

GP1S30

Subminiature Photointerrupter

■ Features

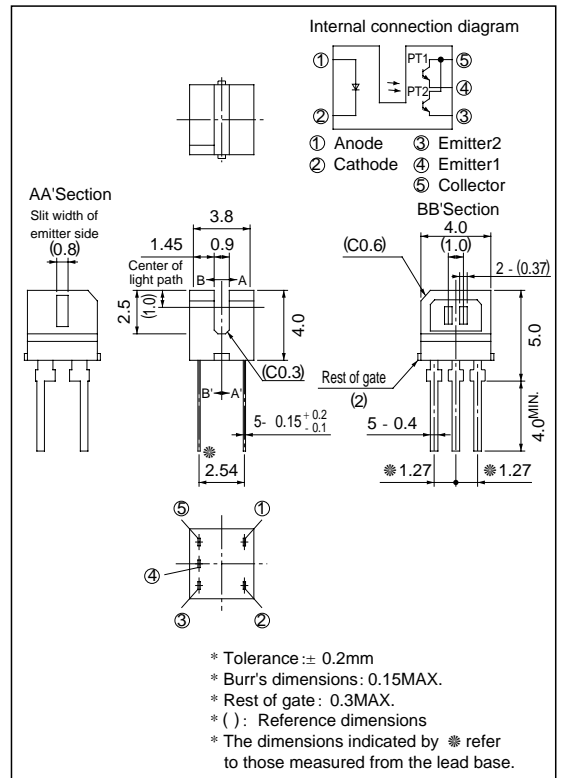
1. Compact package
2. PWB mounting type
3. Double-phase phototransistor output type for detecting of rotation direction and count
4. Detecting pitch: 0.6mm

■ Applications

1. Mouses
2. Cameras

■ Outline Dimensions

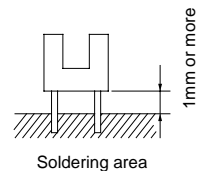
(Unit : mm)



■ 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 _{CE1O}	35	V
		V _{CE2O}		
	Emitter-collector Voltage	V _{E1CO}	6	V
		V _{E2CO}		
	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 MAX. 5 seconds

■ Electro-optical Characteristics

($T_a = 25^\circ\text{C}$)

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}	$V_{CE} = 20\text{V}$	-	-	100	nA	
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 4\text{mA}$	250	-	1 000	μA	
	Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_F = 8\text{mA}, I_C = 125\mu\text{A}$	-	-	0.4	V	
	Response time	Rise time	t_r	$V_{CC} = 5\text{V}, I_C = 100\mu\text{A}$	-	50	150	μs
		Fall time	t_f	$R_L = 1\,000\ \Omega$	-	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

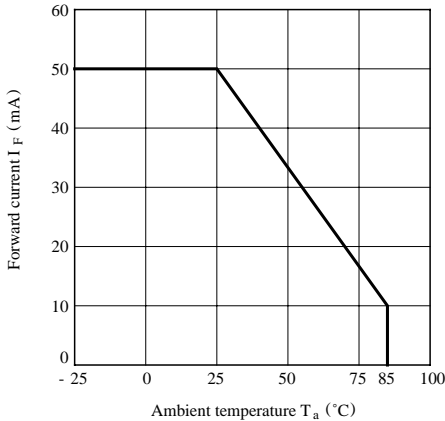


Fig. 2 Power Dissipation vs. Ambient Temperature

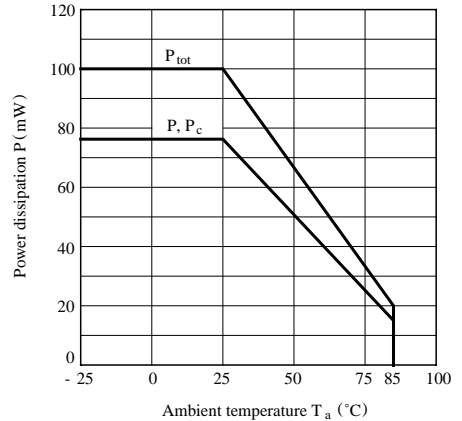


Fig. 3 Forward Current vs. Forward Voltage

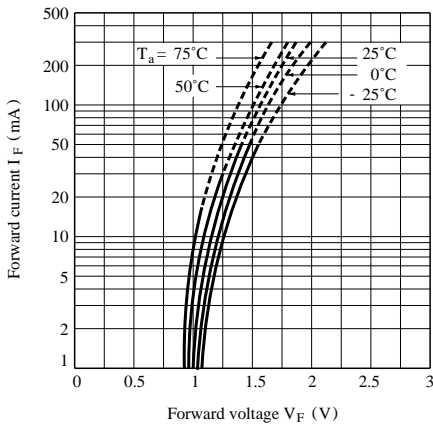


Fig. 4 Collector Current vs. Forward Current

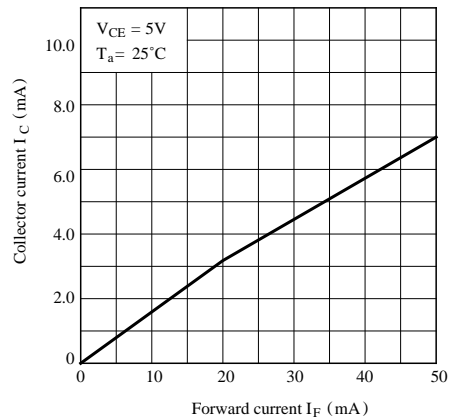


Fig. 5 Collector Current vs. Collector-emitter Voltage

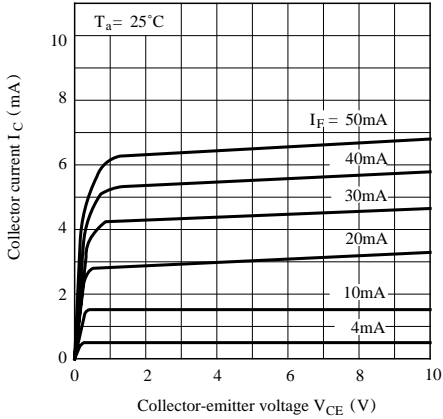


Fig. 6 Collector Current vs. Ambient Temperature

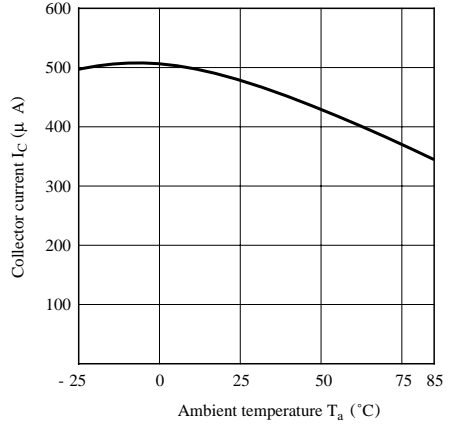


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

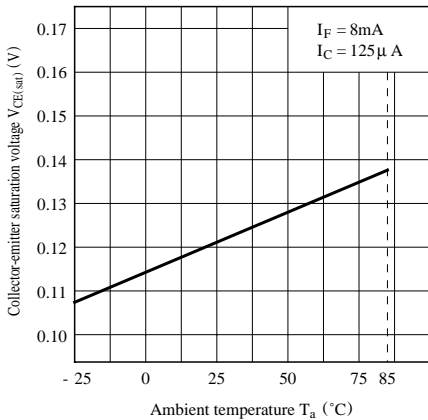


Fig. 8 Collector Dark Current vs. Ambient Temperature

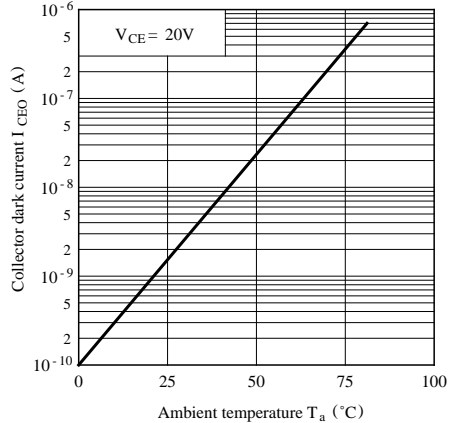
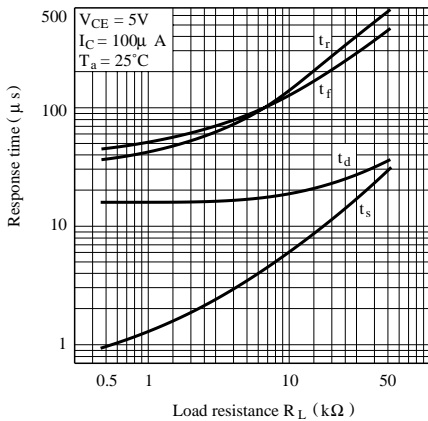


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

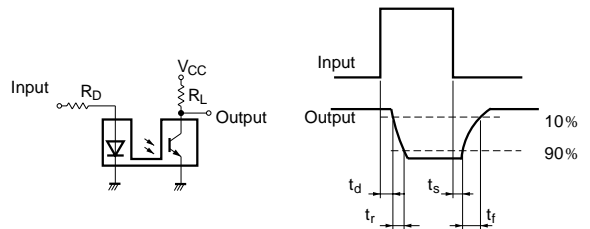


Fig.10 Relative Collector Current vs. Shield Distance (1)

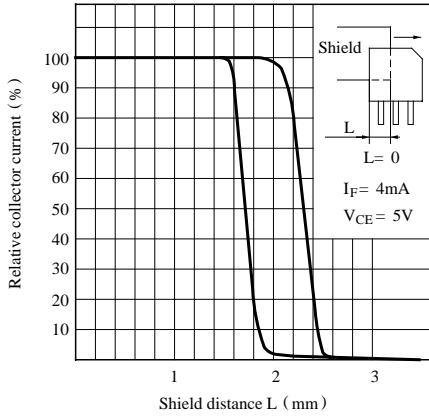
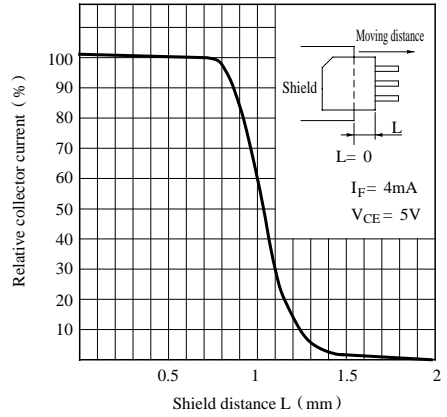


Fig.11 Relative Collector Current vs. Shield Distance (2)



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