

# PNZ331F

## PIN Photodiode

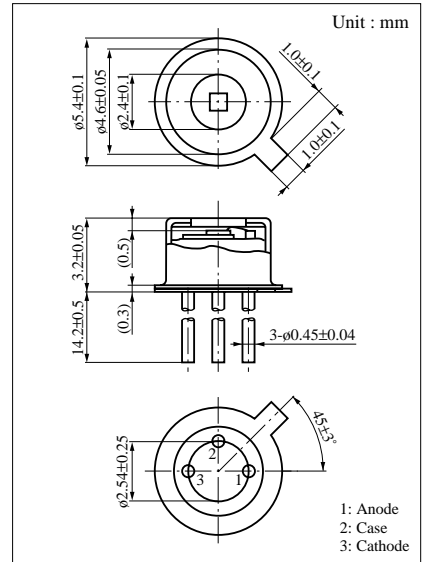
For optical fiber communication systems

### ■ Features

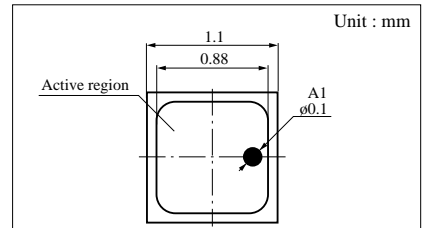
- Metal package with shield pin
- High coupling capability suitable for plastic fiber and glass fiber
- High quantum efficiency
- High-speed response

### ■ Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Reverse voltage (DC)	$V_R$	30	V
Power dissipation	$P_D$	50	mW
Operating ambient temperature	$T_{opr}$	-25 to +100	°C
Storage temperature	$T_{stg}$	-40 to +100	°C



### ■ Dimensions of detection area



### ■ Electro-Optical Characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Dark current	$I_D$	$V_R = 10V$		0.1	10	nA
Photo current	$I_L$	$V_R = 10V, L = 1000 \text{ lx}^*1$	4	7		$\mu A$
Peak sensitivity wavelength	$\lambda_p$	$V_R = 10V$		900		nm
Frequency characteristics	$f_c^{*2}$	$V_R = 10V, R_L = 50\Omega$		50		MHz
Capacitance between pins	$C_t$	$V_R = 10V$		3		pF
Photodetection sensitivity	R	$V_R = 10V, \lambda = 800\text{nm}$	0.45	0.55		A/W
Acceptance half angle	$\theta$	Measured from the optical axis to the half power point		40		deg.
Photodetection surface shape	D	Effective photodetection area		□0.88		mm

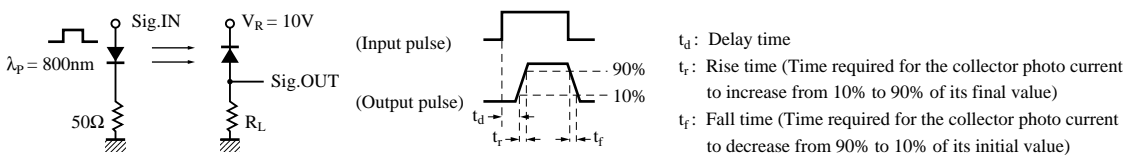
Note 1) Spectral sensitivity : Sensitivity at wavelengths exceeding 400 nm as a percentage, is 100% to maximum sensitivity.

Note 2) This product is not designed to withstand electromagnetic radiation or heavy-charge particles.

Note 3) The glass strength of this product cannot withstand loads of 0.5 kg or greater. This fact needs to be taken into consideration if optical fibers are to be mounted on the product.

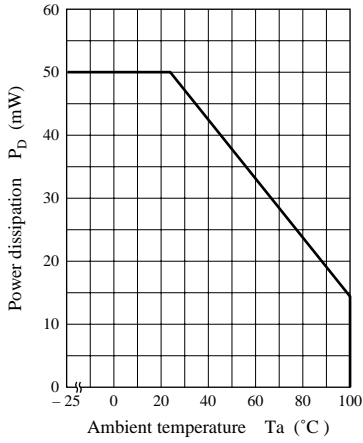
\*1 Measurements were made using a tungsten lamp (color temperature T = 2856K) as a light source.

\*2 Switching time measurement circuit (see figure below) Note : Detection photo current -3 dB

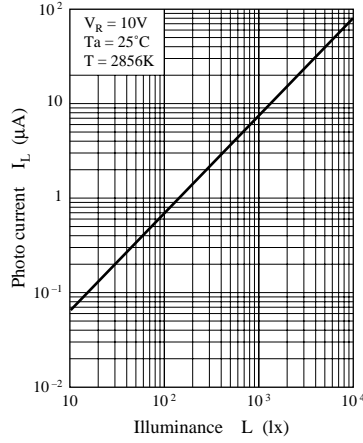


$t_d$  : Delay time  
 $t_r$  : Rise time (Time required for the collector photo current to increase from 10% to 90% of its final value)  
 $t_f$  : Fall time (Time required for the collector photo current to decrease from 90% to 10% of its initial value)

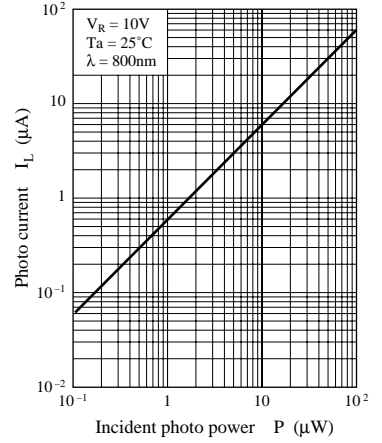
$P_D - T_a$



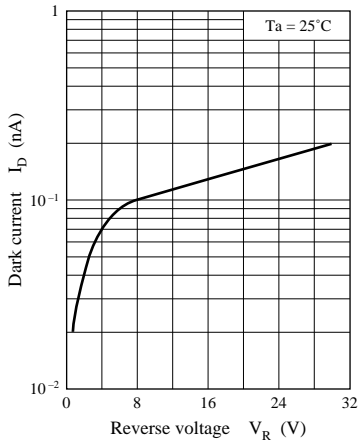
$I_L - L$



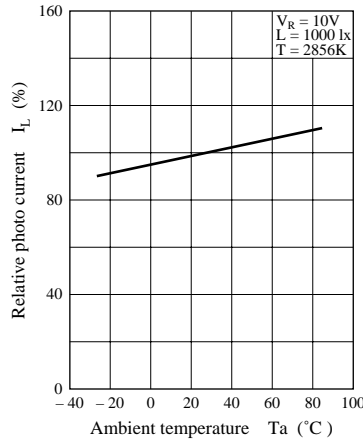
$I_L - P$



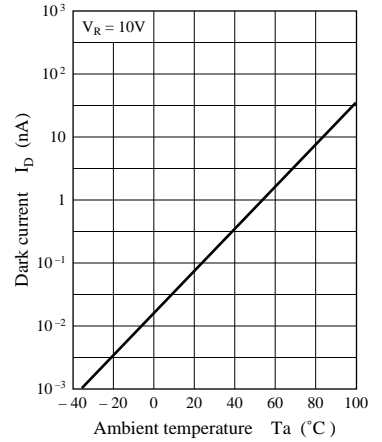
$I_D - V_R$



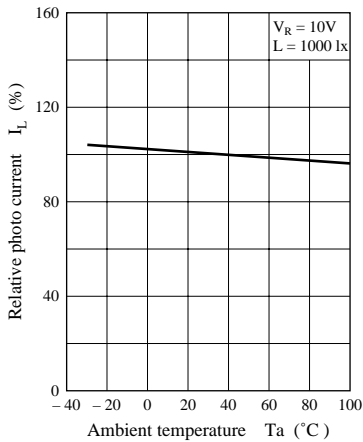
$I_L - T_a$



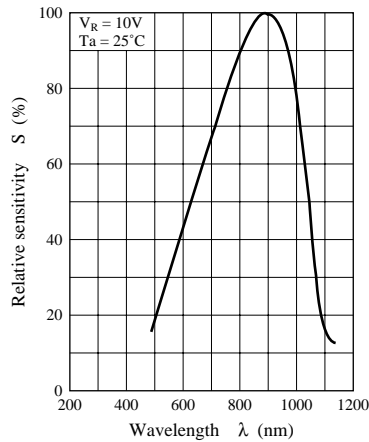
$I_D - T_a$



$I_L - T_a$



Spectral sensitivity characteristics



Frequency characteristics

