

GP1S21/GP1S22

Subminiature Photointerrupter

■ Features

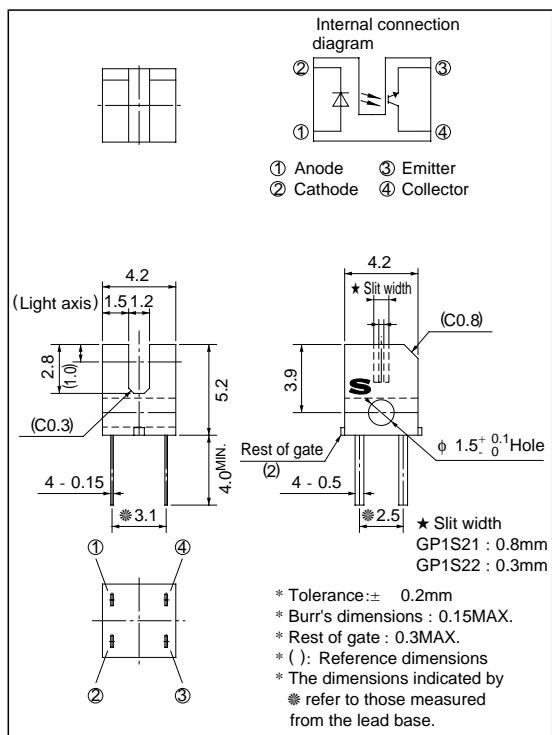
1. Ultra-compact
2. PWB mounting type package
3. High sensing accuracy
 (Slit width ; GP1S21 : 0.8mm)
 GP1S22 : 0.3mm)

■ Applications

1. Cameras
2. Floppy disk drives

■ Outline Dimensions

(Unit : mm)

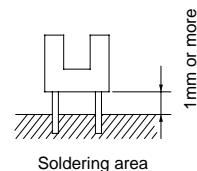


■ Absolute Maximum Ratings

(Ta = 25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I _F	50	mA
	Reverse voltage	V _R	6	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	V _{CEO}	35	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector current	I _C	20	mA
	Collector power dissipation	P _C	75	mW
	Total power dissipation	P _{tot}	100	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



¹ 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.

■ Electro-optical Characteristics

(Ta = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V _F	I _F = 20mA	-	1.2	1.4	V	
	Reverse current	I _R	V _R = 3V	-	-	10	μA	
Output	Collector dark current	I _{CEO}	V _{CE} = 20V	-	-	1 x 10 ⁻⁷	A	
Transfer characteristics	Collector Current	GP1S21	V _{CE} = 5V, I _F = 1.5mA	27	-	260	μA	
		GP1S22		100	-	1300	μA	
	Collector-emitter saturation voltage	GP1S21	I _F = 3mA, I _C = 27 μA	-	-	0.4	V	
		GP1S22		I _F = 10mA, I _C = 50 μA	-	0.4	V	
	Response time	Rise time	t _r	I _C = 0.1mA, V _{CE} = 5V, R _L = 1kΩ	-	50	150	μs
		Fall time	t _f		-	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

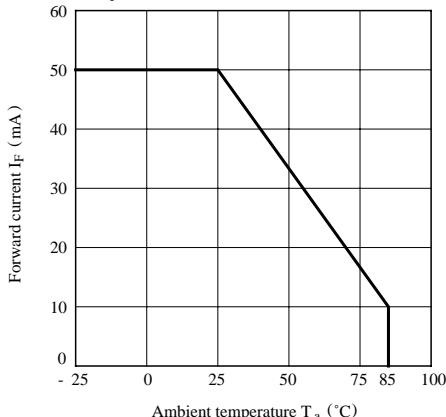


Fig. 2 Power Dissipation vs. Ambient Temperature

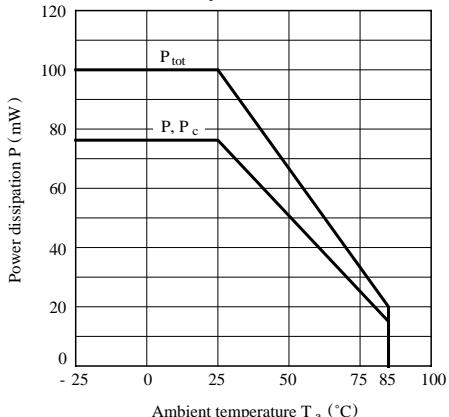


Fig. 3 Forward Current vs. Forward Voltage

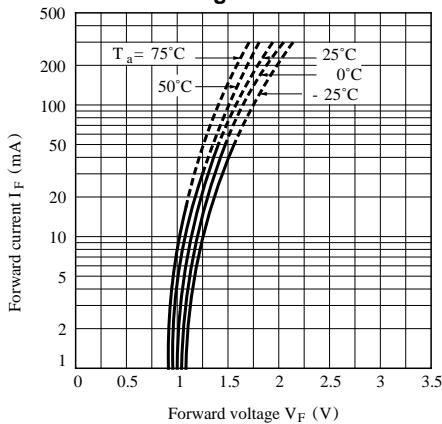


Fig. 4 Collector Current vs. Forward Current

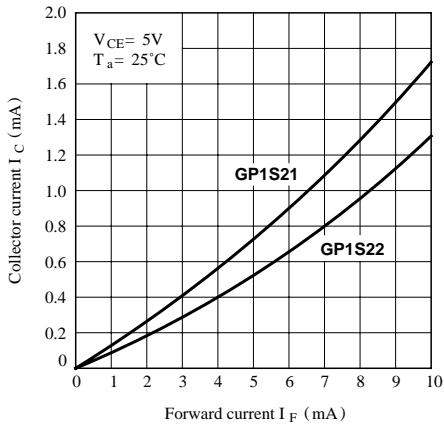


Fig. 5-a Collector Current vs. Collector-emitter Voltage (GP1S21)

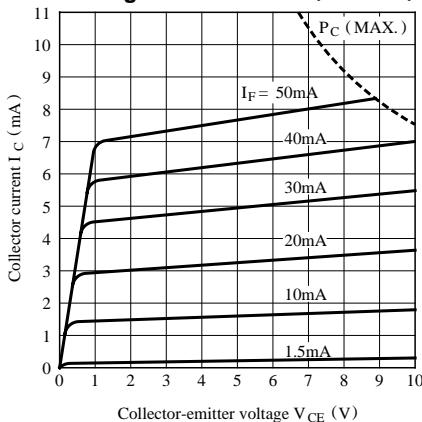


Fig. 5-b Collector Current vs. Collector-emitter Voltage (GP1S22)

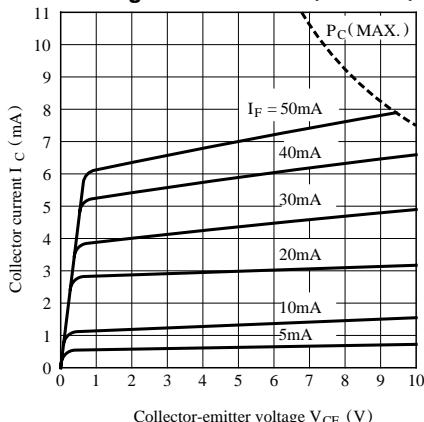


Fig. 6 Collector Current vs. Ambient Temperature

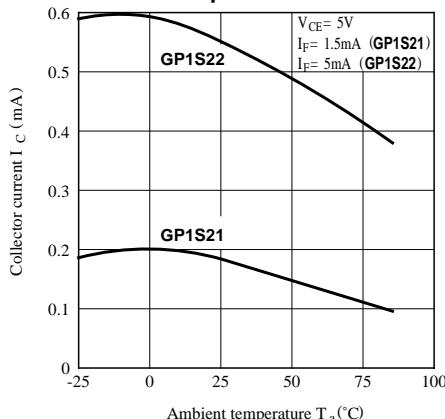


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

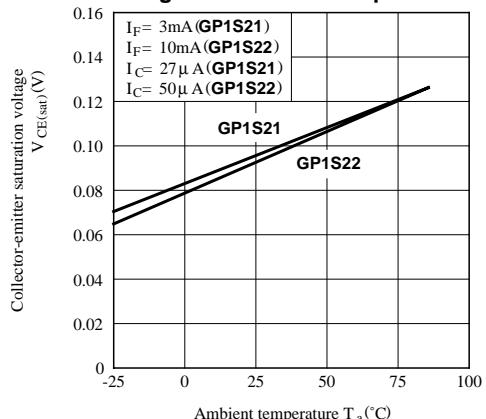
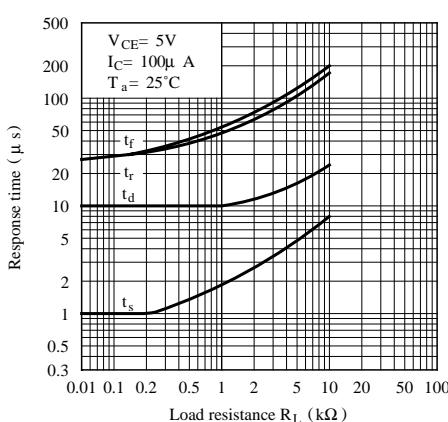
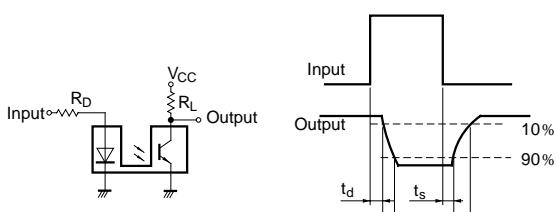


Fig. 8 Response Time vs. Load Resistance

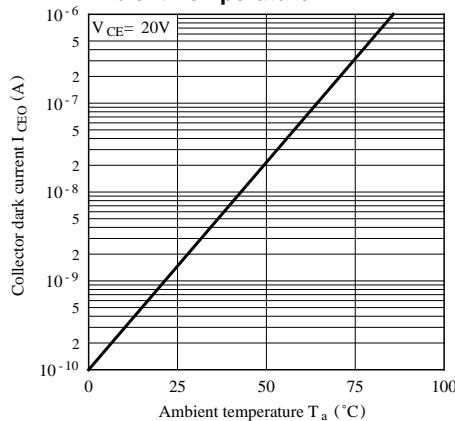


Test Circuit for Response Time

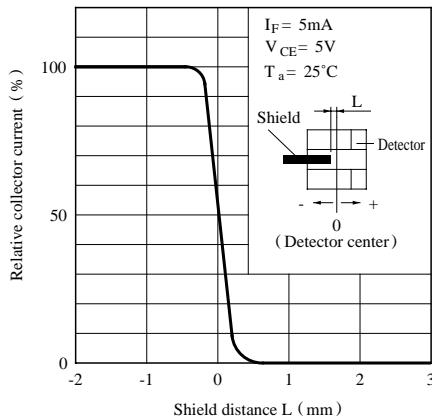


Graph showing the response time parameters t_r , t_d , and t_s relative to the 10% and 90% points of the rising edge.

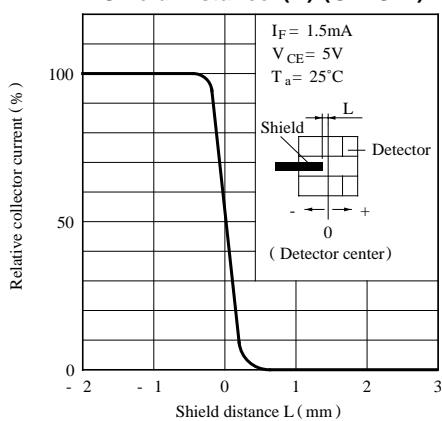
**Fig. 9 Collector Dark Current vs.
Ambient Temperature**



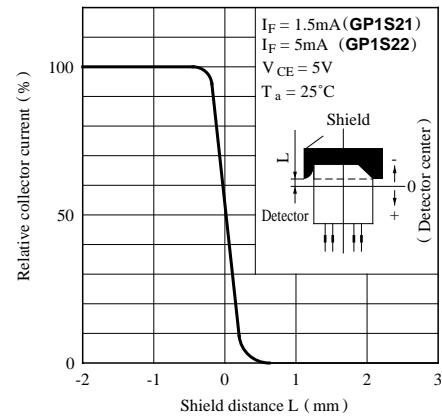
**Fig.10-b Relative Collector Current vs.
Shield Distance (1) (GP1S22)**



**Fig. 10-a Relative Collector Current vs.
Shield Distance (1) (GP1S21)**



**Fig.11 Relative Collector Current vs.
Shield Distance (2)**



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