PD413PI

High Speed Type Photodiode

■ Features

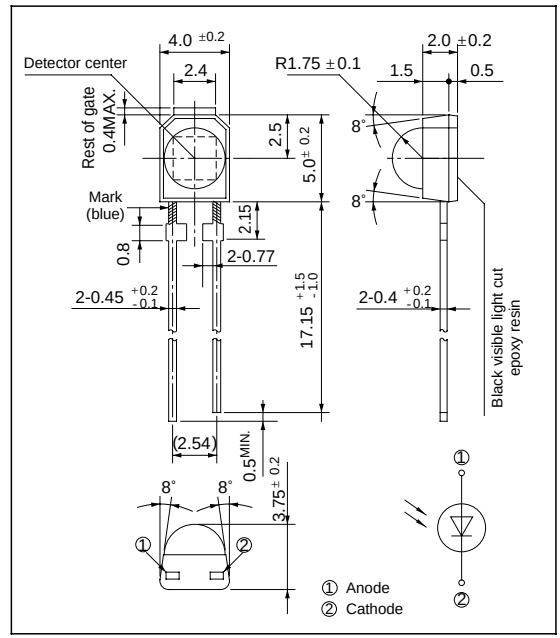
1. Built-in visible light cut-off filter
   (Sensitivity wavelength range : 750 to 1070 nm)
2. Half intensity angle : Δθ : ± 45˚

■ Applications

1. Portable information terminal equipment
2. Personal computers
3. Printers

■ 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
*1Soldering temperature	T_{sol}	260	˚C

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

■ Electro-optical Characteristics

(Ta=25 ˚C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Shortcircuit current	I_{SC}	E_V*2= 100 lx	4.5	5.4	8.1	μA
Dark current	I_d	V_R= 10V, E_V= 0	-	-	10	nA
Forward voltage	V_F	I_F= 1mA	-	-	1	V
Terminal capacitance	C_t	V_R= 3V, f= 1MHz	-	20	35	pF
Peak sensitivity wavelength	λ_p	-	-	960	-	nm
Half intensity angle	Δθ		-	± 45	-	˚
Response time	t_r , t_f	R_L= 1kΩ, V_R= 10V	-	200	-	ns

*2 E_V : Illuminance by CIE standard light source A (tungsten lamp)

" 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

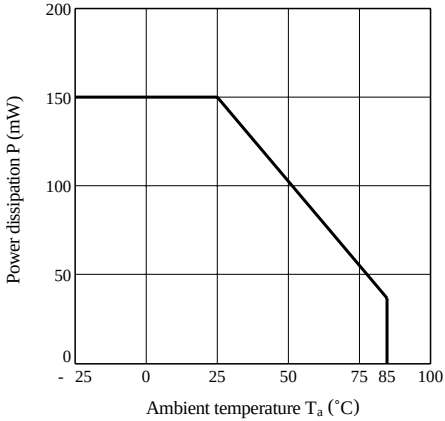


Fig. 2 Spectral Sensitivity

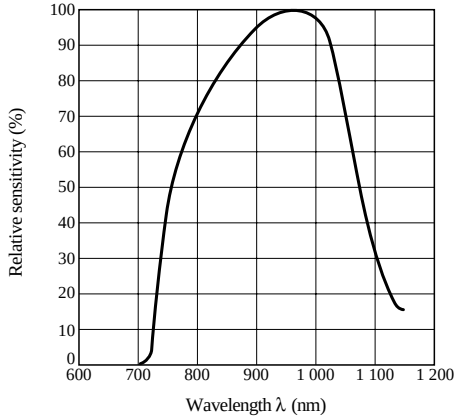


Fig. 3 Shortcircuit Current vs. Illuminance

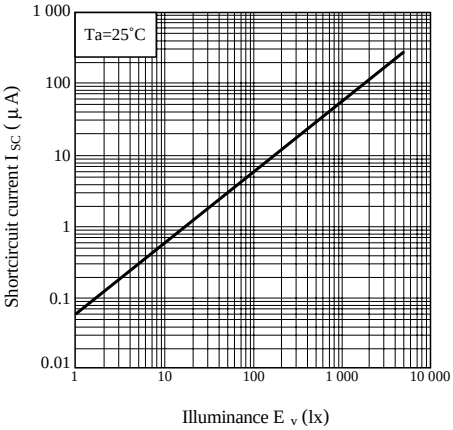


Fig. 4 Dark Current vs. Ambient Temperature

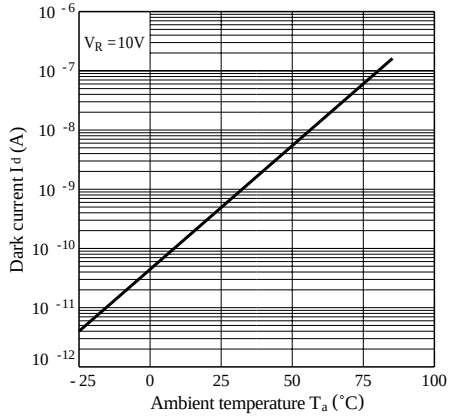


Fig. 5 Dark Current vs. Reverse Voltage

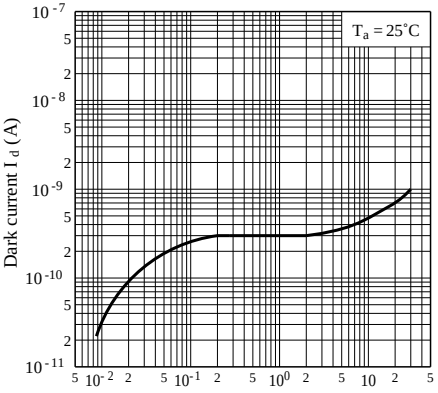


Fig. 6 Terminal Capacitance vs. Reverse Voltage

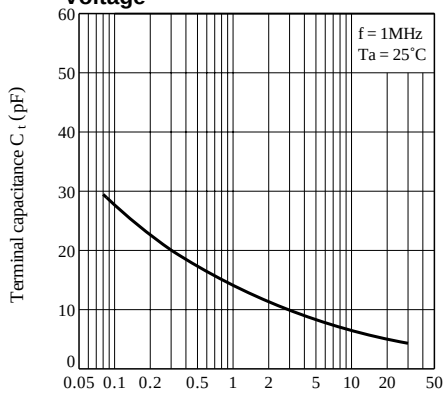


Fig. 7 Relative Output vs. Ambient Temperature (Detector : GL537/GL538)

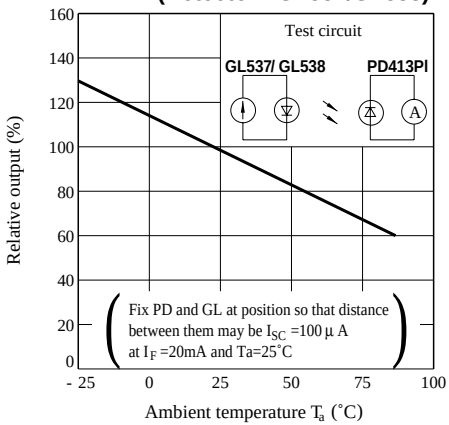


Fig. 8 Radiation Diagram (T_a = 25˚C)

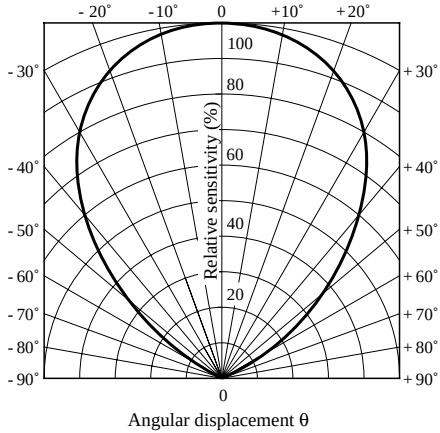


Fig. 9 Relative Output vs. Distance (Detector : GL537/GL538)

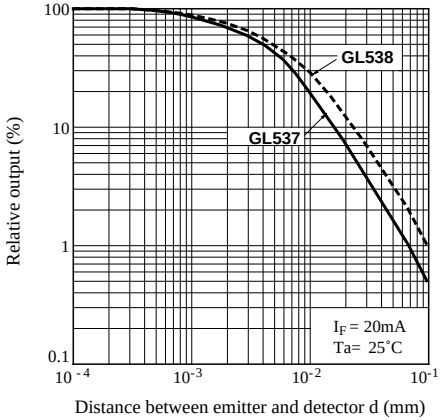
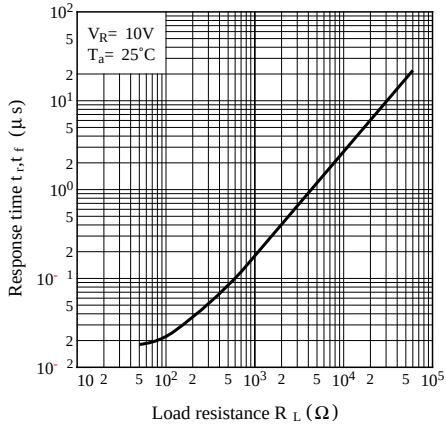
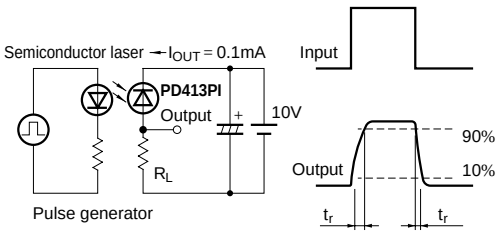


Fig. 10 Response Time vs. Load Resistance



Test Circuit for Response Time



● Please refer to the chapter "Precautions for Use". (Page 78 to 93)