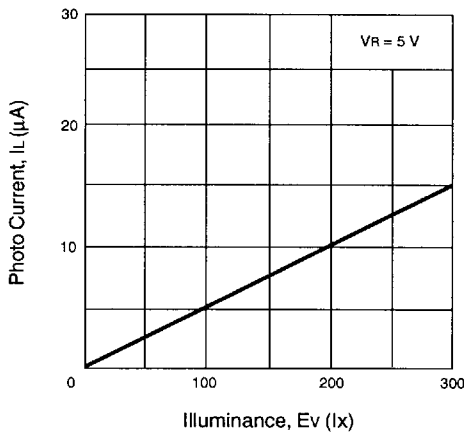
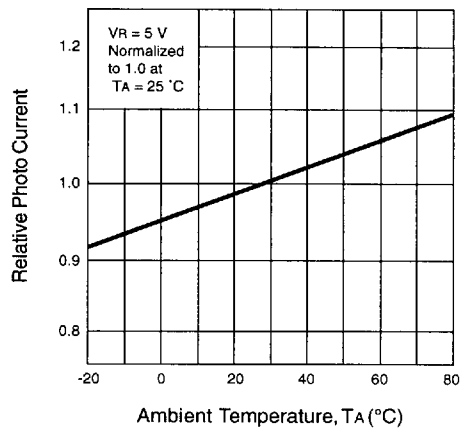


PHOTO CURRENT vs. ILLUMINANCE



RELATIVE PHOTO CURRENT vs. AMBIENT TEMPERATURE



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

PHOTO CURRENT vs. SUPPLY VOLTAGE

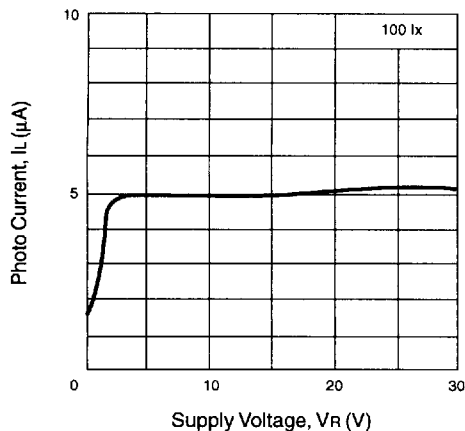
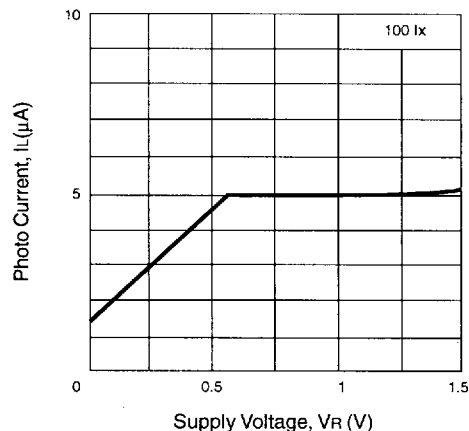


PHOTO CURRENT vs. SUPPLY VOLTAGE



POWER DISSIPATION vs. AMBIENT TEMPERATURE

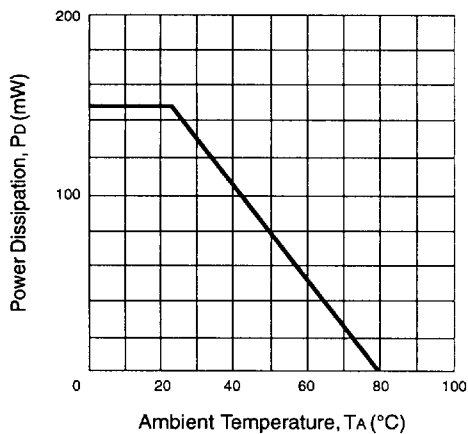
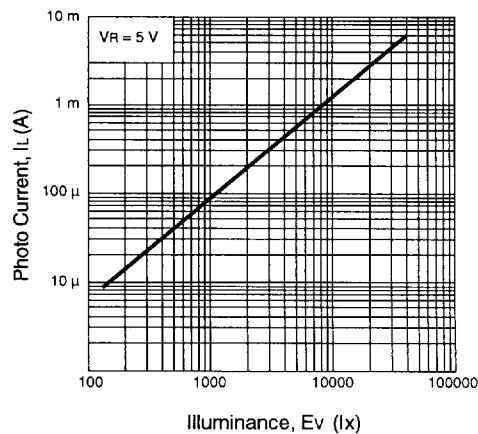


PHOTO CURRENT vs. ILLUMINANCE



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