GP1S21/GP1S22

Subminiature Photointerrupter

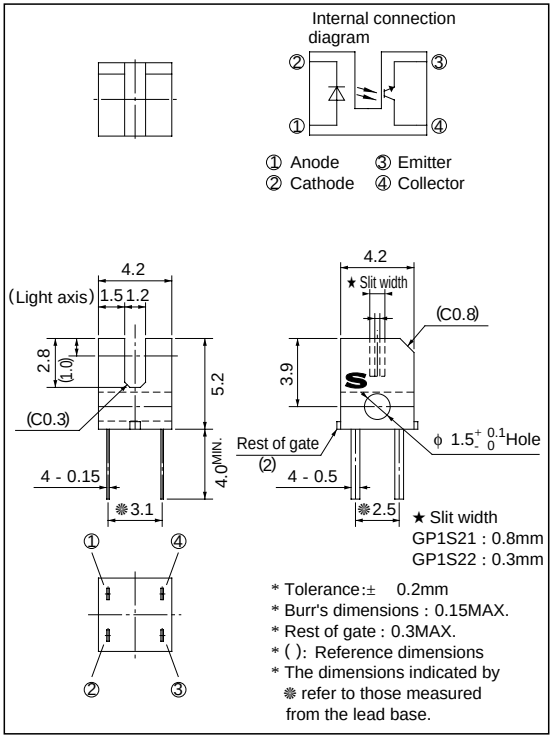
■ Features

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

■ Applications

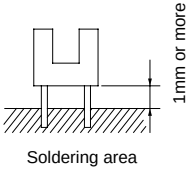
1. Cameras
2. Floppy disk drives

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



*1 For 5 seconds

" 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**	Ic	V_{CE} = 5V, I_F = 1.5mA	27	-	260	μA
		GP1S22		V_{CE} = 5V, I_F = 5mA	100	-	1300	μA
	Collector-emitter saturation voltage	**GP1S21**	$V_{CE(sat)}$	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

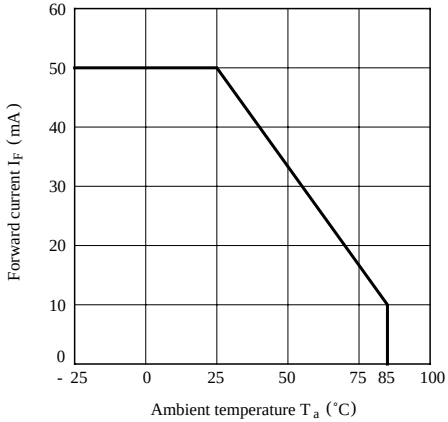


Fig. 2 Power Dissipation vs. Ambient Temperature

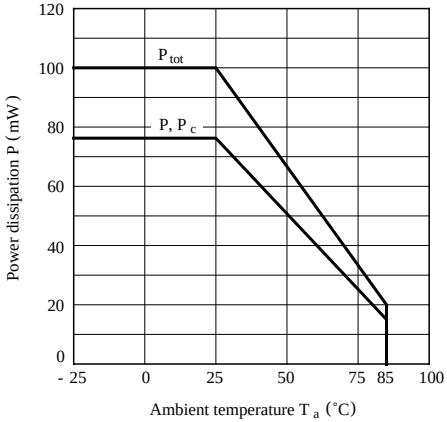


Fig. 3 Forward Current vs. Forward Voltage

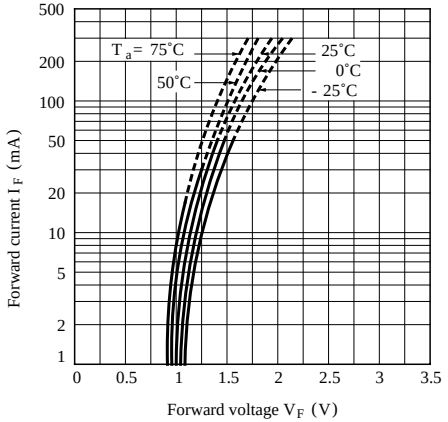


Fig. 4 Collector Current vs. Forward Current

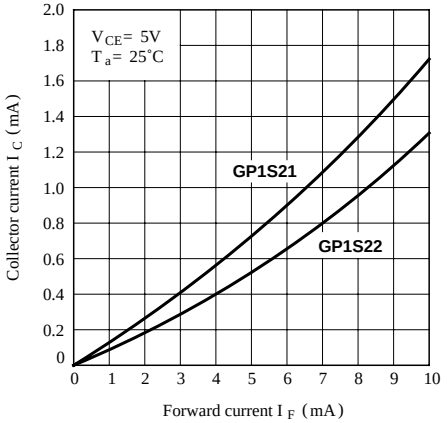


Fig. 5-a Collector Current vs. Collector-emitter Voltage (GP1S21)

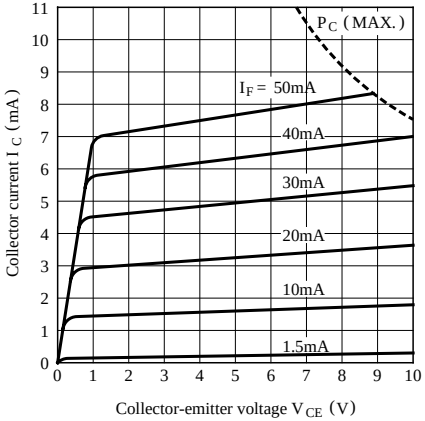


Fig. 5-b Collector Current vs. Collector-emitter Voltage (GP1S22)

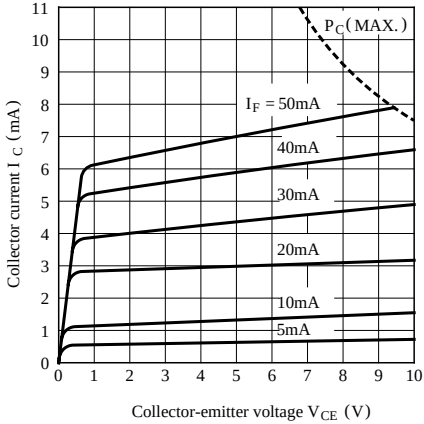


Fig. 6 Collector Current vs. Ambient Temperature

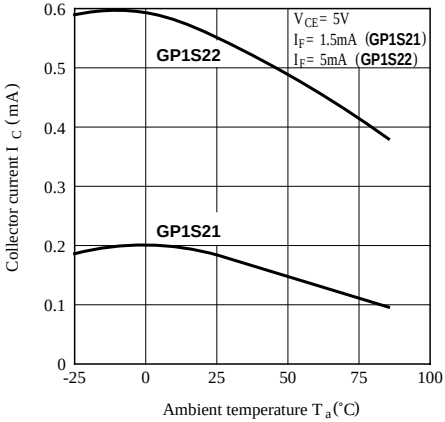


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

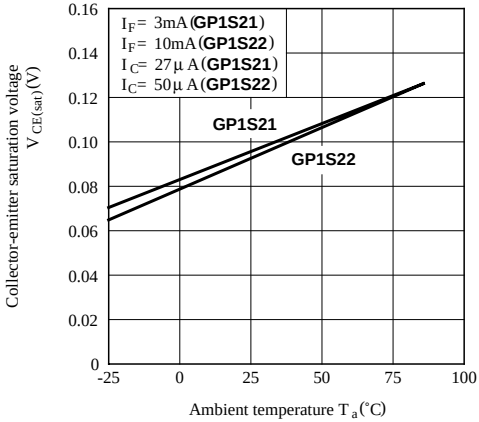
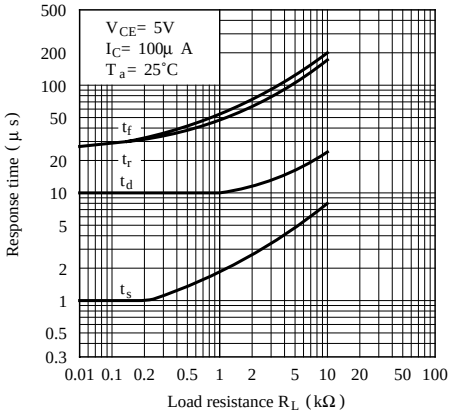


Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response Time

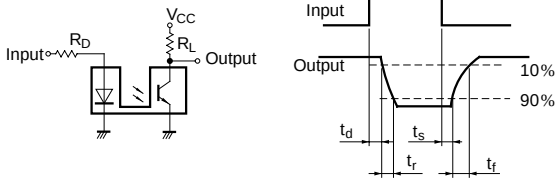


Fig. 9 Collector Dark Current vs. Ambient Temperature

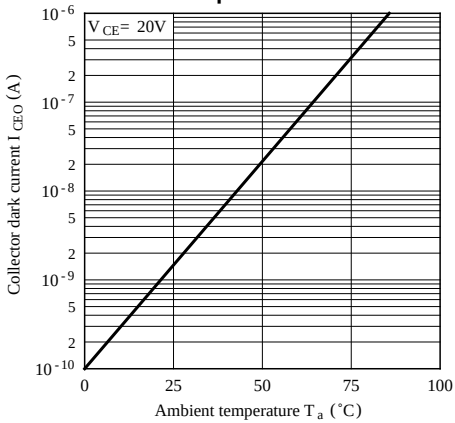


Fig. 10-a Relative Collector Current vs. Shield Distance (1) (GP1S21)

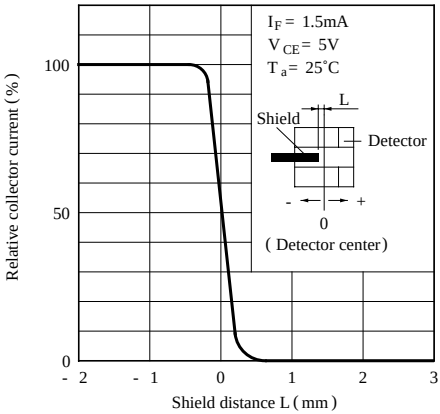


Fig.10-b Relative Collector Current vs. Shield Distance (1) (GP1S22)

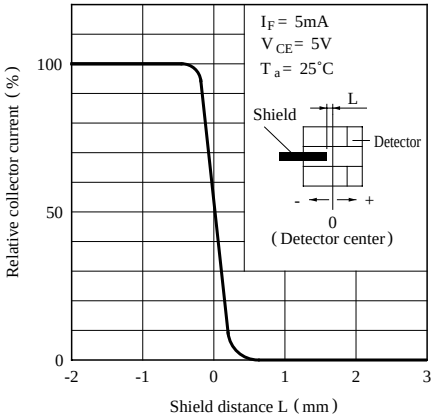
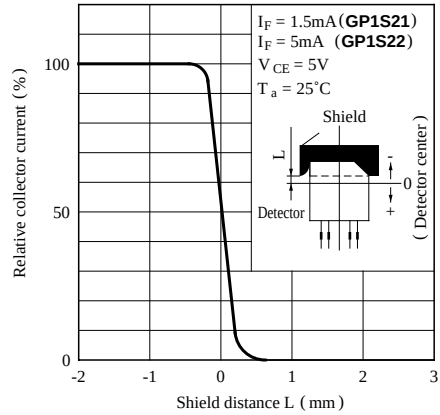


Fig.11 Relative Collector Current vs. Shield Distance (2)



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

littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.