

PD410PI

High Speed Photodiode

■ Features

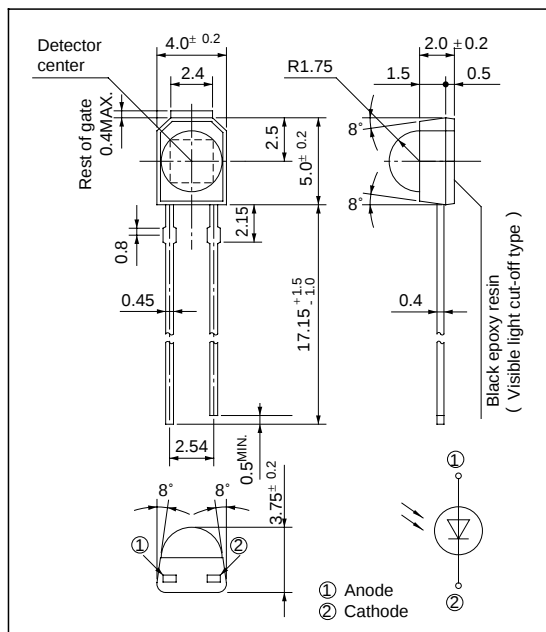
1. Peak sensitivity wavelength matching with infrared LED($\lambda_p = 1000\text{nm}$)
2. Built-in visible light cut-off filter

■ Applications

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

■ Outline Dimensions

(Unit : mm)



■ 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

*1 For 5 seconds at the position of 2.15mm from the bottom face of resin package

■ Electro-optical Characteristics

(Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Shortcircuit current	I_{SC}	$E_v = 100\text{ lx}$	2.5	3.0	4.5	μA
Short-circuit current temperature coefficient	β_T	$E_v = 100\text{ lx}$	-	0.2	-	%/°C
Dark current	I_d	$V_R = 10\text{V}, E_v = 0$	-	0.5	10	nA
Dark current temperature coefficient	α_T	$V_R = 10\text{V}, E_v = 0$	-	3.5	5.0	times/10°C
Terminal capacitance	C_t	$V_R = 3\text{V}, f = 1\text{MHz}$	-	20	35	pF
Peak sensitivity wavelength	λ_p	-	-	1000	-	nm
Peak spectral sensitivity	K	$\lambda = 1000\text{nm}$	-	1	-	A/W
Half intensity angle	$\Delta\theta$	-	-	± 45	-	°
Response time	t_r, t_f	$R_L = 1\text{k}\Omega, V_R = 10\text{V}$	-	200	-	ns

* In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device. "

Fig. 1 Power Dissipation vs. Ambient Temperature

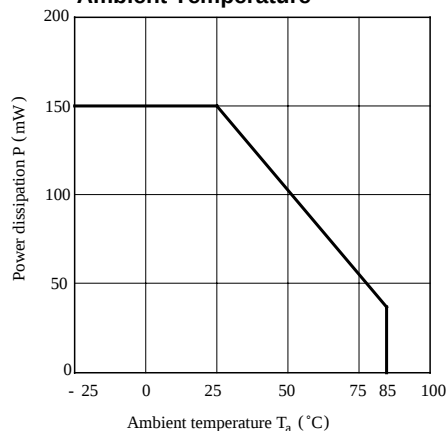


Fig. 2 Spectral Sensitivity

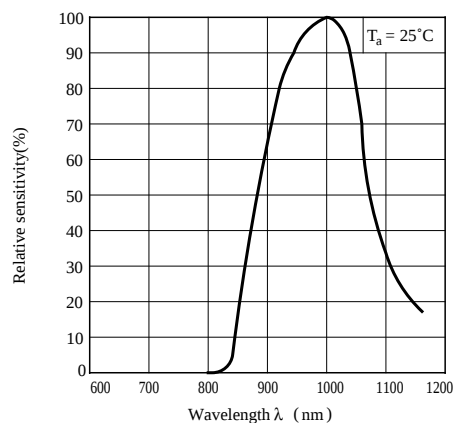


Fig. 3 Dark Current vs. Ambient Temperature

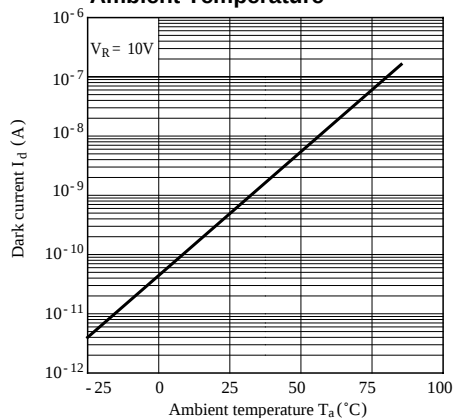


Fig. 4 Dark Current vs. Reverse Voltage

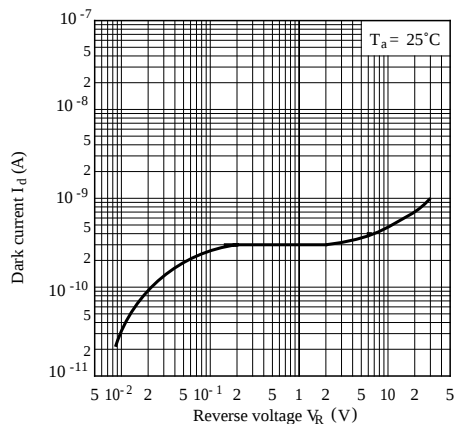


Fig. 5 Terminal Capacitance vs. Reverse Voltage

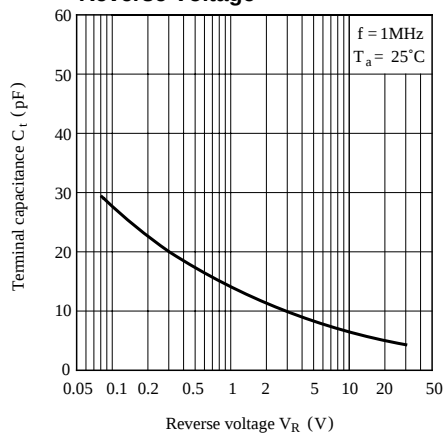


Fig. 6 Relative Output vs. Ambient Temperature
(Emitter : GL537 / GL538)
Detector: PD410PI)

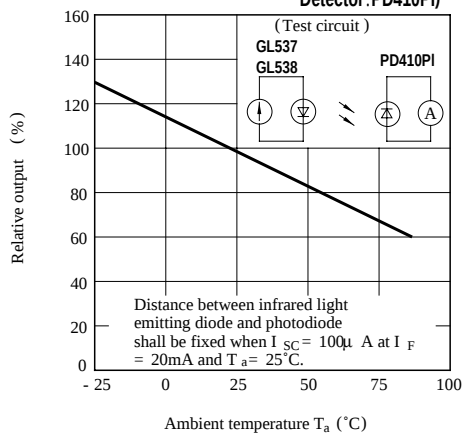


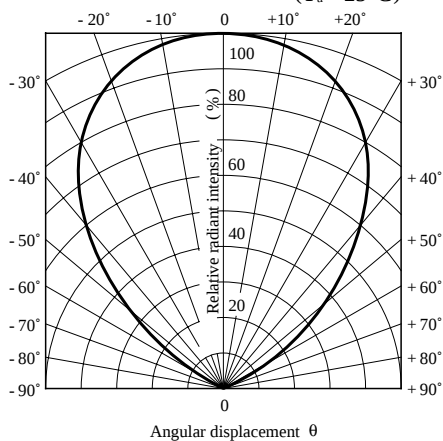
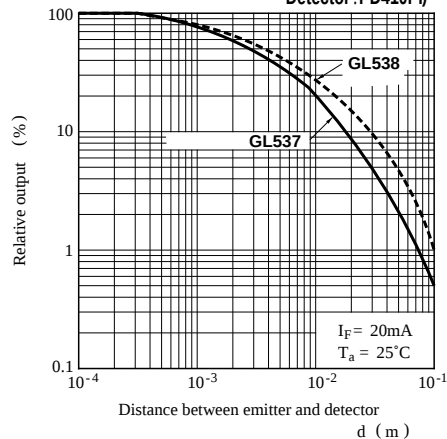
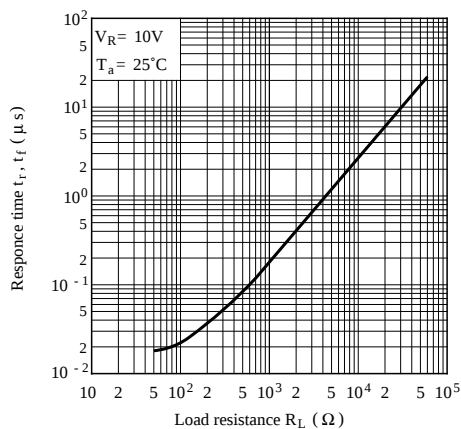
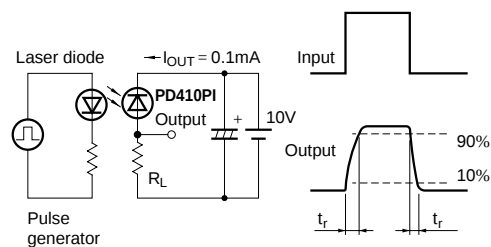
Fig. 7 Sensitivity Diagram ($T_a = 25^\circ\text{C}$)Fig. 8 Relative Output vs. Distance
(Emitter: GL537/ GL538,
Detector: PD410PI)

Fig. 9 Responce Time vs. Load Resistance



Test Circuit for Responce Time



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

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 - Test and measurement equipment
 - Industrial control
 - Audio visual equipment
 - Consumer electronics
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 - Traffic signals
 - Gas leakage sensor breakers
 - Alarm equipment
 - Various safety devices, etc.
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