

GP2S40

Long Focal Distance, Subminiature Photointerrupter

■ Features

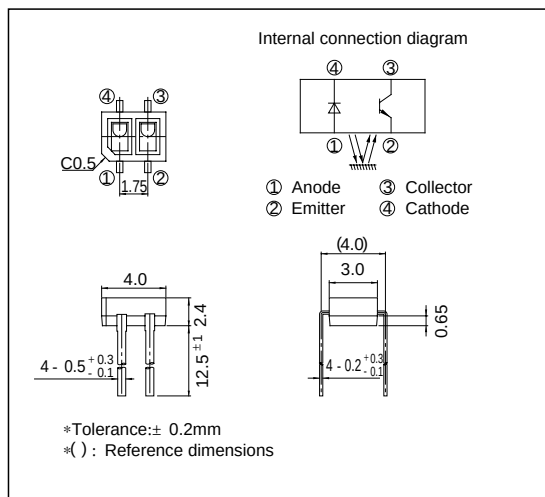
1. Ultra compact DIP package
(Volume: 1/3 of **GP2S05**)
2. Long focal distance type
(focal distance: 3mm)
3. Effective detection distance: 1.5 to 6.5mm

■ Applications

1. Copiers
2. Facsimiles
3. Printers

■ Outline Dimensions

(Unit : mm)

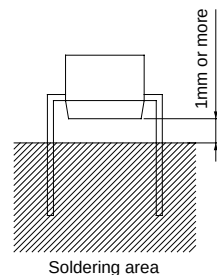


■ Absolute Maximum Ratings

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

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	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 5 seconds



■ Electro-optical Characteristics

(Ta= 25°C)

Parameter			Symbol	Condition	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	μ A
Output	Collector dark current		I _{CEO}	V _{CE} = 20V	-	1	100	nA
Transfer chara cteristics	Collector current		I _C	V _{CE} = 5V, I _F = 20mA	0.5	-	3.0	mA
	*2Leak current		I _{LEAK}	V _{CE} = 5V, I _F = 20mA	-	-	500	nA
	*3Response time	Rise time	t _r	V _{CE} = 2V, I _C = 100 μ A	-	50	150	μ s
		Fall time	t _f		R _L = 1 000Ω , d = 4mm	-	50	150

*2 No reflective object
*3 “d” is glass thickness of reflective mirror.

Test Arrangement of Collector Current

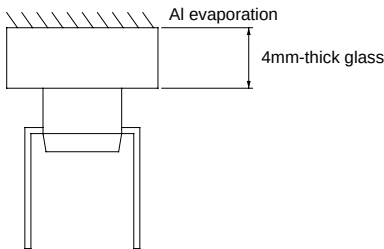


Fig. 1 Forward Current vs. Ambient Temperature

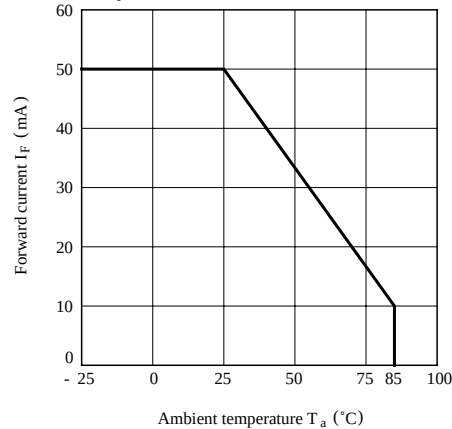


Fig. 2 Power Dissipation vs. Ambient Temperature

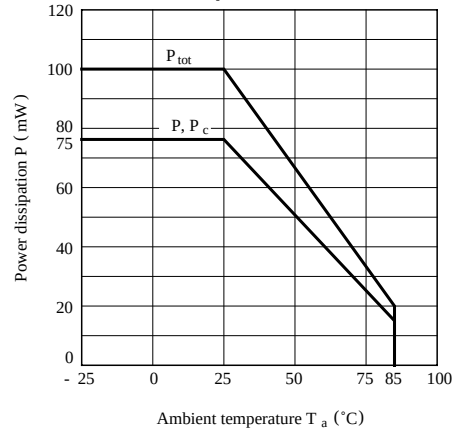


Fig. 3 Forward Current vs. Forward Voltage

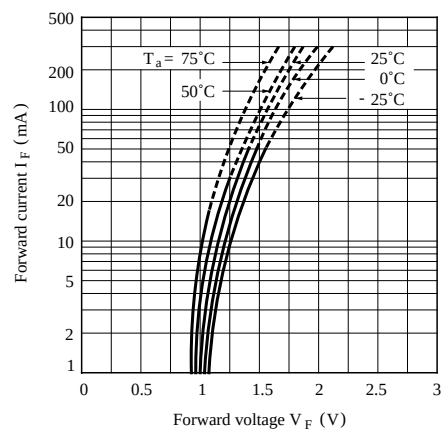


Fig. 4 Collector Current vs. Forward Current

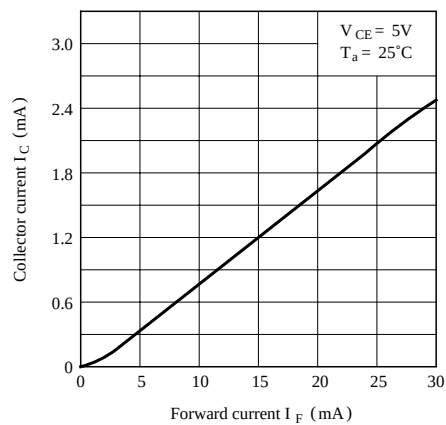


Fig. 5 Collector Current vs. Collector-emitter Voltage

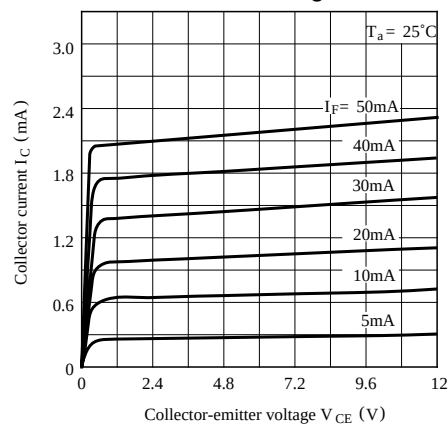


Fig. 6 Relative Collector Current vs. Ambient Temperature

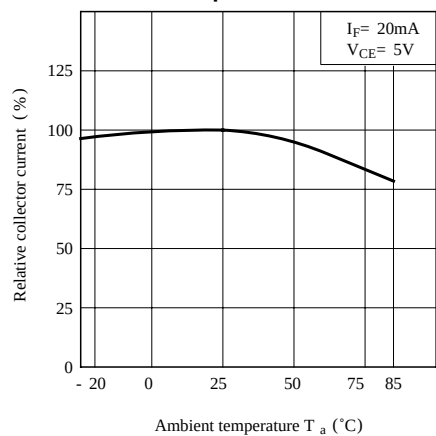


Fig. 7 Collector Dark Current vs. Ambient Temperature

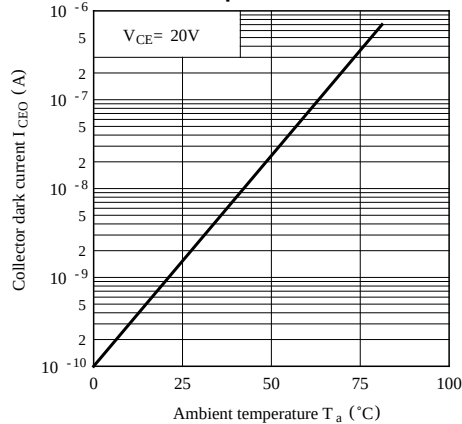
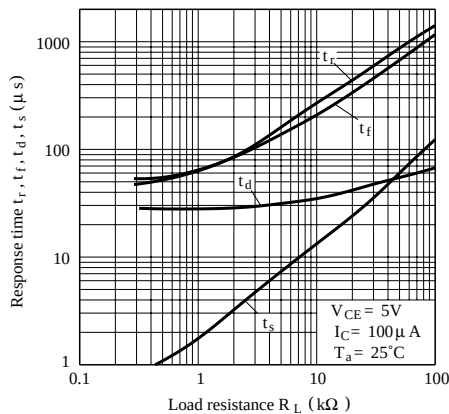


Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response Time

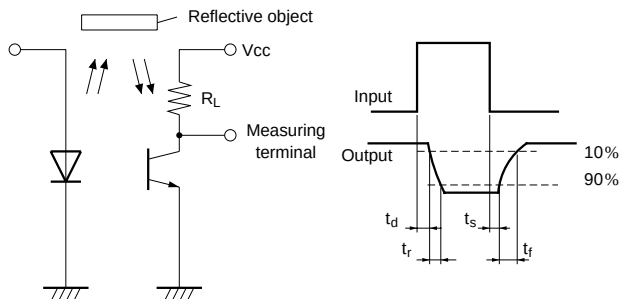


Fig. 9 Relative Collector Current vs. Sensor moving Distance (1)

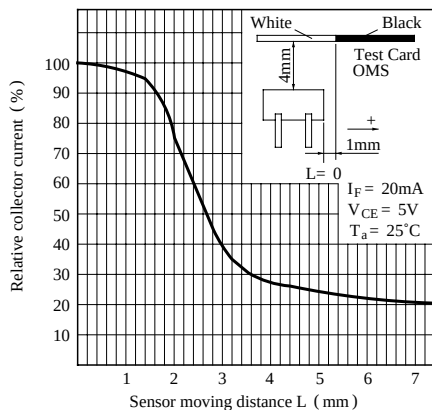


Fig.10 Relative Collector Current vs. Sensor moving Distance (2)

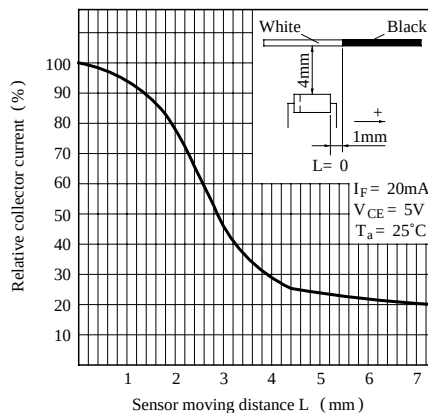


Fig. 11 Relative Collector Current vs. Distance

