# PN3107

## PIN Photodiode

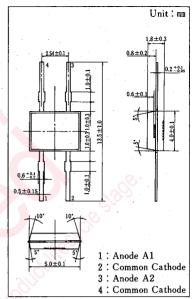
### For Optical Control Systems

#### **■** Features

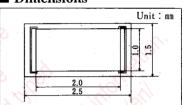
- High sensitivity, low dark current
- One dimentional position sensitive photodetector
- High linearity of position sensing
- Small package (Flat type)
- Using plastic to cut-off visible light

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

Item	Symbol	Value	Unit		
Reverse Voltage (DC)	V <sub>R</sub>	30	V		
Power Dissipation	$P_{\mathbf{D}}$	30	mW		
Operating Ambient Temperature	Topr	-25~+85	° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °		
Storage Temperature	T <sub>stg</sub>	-30~+100	. °C		



#### ■ Dimensions



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

Item	Symbol	Condition	min.	typ.	max.	Unit
Reverse Voltage (DC)	V <sub>R</sub>	$I_R = 10 \mu\text{A}$	30	95		V
Dark Current	ID	V <sub>R</sub> =1V	(S)		2	nA :
Photo Current	I <sub>L</sub> *1	$V_R = 1V, L = 1000 lx$	8	13		μA
		$V_R = 1V, \lambda = 900 \text{nm}, E = 1 \text{mW/cm}^2$		10	·	μA
Peak Sensitivity Wavelength	λ <sub>P</sub>	$V_R = 1V$		940		nm
Response Time	t <sub>r</sub> , t <sub>f</sub> *2	$V_R = 1V$ , $R_L = 1k\Omega$		5		μs
Capacitance between Terminals	· C <sub>t</sub>	$V_R = 1V$ , $f = 1MHz$		10		pF
Resistance between Electrodes	Rs*3	$V_R = 1V, V_a = 0.5V$		120		kΩ
Gradient of Position Sensing Signal	a*4	$V_R = 1V$		0.100		

<sup>\*1</sup>  $I_L = I_1 + I_2$ 

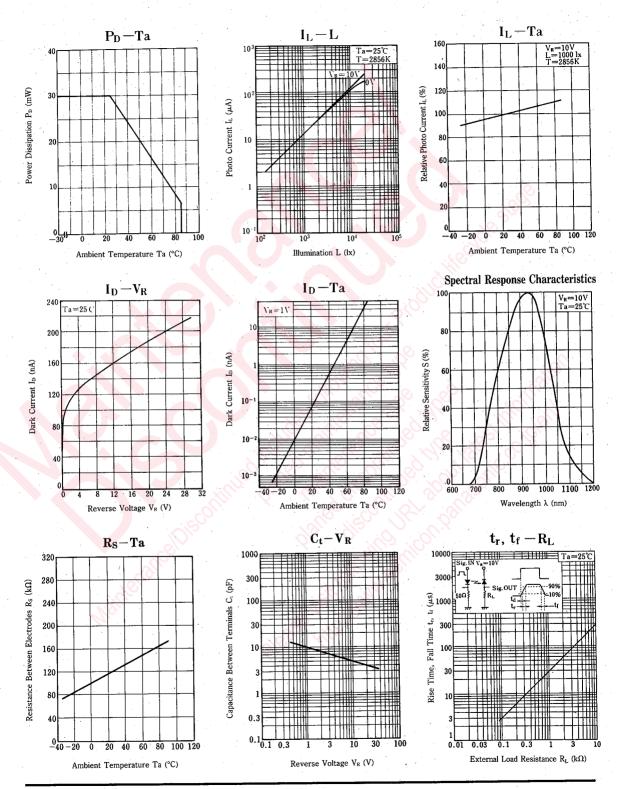
Photo Current of Anode A1, A2 Source: Tungsten 2856K

The Incident Light is illuminaed at  $100\mu m$  distance from the standard position where  $I_1 = I_2$ .

<sup>\*2</sup> Source: GaAs LED (λ=800 nm)

<sup>&</sup>lt;sup>3</sup> Va: Applied Voltage between A1 and A2

<sup>\*4</sup>  $a = |(I_1 - I_2)/(I_1 + I_2)|$ 



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