

GP2S22

Subminiature Photointerrupter

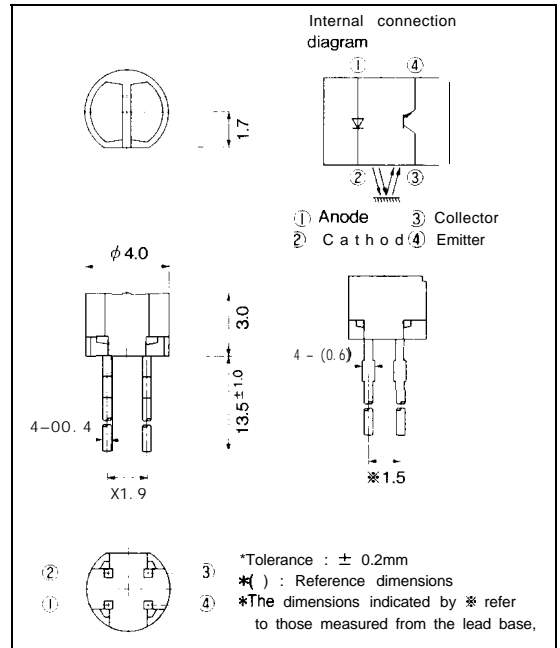
■ Features

1. $\phi 4$ mm compact resin mold type
2. Focal distance : 0.6mm
3. Visible light cut-off type

■ Applications

1. Audio equipment
2. VCRS

■ 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_{0*}	100	mW
Operating temperature		T_{opr}	-25 to +85	$^\circ\text{C}$
Storage temperature		T_{stg}	-40 to +100	$^\circ\text{C}$
*i Soldering temperature		T_{sol}	260	$^\circ\text{C}$

*i For 3 seconds by manual soldering

¹ 2mm or more

Soldering area

#

■ **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	$\sim K=6\sqrt{}$	—	—	10	μA
output	Collector dark current	$I_{C, \text{DO}}$	$V_{CE} = 20\text{V}, I_F = 0$		10^{-9}	10^{-7}	A
Transfer characteristics	*collector current	I_C	$V_{CE} = 2\text{V}, I_F = 4\text{mA}$	20	—	125	μA
	Response time	Rise time	t_r	$R_L = 1\text{k}\Omega, d = 1\text{mm}$	20	100*	μs
		Fall time	t_f		—	20	100
	*Leak current		I_{LFAK}	$V_{CE} = 2\text{V}, I_F = 4\text{mA}$		—	0.1

*2 The condition and arrangement of the reflective object are shown in the following drawing

*3 Without reflective object

The ranking of collector current shall be classified into the following 6 ranks.

Rank	$I_C (\mu\text{A})$
A	58 to 125
B	34 to 71
C	20 to 42
A or B	34 to 125
B or C	20 to 71
A, B or C	20 to 125

Test **Condition** and **Arrangement** for CoRector Current

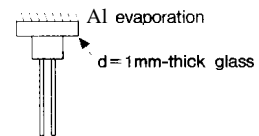


Fig. 1 Forward Current vs. Ambient Temperature

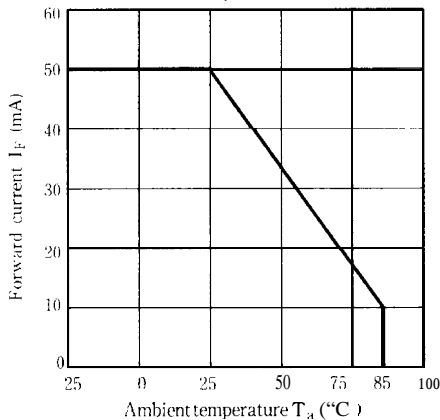


Fig. 2 Power Dissipation vs. Ambient Temperature

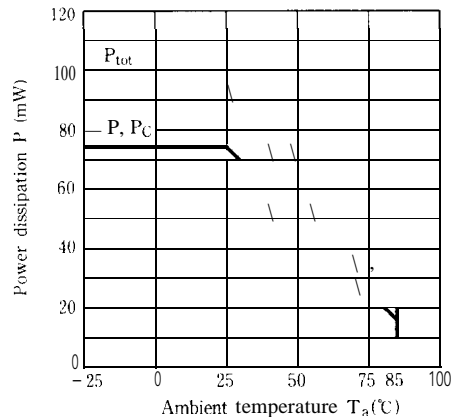


Fig.3 Forward Current vs. Forward Voltage

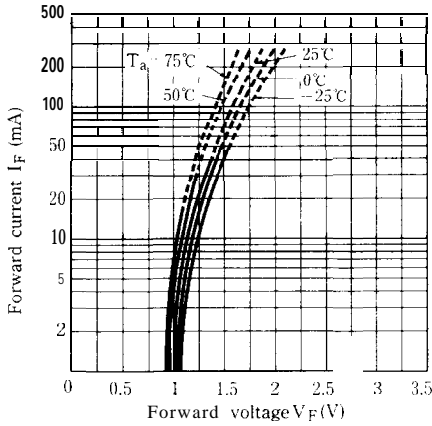


Fig.4 Collector Current vs. Forward Current

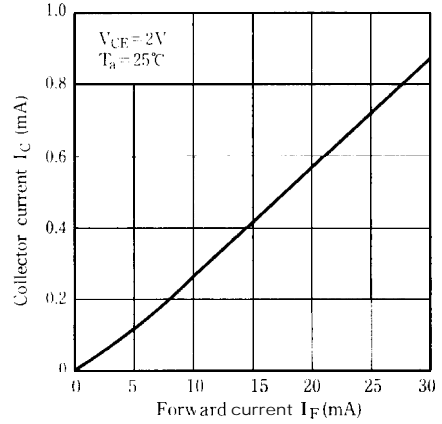


Fig. 5 Collector Current vs. Collector-emitter Voltage

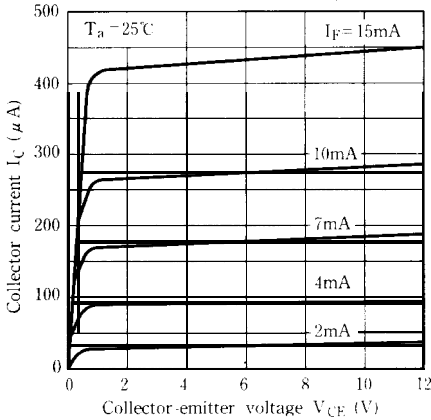


Fig. 6 Collector Current vs. Ambient Temperature

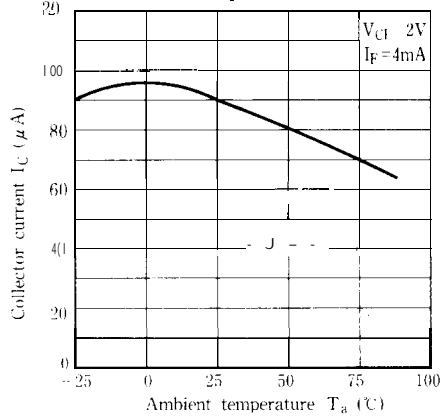


Fig. 7 Collector Dark Current vs. Ambient Temperature

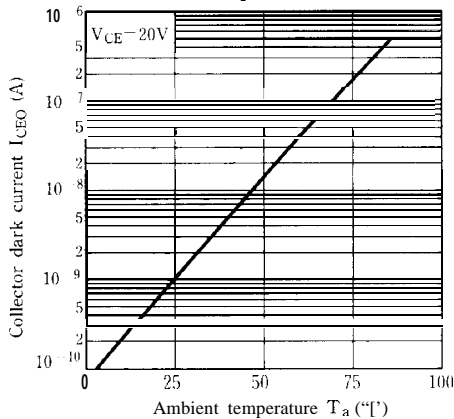
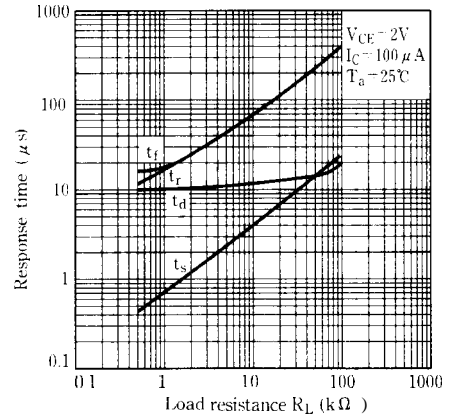


Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response Time

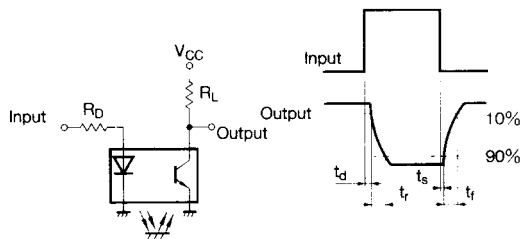
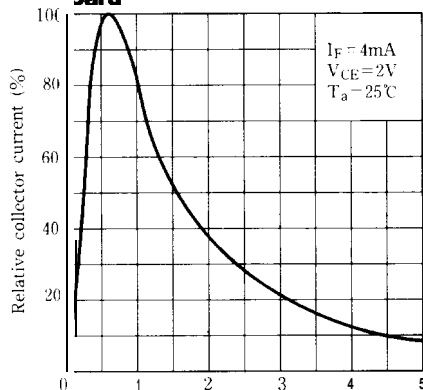
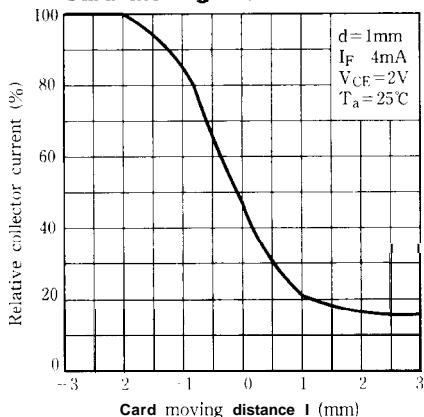


Fig.9 Relative Collector Current vs. Distance between GP2S22 and Card



Distance between GP2S22 and test card d (mm)

Fig.10 Relative Collector Current vs. Card Moving Distance



Distance Characteristics Test Condition

Correspond to Fig.9

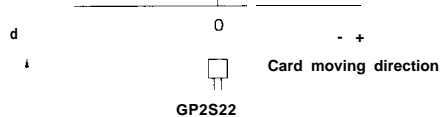
SHARP OMS TEST CARD (wHITE)



Correspond to Fig.10

SHARP OMS TEST CARD

Black | White



Precautions for Use

- (1) Perform soldering manually
- (2) Please refrain from soldering under preheating and refrain from soldering by reflow.
- (3) As for other general cautions, refer to the chapter "Precautions for Use" (Page 78 to 93).

Photointerrupters

