PH302
PLASTIC MOLDED PIN PHOTO DIODE

NEPOC SERIES

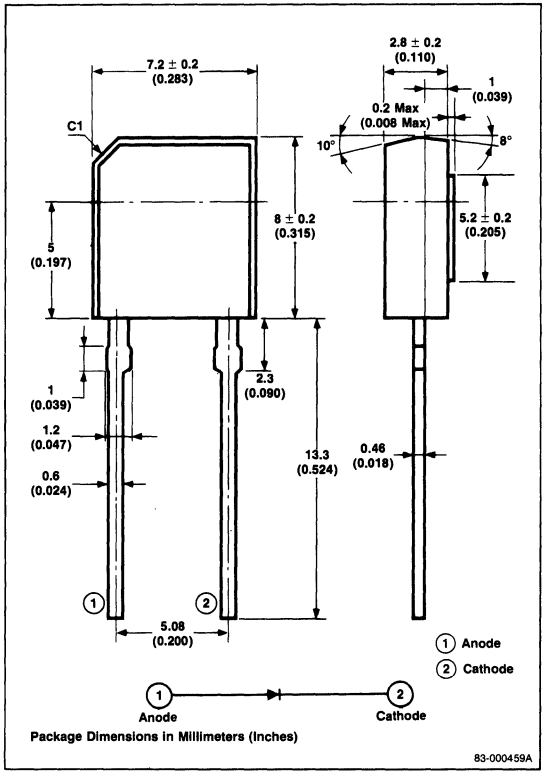
Description

The PH302 is a photo diode with a PIN structure. It has a wide photo-receiving area and high-speed response enabling applications for various types of remote control equipment. The resin material used for the package has the filter effect of transmitting only infrared.

Features

- ☐ Ultrahigh-speed response (t_r, t_f = 50ns)
- ☐ The wavelength of maximum sensitivity matches that of an infrared LED ($\lambda_{S\text{-}MAX}$ = 940nm)
- ☐ High sensitivity (50nA/lx)
- ☐ Wide dynamic range

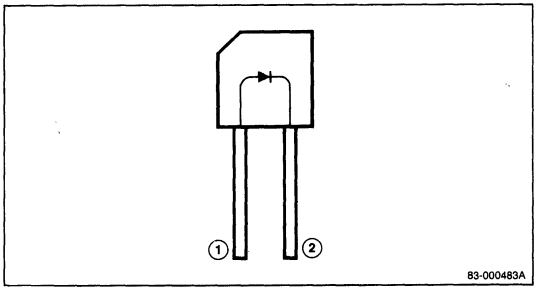
Package Dimensions



Package Dimensions in Millimeters (Inches)

83-000459A

Pin Connection



83-000483A

Absolute Maximum Ratings

T_A = +25°C

Reverse Voltage, V_R	32V
Power Dissipation, P_D	150mW
Junction Temperature, T_J	80°C
Storage Temperature, T_{STG}	−40°C to +80°C

Electrical Characteristics

T_A = +25°C

Parameters	Symbol	Limits Min	Typ	Max	Unit	Test Conditions
Dark Current	I_R			30	nA	V_R = 10V
Maximum Sensitivity Wavelength	λ_{MAX}		940		nm	
Quantum Efficiency	η		0.88			λ = 940nm
Spectral Sensitivity	S	35	50		nA/lx	V_R = 5V
Spectral Sensitivity	S		0.6		A/W	λ = 940nm
Open Circuit Voltage	V_L		285		mV	E_V = 100lx
Open Circuit Voltage	V_L		365		mV	E_V = 1000lx
Rise and Fall Time of the Photo Current from 10% to 90% and 90% to 10% of the Final Value	t_r, t_f		125		ns	R_L = 1kΩ, V_R = 0V, λ = 940nm
	t_r, t_f		50		ns	R_L = 1kΩ, V_R = 5V, λ = 940nm
Capacitance	C_T		14		pF	V_R = 5V, f = 1MHz
Radiant Sensitive Area	A		9		mm^2	
Noise Equivalent Power	NEP		4.2×10^{-14}		W/$\sqrt{Hz}$	V_R = 10V
Detection Limit	D		6.6×10^{12}		cm $\sqrt{Hz}$/W	

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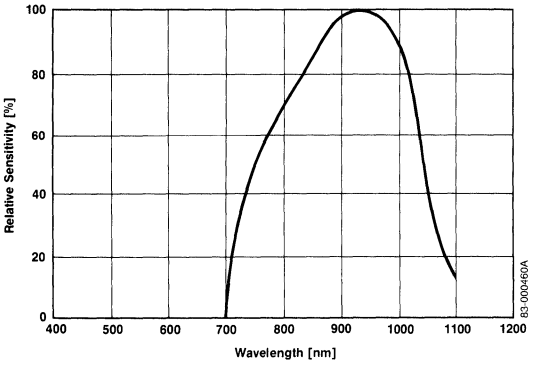
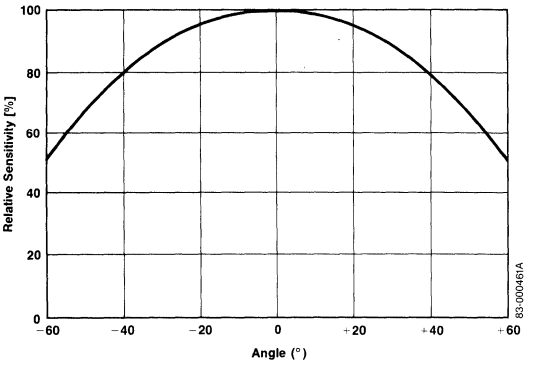
Typical Characteristics

T_A = +25°C

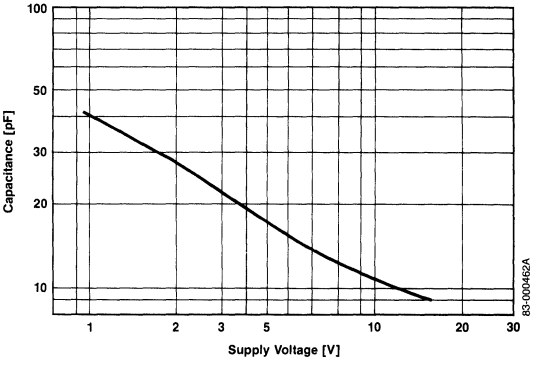
Wavelength Sensitivity



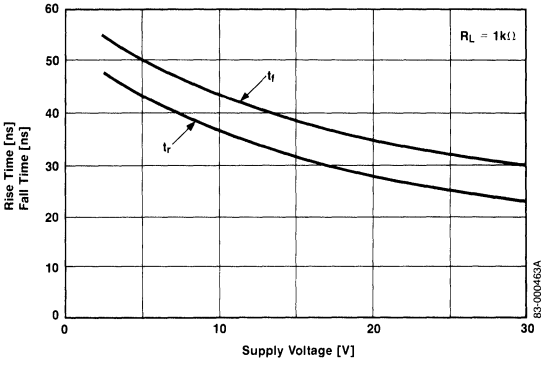
Directional Characteristic



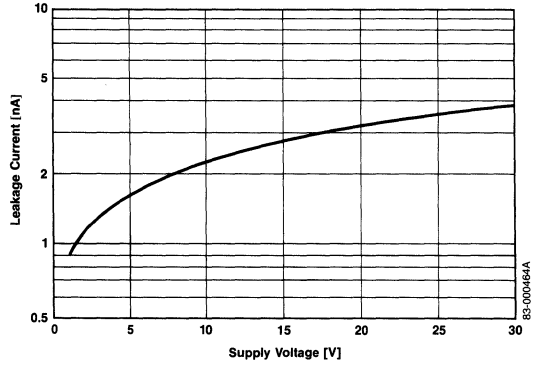
Capacitance vs Supply Voltage



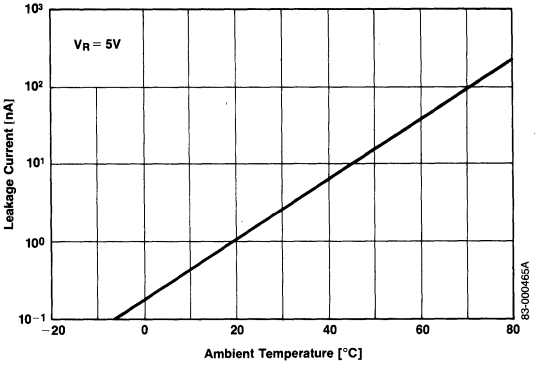
Rise Time/Fall Time vs Supply Voltage



Leakage Current vs Supply Voltage



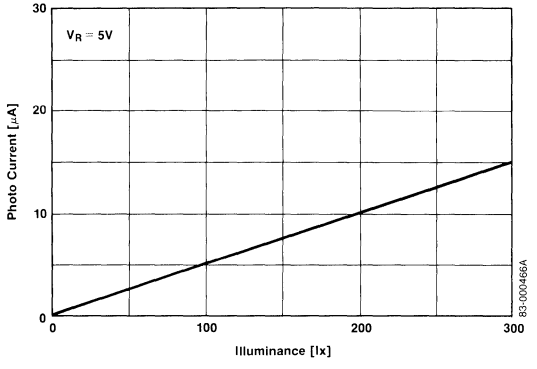
Leakage Current vs Ambient Temperature



Typical Characteristics (cont)

T_A = +25°C

Photo Current vs Illuminance



Relative vs Ambient Temperature

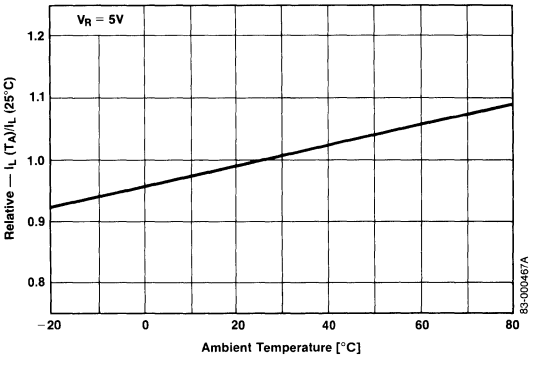


Photo Current vs Supply Voltage

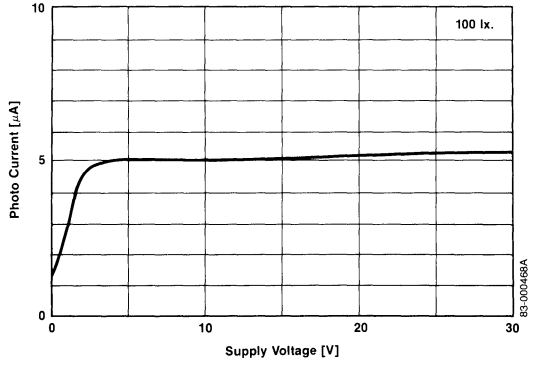
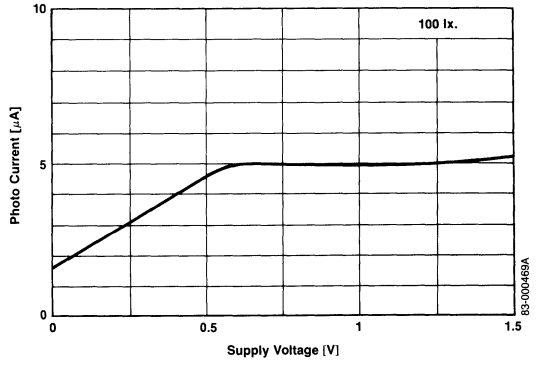
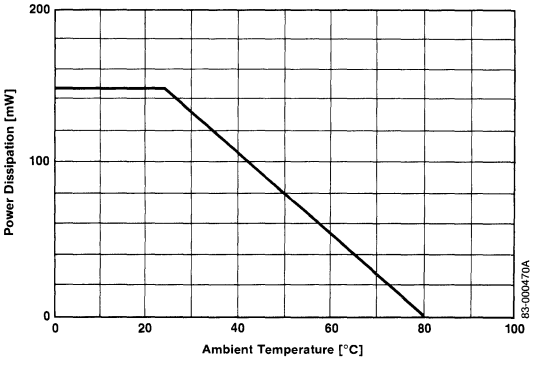


Photo Current vs Supply Voltage



Power Dissipation vs Ambient Temperature



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