GP2S05/GP2S15 Subminiature Photointerrupter with Lens

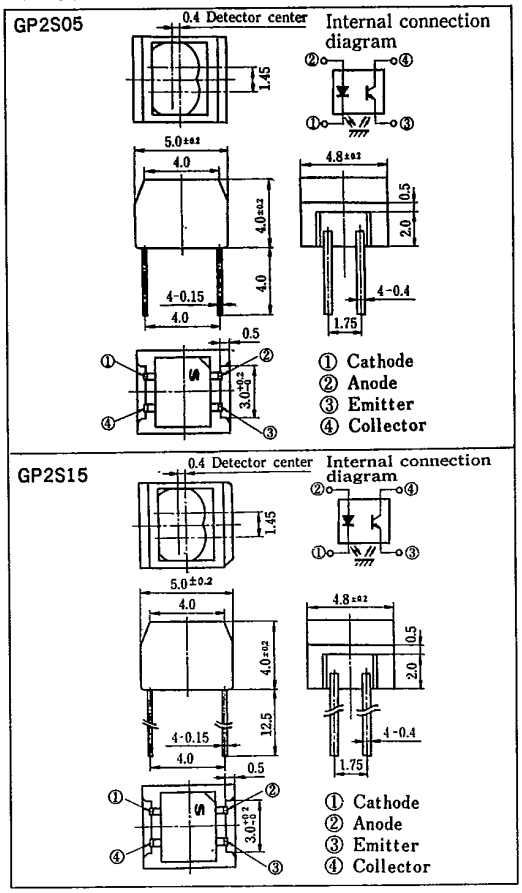
■ Features

1. Focal distance : 4mm
2. Easy to install into cartridge due to the snap-intype package
3. Visible light cut-off type
4. Long lead pin : 12.5mm (GP2S15)

■ Applications

1. Copiers, printers, facsimiles
2. Cassette decks, video decks
3. Record players

■ 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～+75	°C
Storage temperature		T_{stg}	−40～+80	°C
*1Soldering temperature		T_{sol}	260	°C

*1 For 5 seconds at the position of 1mm from the bottom face of resin package

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■ Electro-optical Characteristics

(Ta=25°C)

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		—	10^{-9}	10^{-7}	A
Transfer characteristics	*2Collector current	CTR	V_{CE}=5V, I_F=20mA	GP 2S05	1.4	—	12	%
				GP 2S15	0.5	—	12	%
	Response time (Rise)	t_r	I_C=100μA, V_{CE}=2V		—	20	100	μs
	Response time (Fall)	t_f	R_L=1kΩ, d=4mm		—	20	100	μs
	*3Leak current	I_{LEAK}	I_F=20mA, V_{CE}=5V		—	8	40	μA

*2 The condition and arrangement of the reflective object are shown below.
*3 Without reflective object

Test Condition and Arrangement for Collector Current

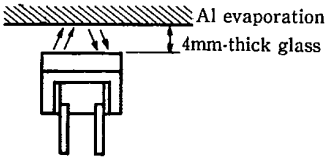

Fig. 1 Forward Current vs. Ambient Temperature

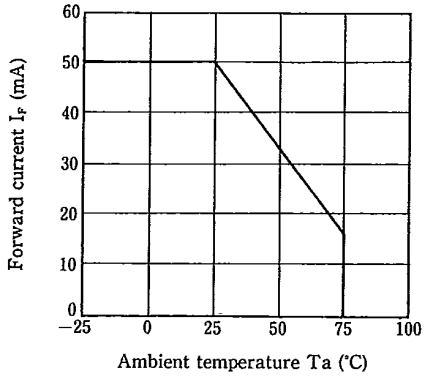

Fig. 2 Power Dissipation vs. Ambient Temperature

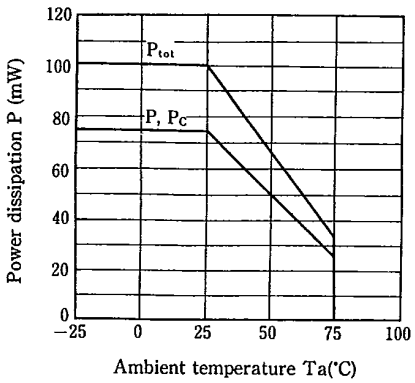

Fig. 3 Peak Forward Current vs. Duty Ratio

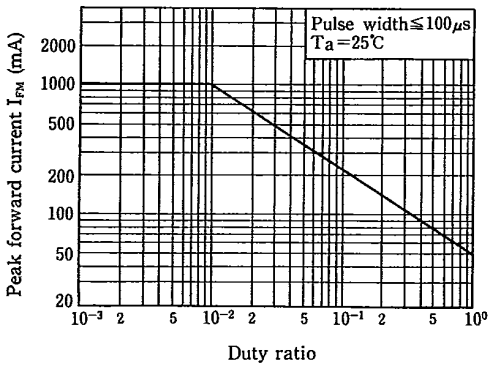

Fig. 4 Forward Current vs. Forward Voltage

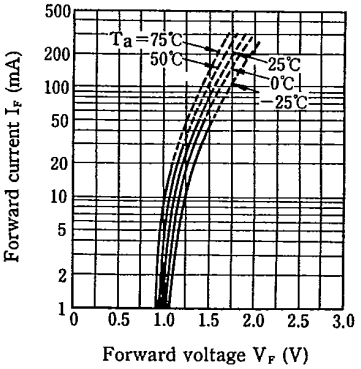

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Fig. 5 Collector Current vs. Forward Current

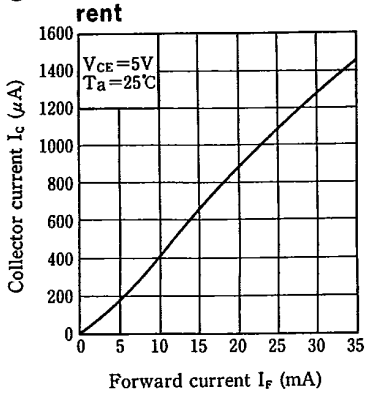


Fig. 6 Collector Current vs. Collector-emitter Voltage

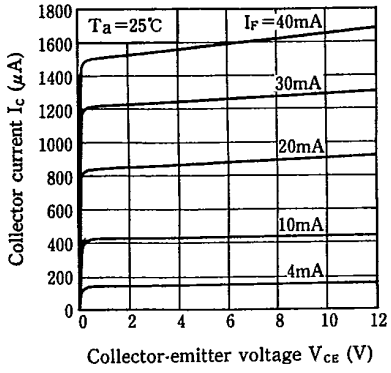


Fig. 7 Relative Collector Current vs. Ambient Temperature

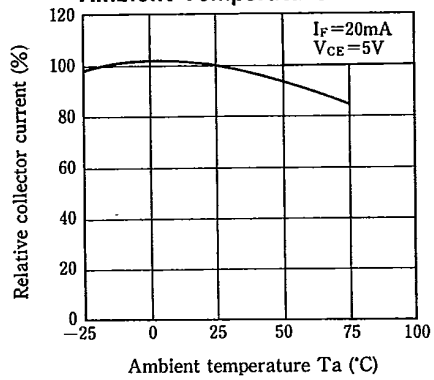


Fig. 8 Collector Dark Current vs. Ambient Temperature

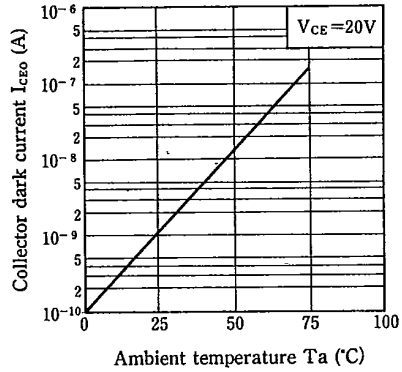
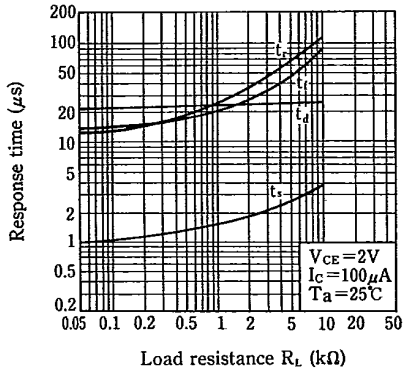


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

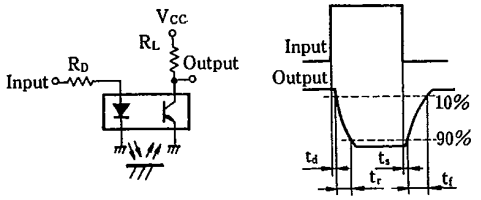


Fig.10 Relative Collector Current vs. Distance between GP2S05 (GP2S15) and Evaporation Glass

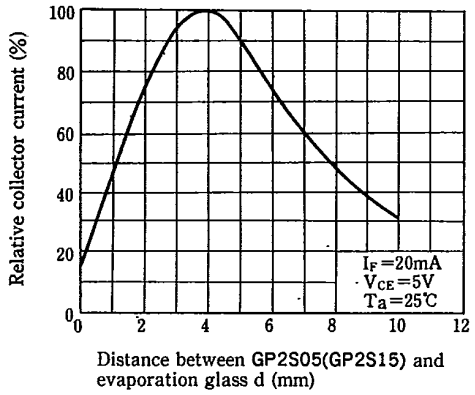


Fig. 11 Relative Collector Current vs. Card Moving Distance (1)

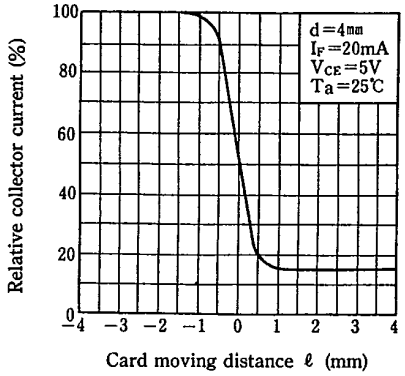
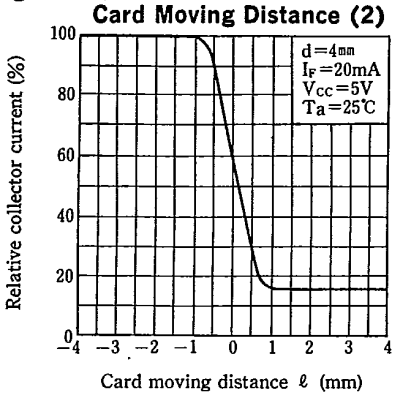


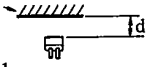
Fig. 12 Relative Collector Current vs. Card Moving Distance (2)



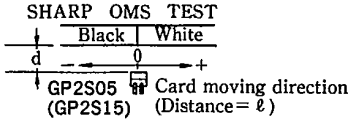
Distance Characteristic Test Condition

Correspond to Fig. 10

Al evaporation glass



Correspond to Fig. 11



Correspond to Fig. 12

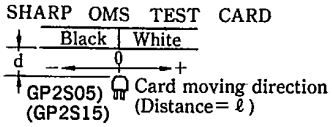


Fig. 13 Frequency Response

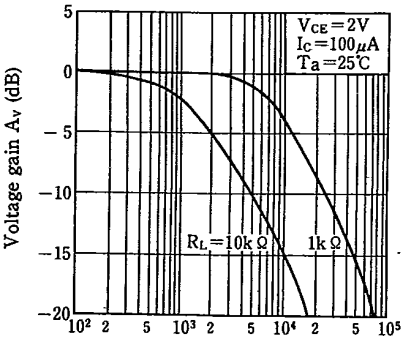


Fig. 14 Spectral Sensitivity (Detecting Side)