

GP1S21/GP1S22

Subminiature Photointerrupter

■ Features

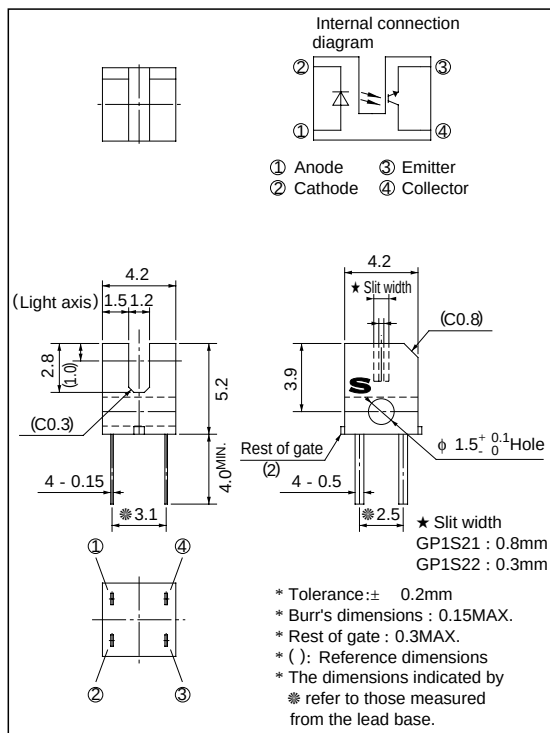
1. Ultra-compact
2. PWB mounting type package
3. High sensing accuracy
(Slit width ; **GP1S21** : 0.8mm
GP1S22 : 0.3mm)

■ Applications

1. Cameras
2. Floppy disk drives

■ Outline Dimensions

(Unit : mm)

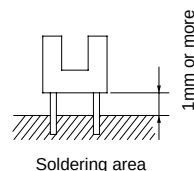


■ Absolute Maximum Ratings

(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



Electro-optical Characteristics

(Ta = 25°C)

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	$I_F = 20\text{mA}$	-	1.2	1.4	V
	Reverse current		I_R	$V_R = 3\text{V}$	-	-	10	μA
Output	Collector dark current		I_{CEO}	$V_{CE} = 20\text{V}$	-	-	1×10^{-7}	A
Transfer characteristics	Collector Current	GP1S21	I_C	$V_{CE} = 5\text{V}, I_F = 1.5\text{mA}$	27	-	260	μA
		GP1S22		$V_{CE} = 5\text{V}, I_F = 5\text{mA}$	100	-	1300	μA
	Collector-emitter saturation voltage	GP1S21	$V_{CE(sat)}$	$I_F = 3\text{mA}, I_C = 27 \mu\text{A}$	-	-	0.4	V
		GP1S22		$I_F = 10\text{mA}, I_C = 50 \mu\text{A}$	-	-	0.4	V
	Response time	Rise time	t_r	$I_C = 0.1\text{mA}, V_{CE} = 5\text{V}, R_L = 1\text{k}\Omega$	-	50	150	μs
		Fall time	t_f		-	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

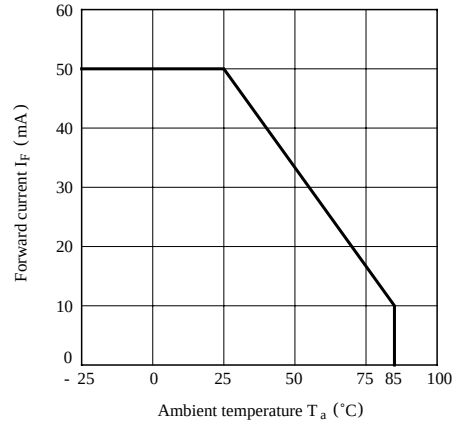


Fig. 2 Power Dissipation vs. Ambient Temperature

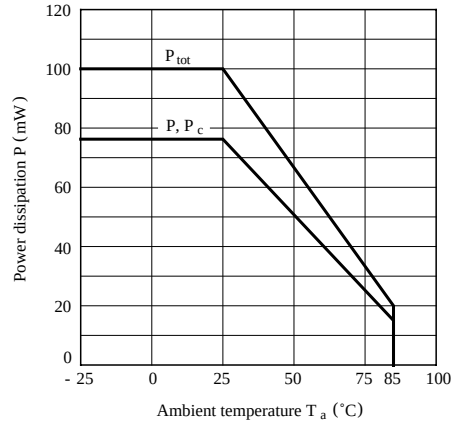


Fig. 3 Forward Current vs. Forward Voltage

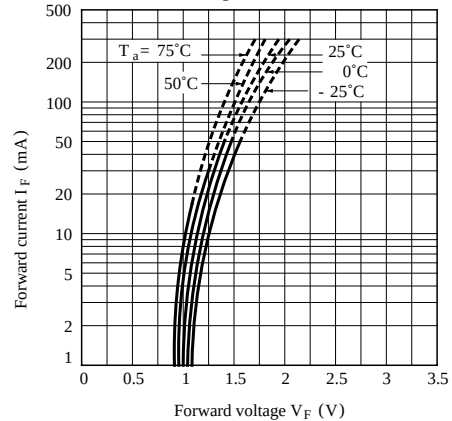


Fig. 4 Collector Current vs. Forward Current

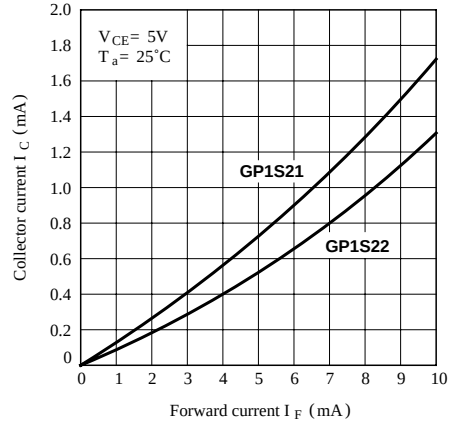


Fig. 5-a Collector Current vs. Collector-emitter Voltage (GP1S21)

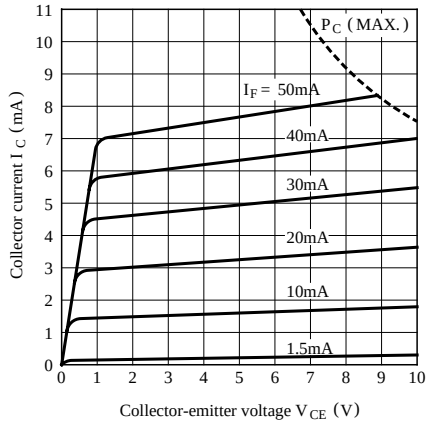


Fig. 5-b Collector Current vs. Collector-emitter Voltage (GP1S22)

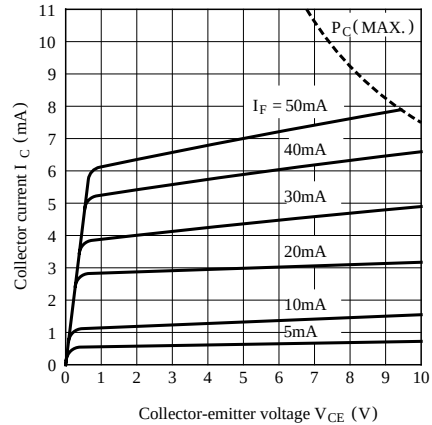


Fig. 6 Collector Current vs. Ambient Temperature

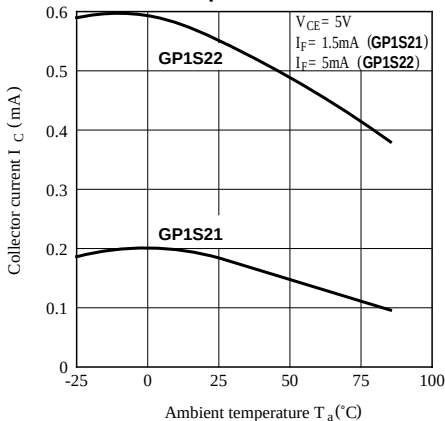


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

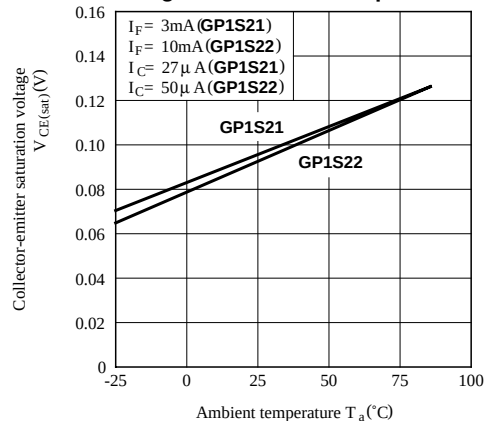
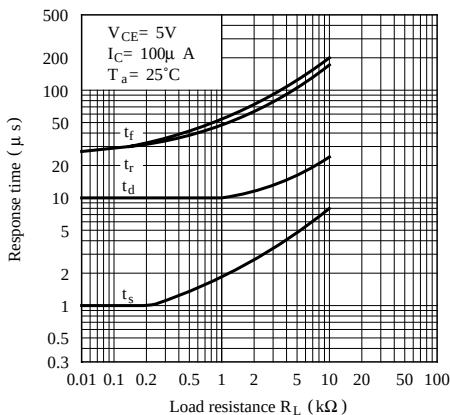


Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response Time

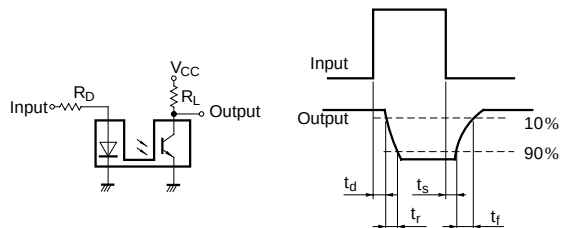


Fig. 9 Collector Dark Current vs. Ambient Temperature

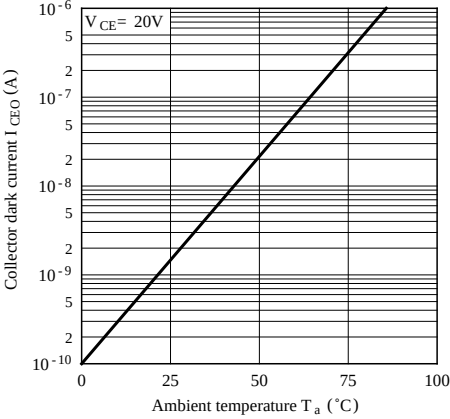


Fig. 10-a Relative Collector Current vs. Shield Distance (1) (GP1S21)

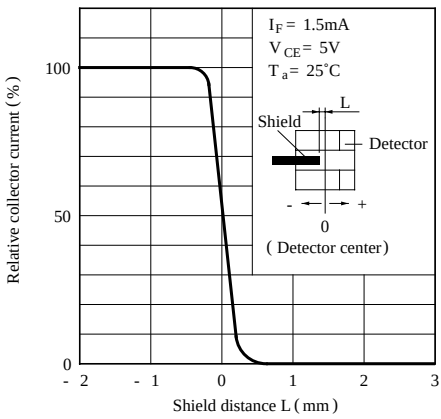


Fig.10-b Relative Collector Current vs. Shield Distance (1) (GP1S22)

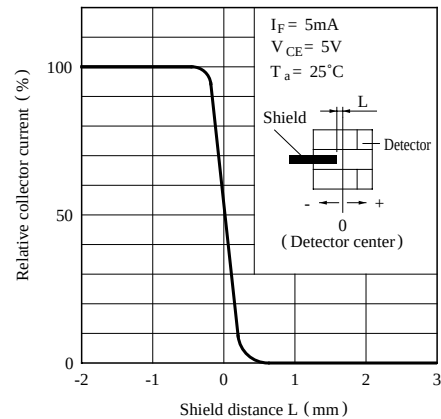
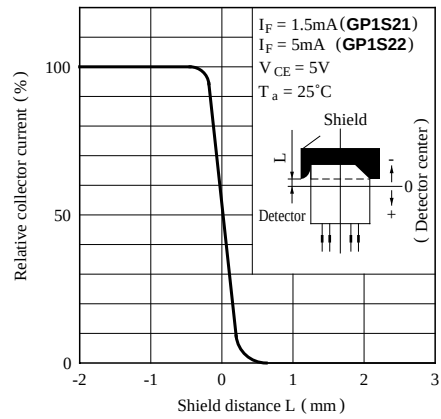


Fig.11 Relative Collector Current vs. Shield Distance (2)



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