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T-41-73

GP2S05/GP2S15

Subminiature Photointerrupter with Lens

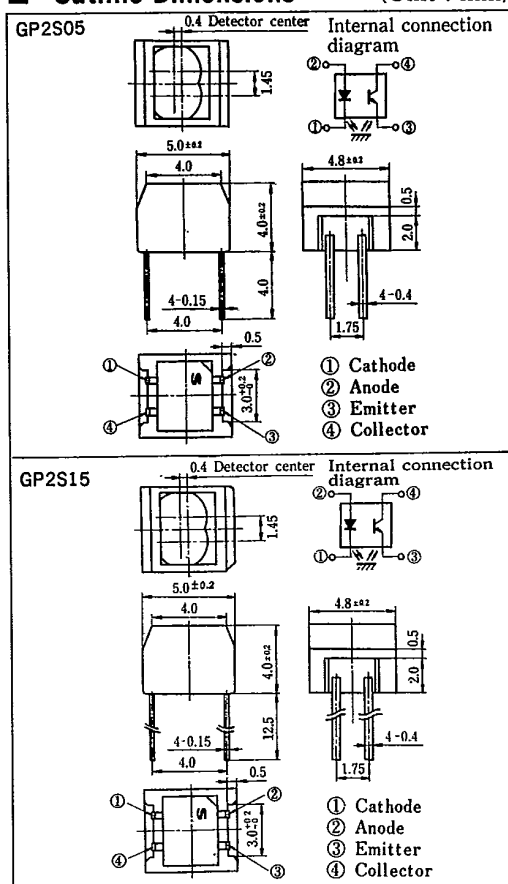
■ Features

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_{CE0}	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
	*1 Soldering temperature	T_{sol}	260	°C

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

SHARP

Electro-optical Characteristics

(Ta=25°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}	$V_{CE}=20\text{V}$		—	10^{-9}	10^{-7}	A
Transfer charac- teristics	*2Collector current	CTR	$V_{CE}=5\text{V},$	GP 2S05	1.4	—	12	%
			$I_F=20\text{mA}$	GP 2S15	0.5	—	12	%
	Response time (Rise)	t_r	$I_C=100\mu\text{A}, V_{CE}=2\text{V}$		—	20	100	μs
	Response time (Fall)	t_f	$R_L=1\text{k}\Omega, d=4\text{mm}$		—	20	100	μs
	*3Leak current	I_{LEAK}	$I_F=20\text{mA}, V_{CE}=5\text{V}$		—	8	40	μA

*2 The condition and arrangement of the reflective object are shown below.

*3 Without reflective object

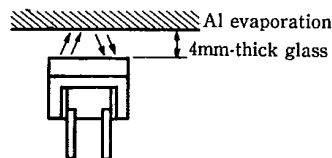
Test Condition and
Arrangement for
Collector Current

Fig. 1 Forward Current vs. Ambient Temperature

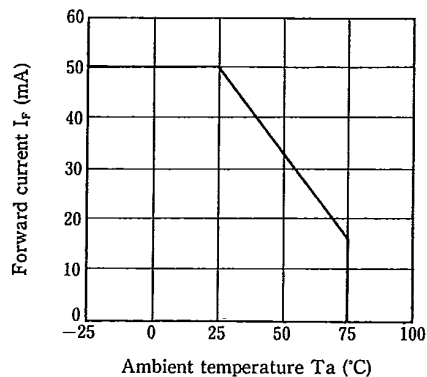


Fig. 2 Power Dissipation vs. Ambient Temperature

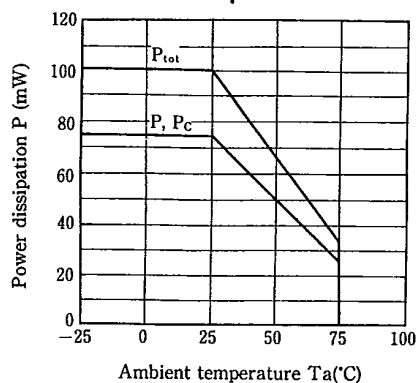


Fig. 3 Peak Forward Current vs. Duty Ratio

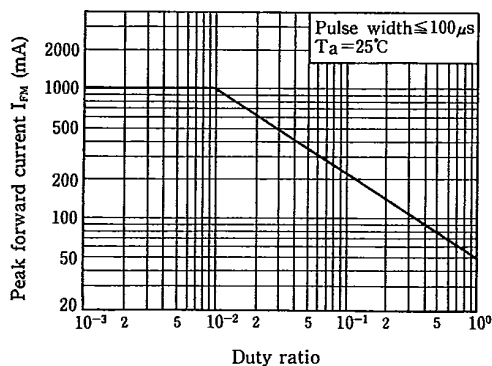
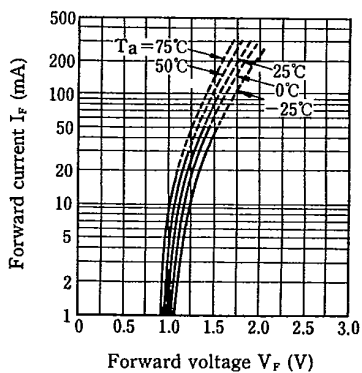
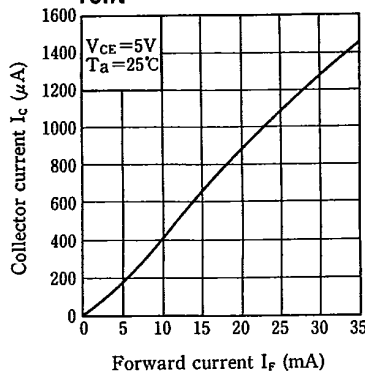
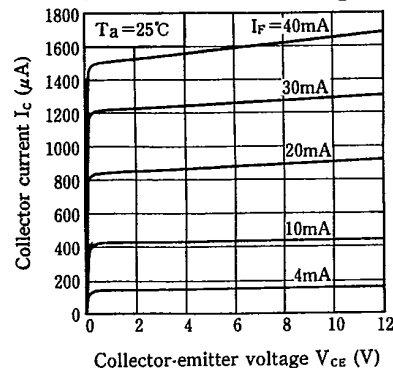
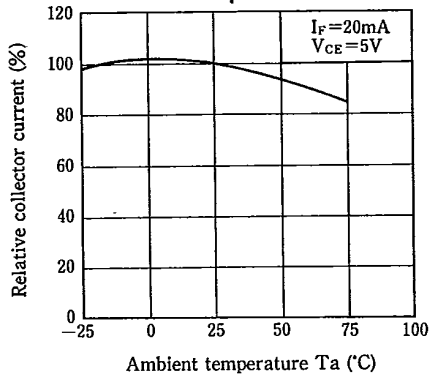
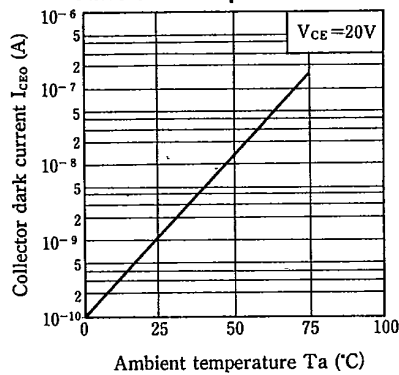
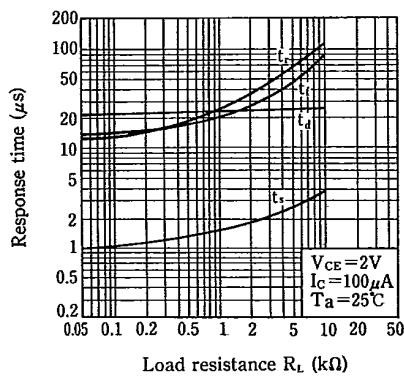
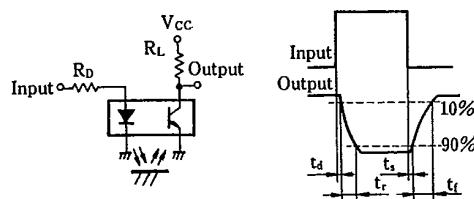


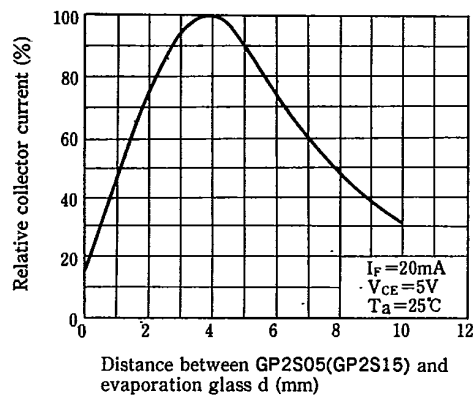
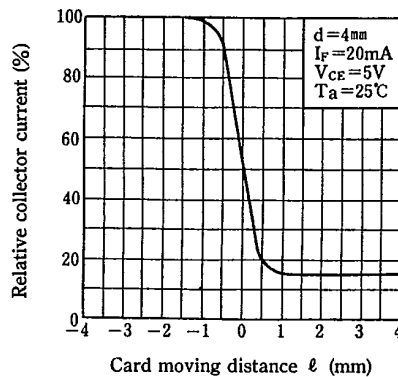
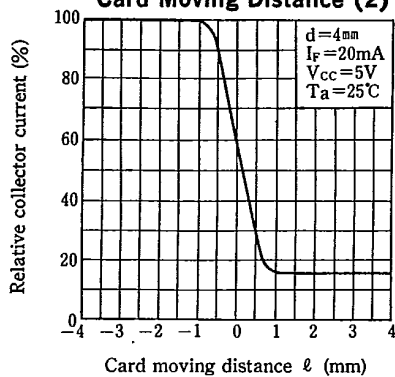
Fig. 4 Forward Current vs. Forward Voltage



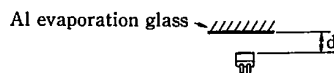
T-41-73

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**

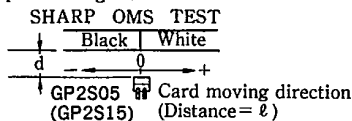
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Fig.10 Relative Collector Current vs. Distance between GP2S05 (GP2S15) and Evaporation Glass**Fig. 11 Relative Collector Current vs. Card Moving Distance (1)****Fig. 12 Relative Collector Current vs. Card Moving Distance (2)****Distance Characteristic Test Condition**

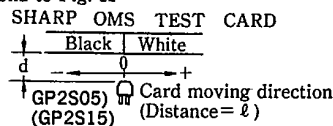
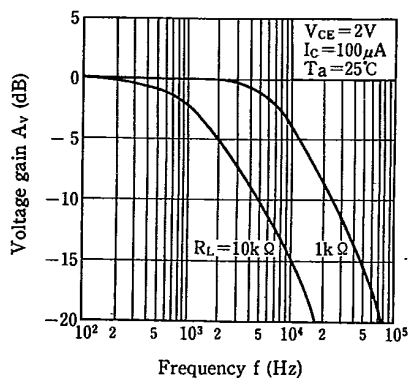
Correspond to Fig. 10



Correspond to Fig. 11



Correspond to Fig. 12

**Fig. 13 Frequency Response****Fig. 14 Spectral Sensitivity (Detecting Side)**