GP1S39

Subminiature, Double-phase Output, **Wide** Gap Photointerrupter

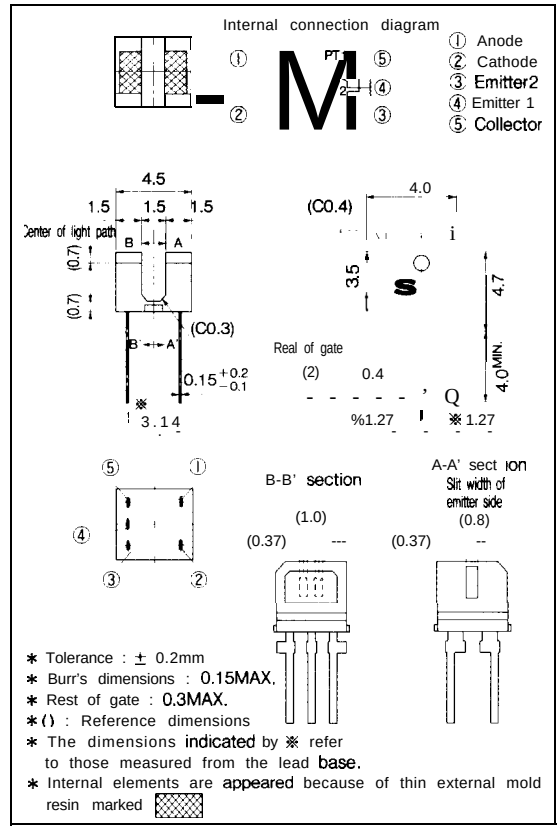
■ Features

1. Ultra-compact package
2. PWB mounting type
3. Double-phase phototransistor output type for detecting of rotation direction and count
4. Wide gap between light emitter and detector : 1.5mm
5. Slit width : 0.8mm
6. Detecting pitch : 0.6mm

■ **Applications**

1. Mouses
2. Cameras

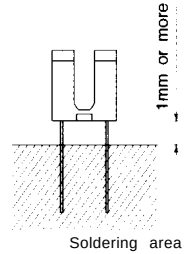
■ **Outline Dimensions** (Unit : mm)



■ Absolute Maximum Ratings (Ta = 25℃)

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_{CE_1O} V_{CE_2O}	35	v
	Emitter-collector voltage	V_{E_1CO} V_{E_2CO}	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	℃
Storage temperature		T_{stg}	−40 to +100	℃
*1 Soldering temperature		T_{sol}	260	℃

*1 For 5 seconds



■ Electro-optical Characteristics

(Ta = 25℃)

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		—	100	nA
Transfer characteristics	Collector current		I_C	V_{CE} = 5V, I_F = 4mA	130		.520	μA
	Collector current ratio		I_{C1}/I_{C2}	V_{CE} = 5V, I_F = 4mA	0.67	–	1.5	
	Collector -emitter saturation voltage		$V_{CE(sat)}$	I_F = 8mA, I_C = 50 μA		—	0.4	v
	Response time	Rise time	t_r	V_{CE} = 5V, I_C = 100 μA	—	50	150	μs
		Fall time	t_f	R_L = 1 000Ω	·	50	150	μs

Fig. 1 Forward Current vs. Ambient Temperature

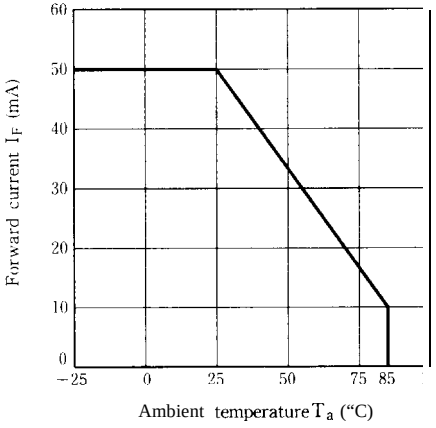


Fig. 2 Power Dissipation vs. Ambient Temperature

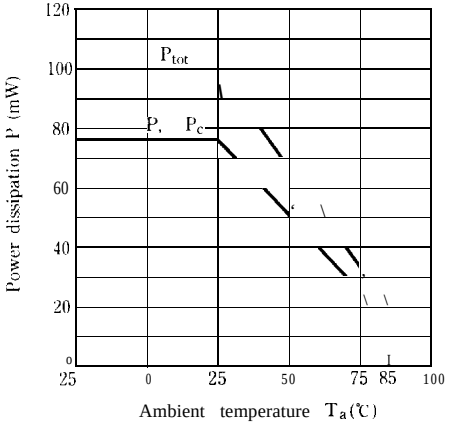


Fig. 3 Forward Current vs. Forward Voltage

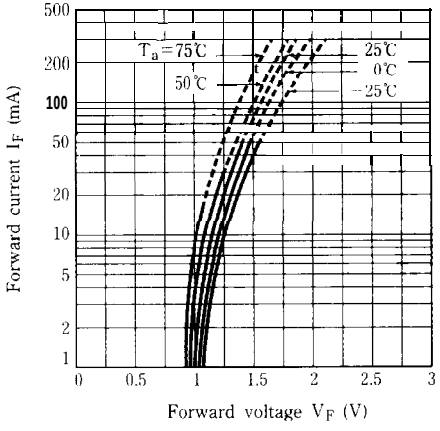


Fig. 4 Collector currant vs. Forward Current

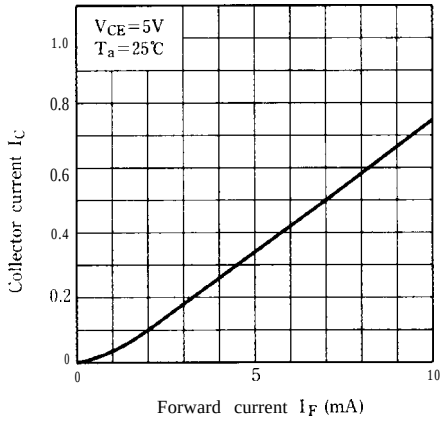


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Fig. 5 Collector Current vs. Collector-emitter Voltage

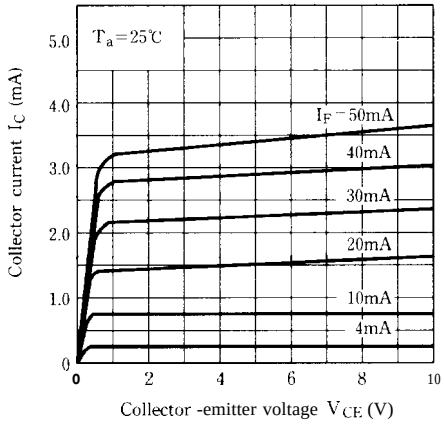


Fig. 6 Collector Current vs. Ambient Temperature

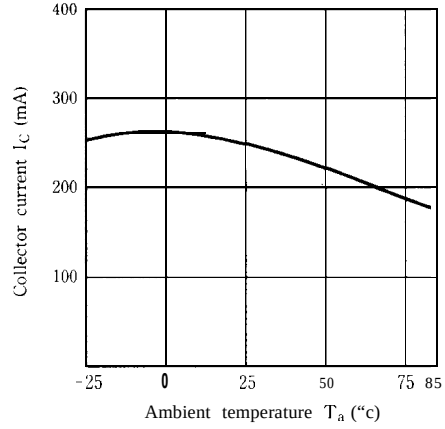


Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

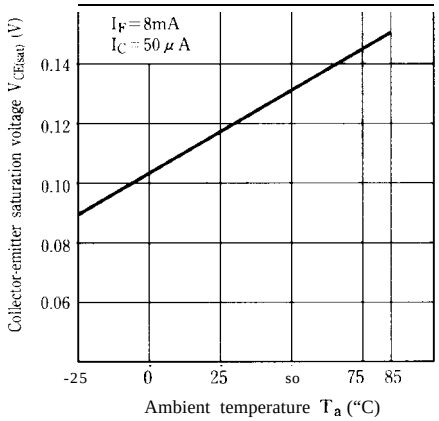


Fig. 8 Collector Dark Current vs. Ambient Temperature

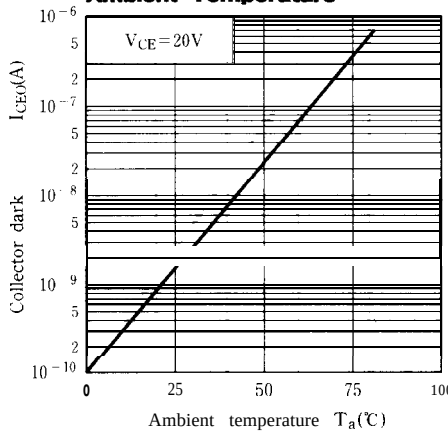
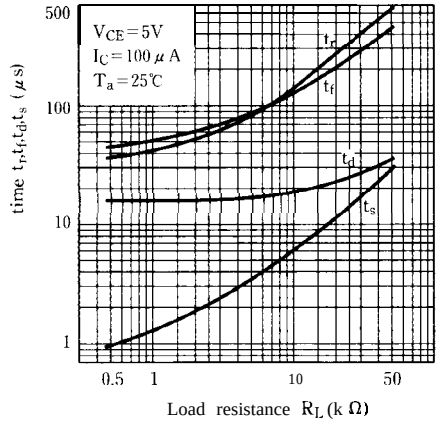


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

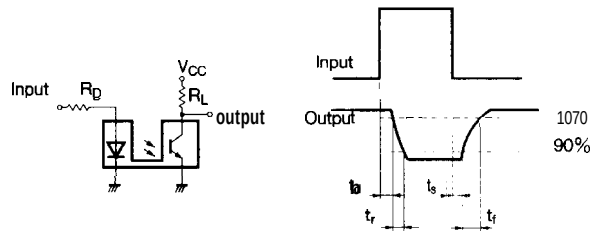
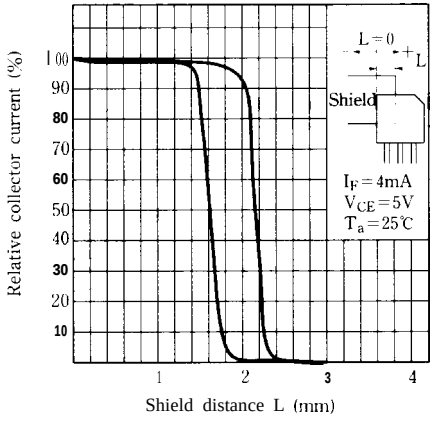
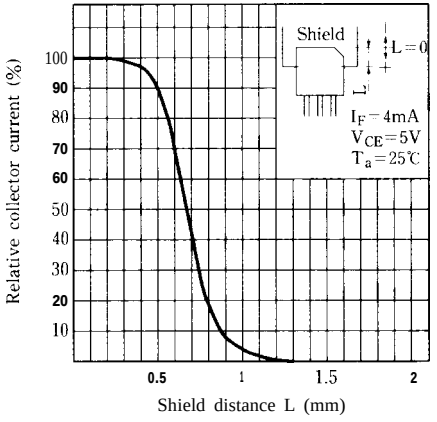


Fig.10 Relative Collector Current vs. shield Distance (1)



Figmll **Relative Collector Current** vs. shield **Distance** (2)



● Please refer to the chapter "Precautions for Use" (Page 78 to 93).