

GP1S33

Subminiature, Reflow Soldering Type Photointerrupter

■ Features

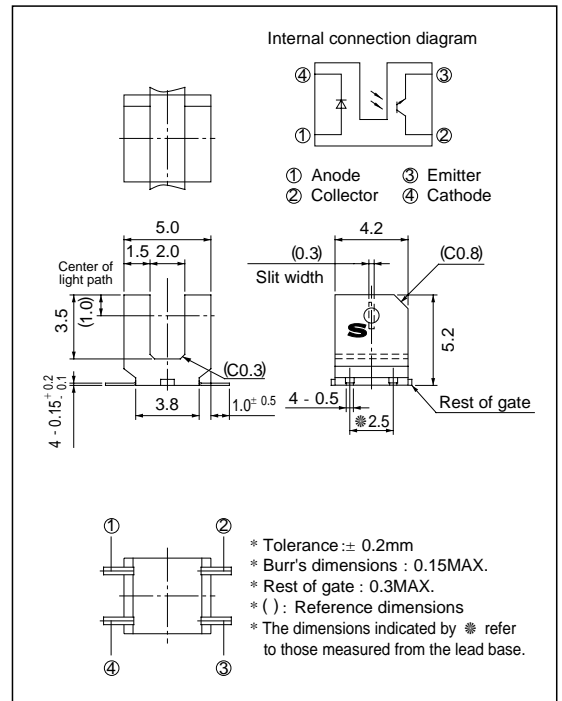
1. Ultra-compact package
2. PWB mounting type
3. High sensing accuracy (Slit width: 0.3mm)
4. Applying to reflow soldering
 - Preheat : 160°C within 120 seconds
 - Reflow : 200°C within 60 seconds
 - (Peak : 240°C)

■ Applications

1. Floppy disk drives
2. Cameras

■ Outline Dimensions

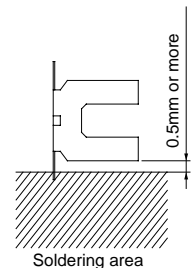
(Unit : mm)



■ Absolute Maximum Ratings

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

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	$^\circ\text{C}$
Storage temperature		T_{sg}	- 40 to + 100	$^\circ\text{C}$
*1 Soldering temperature		T_{sol}	260	$^\circ\text{C}$



*1 For 3 seconds

■ Electro-optical Chara

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

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	$V_{CE} = 5\text{V}, I_F = 5\text{mA}$	100	-	600	μA	
	Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_F = 10\text{mA}, I_C = 40\mu\text{A}$	-	-	0.4	V	
	Response time	Rise time	t_r	$V_{CE} = 5\text{V}, I_C = 100\mu\text{A}$	-	50	150	μs
		Fall time	t_f	$R_L = 1\,000\Omega$	-	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

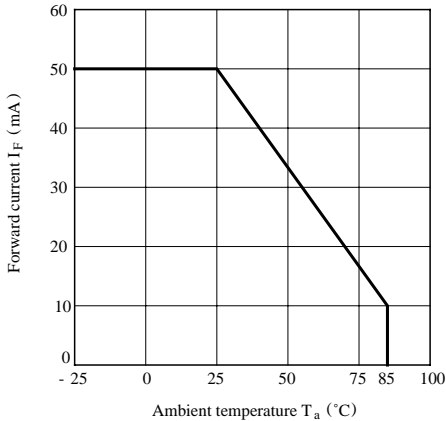


Fig. 2 Power Dissipation vs. Ambient Temperature

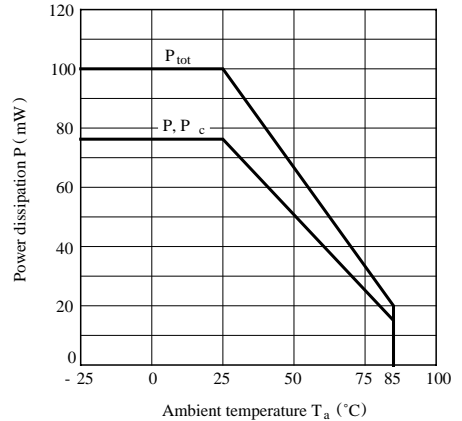


Fig. 3 Forward Current vs. Forward Voltage

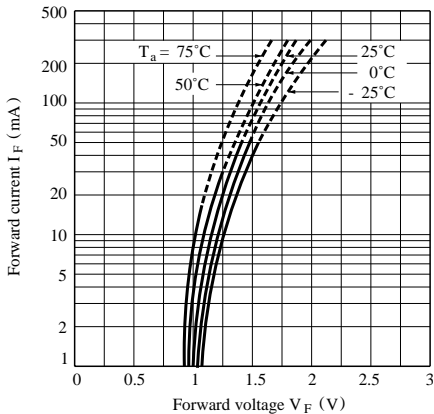


Fig. 4 Collector Current vs. Forward Current

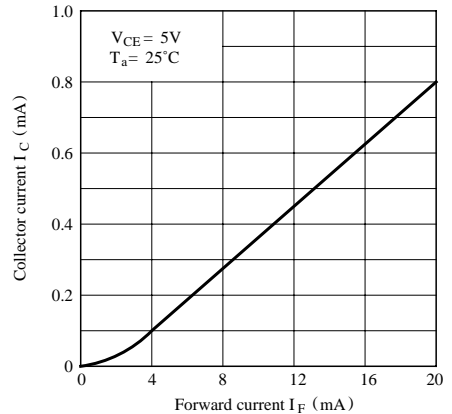


Fig. 5 Collector Current vs. Collector-emitter Voltage

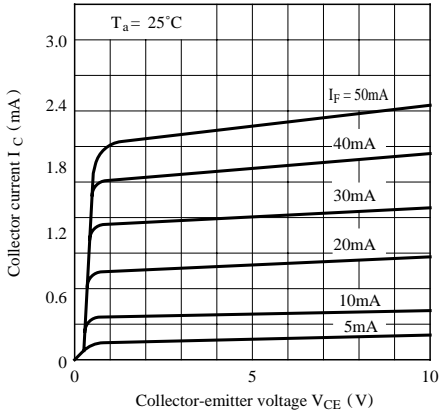


Fig. 6 Collector Current vs. Ambient Temperature

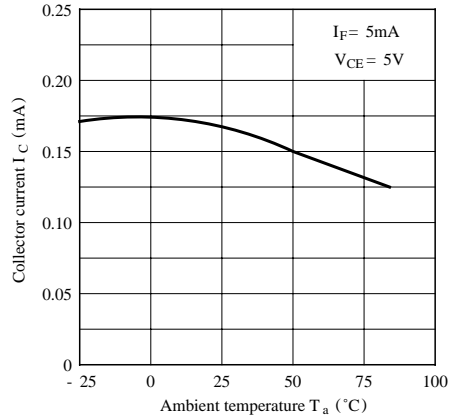


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

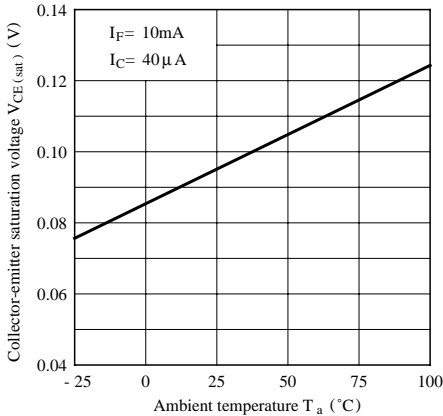


Fig. 8 Collector Dark Current vs. Ambient Temperature

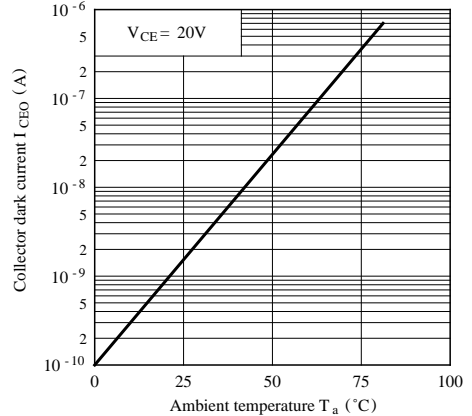
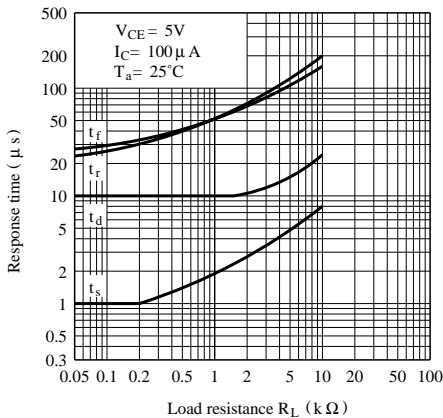


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

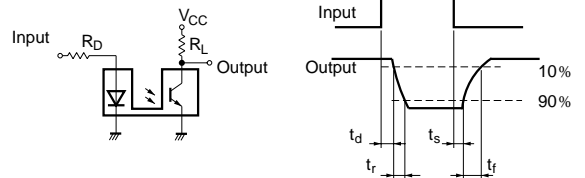


Fig.10 Relative Collector Current vs. Shield Distance (1)

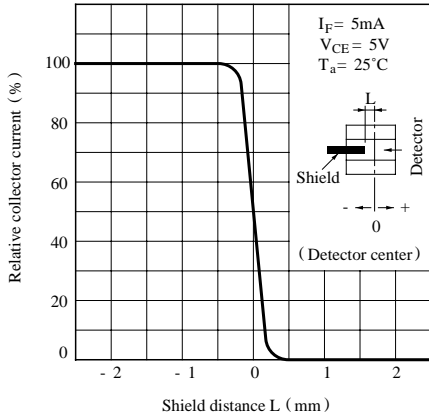
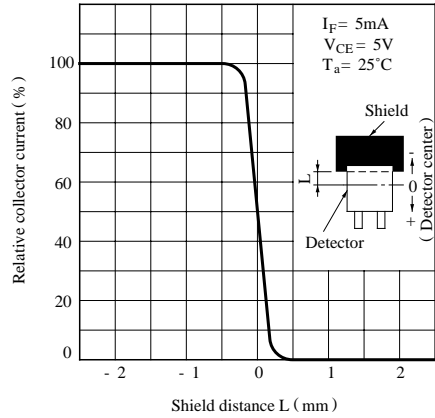


Fig.11 Relative Collector Current vs. Shield Distance (2)



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



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