

# PD49PI/PD481PI

## High Speed, High Sensitivity Photodiode

### ■ Features

1. High sensitivity  
( $I_{sc} >= 3.5 \mu A$  at  $E_v = 100lx$ : **PD481PI**)
2. Peak sensitivity wavelength matching with infrared LED  
( $\lambda_p = 960nm$ : **PD481PI**)  
( $\lambda_p = 1000nm$ : **PD49PI**)
3. Built-in visible light cut-off filter

### ■ Applications

1. Infrared remote controllers for TVs, VCRs, audio equipment and air conditioners, etc.

### ■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Reverse voltage	$V_R$	32	V
Power dissipation	P	150	mW
Operating temperature	$T_{opr}$	-25 to +85	°C
Storage temperature	$T_{stg}$	-40 to +100	°C
*1 Soldering temperature	$T_{sol}$	260	°C

\*For 10 seconds at the position of 2.3mm from the bottom face of resin package

### ■ Electro-optical Characteristics

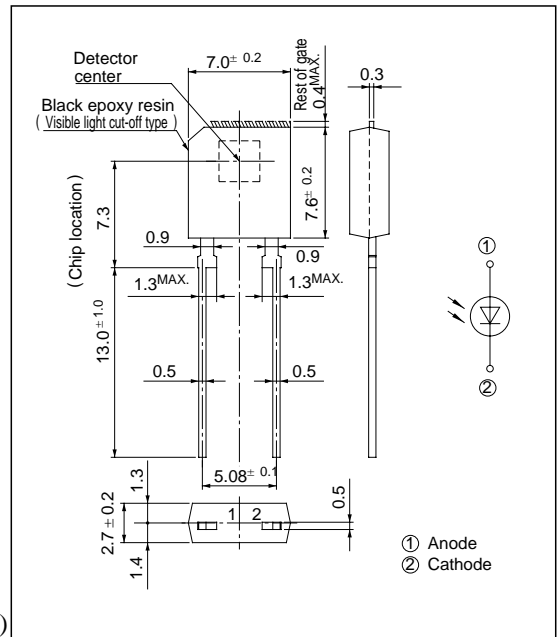
(Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Short circuit current	<b>PD49PI</b>	$I_{sc}$ $E_v = 100lx$	2.4	3	-	$\mu A$
	<b>PD481PI</b>		3.5	5	-	
*2 Short circuit current temperature coefficient	$\beta_T$	$E_v = 100lx$	-	0.2	-	%/°C
Dark current	$I_d$	$V_R = 10V$	-	1	30	nA
Dark current temperature coefficient	$\alpha_T$	$V_R = 10V$	-	3.5	5	times/10°C
Terminal capacitance	$C_t$	$V_R = 3V, f = 1MHz$	-	20	50	pF
Peak sensitivity wavelength	<b>PD49PI</b>	$\lambda_p$	-	1 000	-	nm
	<b>PD481PI</b>		910	960	1 010	

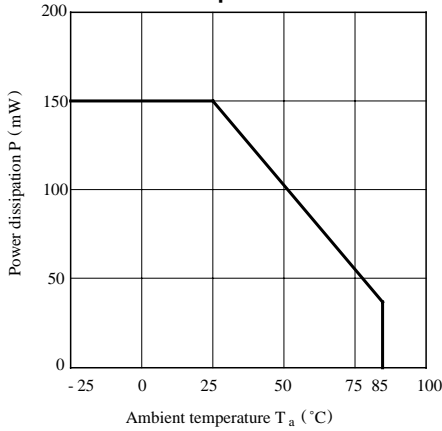
\*2  $E_v$ : Illuminance by CIE standard light source A (tungsten lamp)

### ■ Outline Dimensions

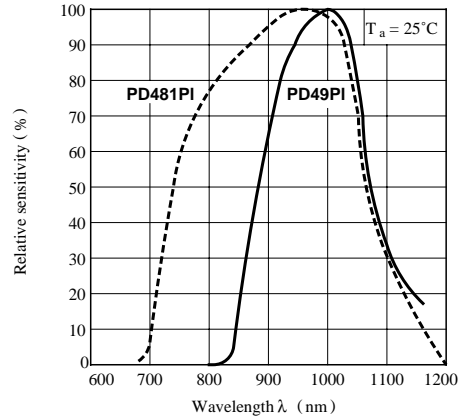
(Unit : mm)



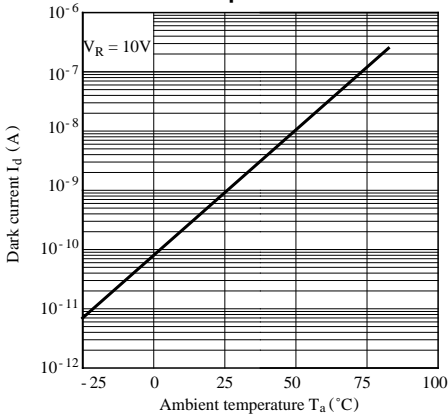
**Fig. 1 Power Dissipation vs. Ambient Temperature**



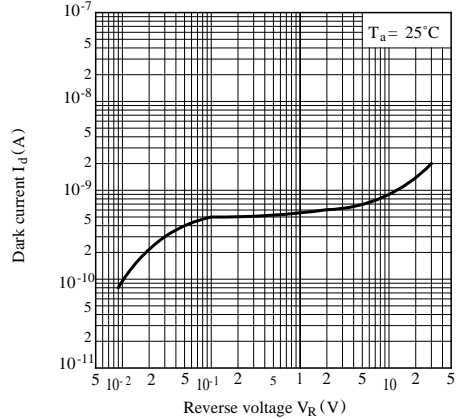
**Fig. 2 Spectral Sensitivity**



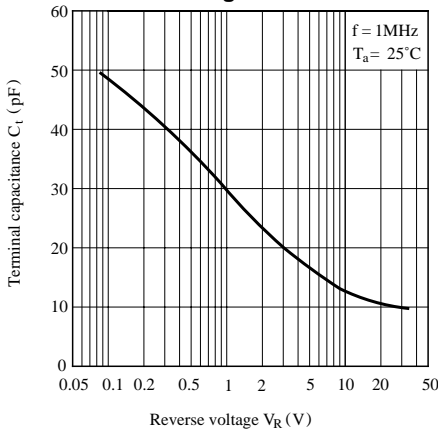
**Fig. 3 Dark Current vs. Ambient Temperature**



**Fig. 4 Dark Current vs. Reverse Voltage**



**Fig. 5 Terminal Capacitance vs. Reverse Voltage**



**Fig. 6 Relative Output vs. Ambient Temperature**  
(Emitter : GL537/GL538, Detector : PD49PI/PD481PI)

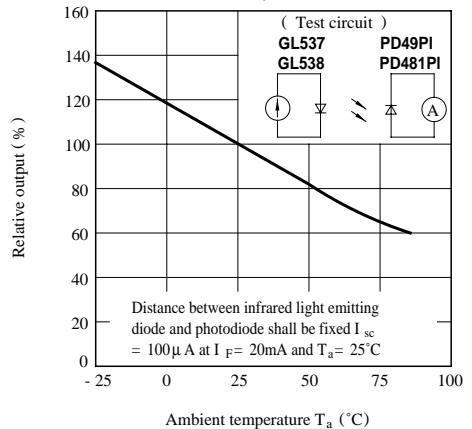


Fig. 7 Sensitivity Diagram ( $T_a = 25^\circ\text{C}$ )

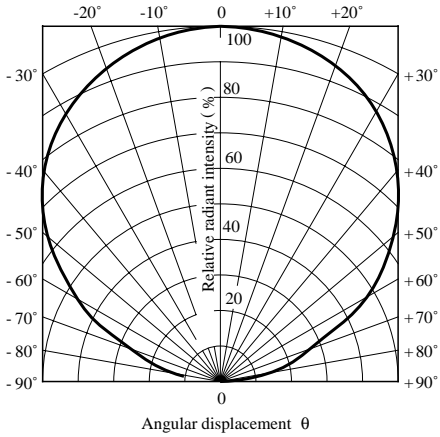


Fig. 8 Relative Output vs. Distance  
(Emitter:GL537/GL538  
Detector : PD49PI/ PD481PI)

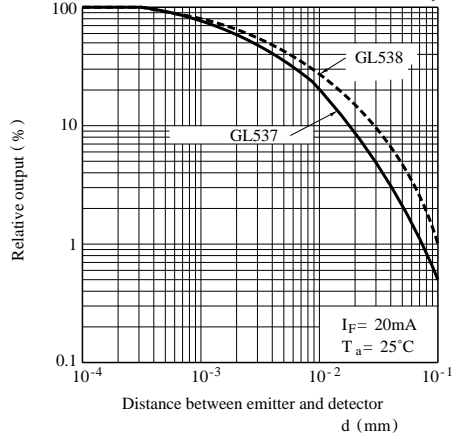
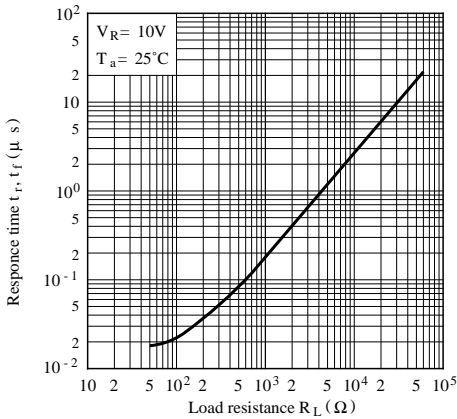
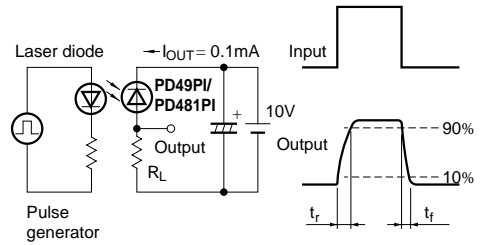


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time



● Please refer to the chapter “Precautions for Use.”

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    - Traffic signals
    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.
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