**SHARP** 

## PD49PI/PD481PI

# High Speed, High Sensitivity Photodiode

#### **■** Features

1. High sensitivity

 $(I_{SC}>=3.5 \mu A \text{ at } E_{v}=1001x: PD481PI)$ 

2. Peak sensitivity wavelength matching with infrared LED

( $\lambda p = 960 nm$ : **PD481PI**) ( $\lambda p = 1000 nm$ : **PD49PI**)

3. Built-in visible light cut-off filter

## **■** Applications

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

#### **■** Outline Dimensions

(Unit: mm)

Detector 7.0± 0.2 SX	0.3
(Chip location)  13.0 ± 1.0  1.3MaX.  1.3MaX.  0.5  0.5	
7	① Anode ② Cathode

## ■ Absolute Maximum Ratings

 $(Ta = 25^{\circ}C)$ 

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

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

## **■** Electro-optical Characteristics

 $(Ta = 25^{\circ}C)$ 

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Short circuit current	PD49PI	- I <sub>SC</sub> E	E <sub>v</sub> = 100lx	2.4	3	-	4
	PD481PI			3.5	5	-	μΑ
*2 Short circuit current temperature coefficient		βт	E <sub>V</sub> = 100lx	-	0.2	-	% /°C
Dark current		$I_d$	V <sub>R</sub> = 10V	-	1	30	nA
Dark current temperature coefficient		αт	$V_R = 10V$	-	3.5	5	times/10°C
Terminal capacitance		Ct	$V_R = 3V, f = 1MHz$	-	20	50	pF
Peak sensitivity	PD49PI	1 -			1 000	-	n-m
wavelength	PD481PI	λP	-	910	960	1 010	nm

<sup>\*2</sup> E<sub>V</sub>: Illuminance by CIE standard light source A(tungsten lamp)

Fig .1 Power Dissipation vs.
Ambient Temperature

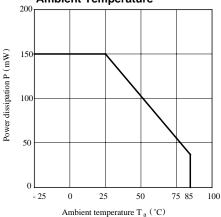


Fig. 3 Dark Current vs.

Ambient Temperature

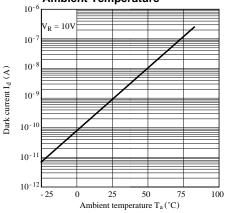


Fig. 5 Terminal Capacitance vs. Reverse Voltage

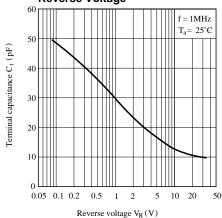


Fig. 2 Spectral Sensitivity

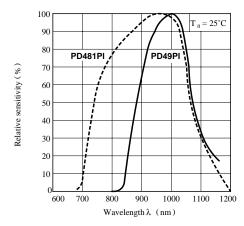


Fig. 4 Dark Current vs. Reverse Voltage

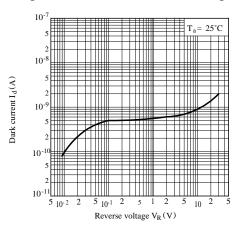
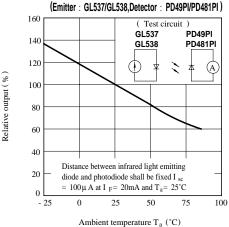


Fig. 6 Relative Output vs. Ambient Temperature





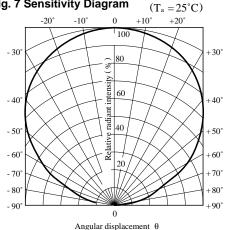
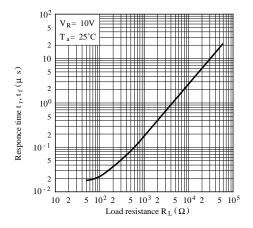
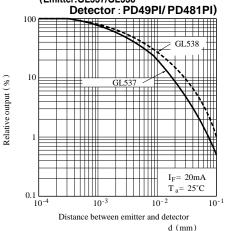


Fig. 9 Responce Time vs. Load Resistance

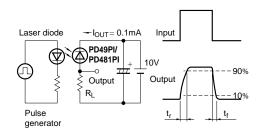


• Please refer to the chapter "Precautions for Use."

Fig. 8 Relative Output vs. Distance (Emitter:GL537/GL538



#### **Test Circuit for Responce Time**



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  - Office automation equipment
  - Telecommunication equipment [terminal]
- Test and measurement equipment
- Industrial control
- Audio visual equipment
- Consumer electronics
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- Alarm equipment
- Various safety devices, etc.
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