

GP2S40 Datasheet



DiGi Electronics Part Number	GP2S40-DG
Manufacturer	Sharp Microelectronics
Manufacturer Product Number	GP2S40
Description	PHOTOINTERRUPTER REFLEC 6.5MM PC
Detailed Description	Reflective Optical Sensor 0.256" (6.5mm) PCB Mount

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Purchase and inquiry

Manufacturer Product Number:

GP2540

Series:

-

Sensing Distance:

0.256" (6.5mm)

Voltage - Collector Emitter Breakdown (Max):

35 V

Current - DC Forward (If) (Max):

50 mA

Response Time:

50µs, 50µs

Package / Case:

PCB Mount

Manufacturer:

Sharp Microelectronics

Product Status:

Obsolete

Sensing Method:

Reflective

Current - Collector (Ic) (Max):

20 mA

Output Type:

Phototransistor

Mounting Type:

Through Hole

Operating Temperature:

-25°C ~ 85°C

Environmental & Export classification

RoHS Status:

RoHS non-compliant

ECCN:

EAR99

Moisture Sensitivity Level (MSL):

1 (Unlimited)

HTSUS:

8541.49.8000

GP2S40

Long Focal Distance, Subminiature Photointerrupter

■ Features

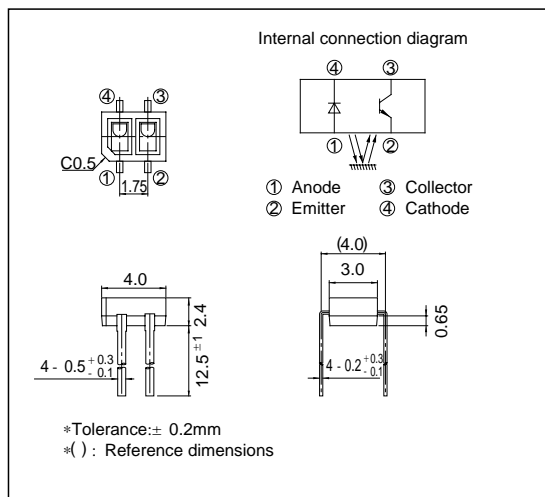
1. Ultra compact DIP package
(Volume: 1/3 of **GP2S05**)
2. Long focal distance type
(focal distance: 3mm)
3. Effective detection distance: 1.5 to 6.5mm

■ Applications

1. Copiers
2. Facsimiles
3. Printers

■ Outline Dimensions

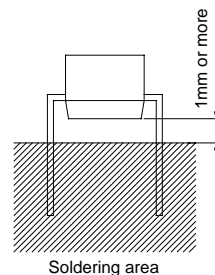
(Unit : mm)



■ 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

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

Parameter		Symbol	Condition	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}	$V_{CE} = 20\text{V}$	-	1	100	nA	
Transfer characteristics	Collector current	I_C	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.5	-	3.0	mA	
	*2Leak current		I_{LEAK}	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	-	-	500	nA
	*3Response time	Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 100\mu\text{A}$	-	50	150	μs
Fall time		t_f	$R_L = 1\,000\Omega, d = 4\text{mm}$	-	50	150	μs	

*2 No reflective object

*3 "d" is glass thickness of reflective mirror.

Test Arrangement of Collector Current

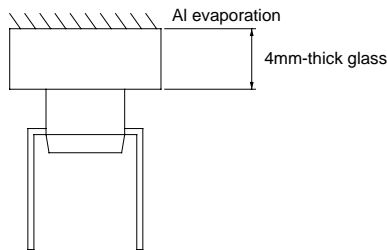


Fig. 1 Forward Current vs. Ambient Temperature

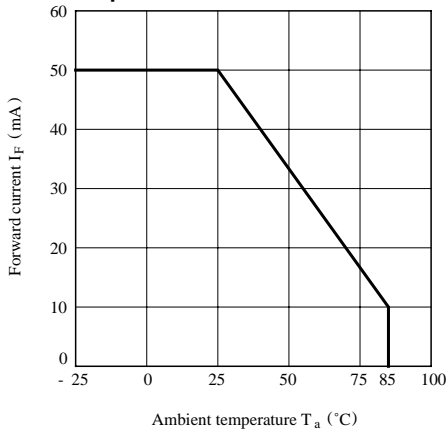


Fig. 2 Power Dissipation vs. Ambient Temperature

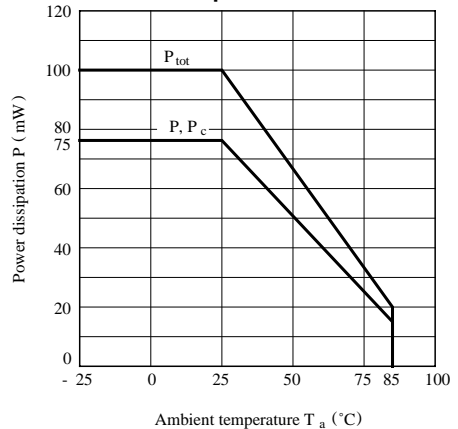


Fig. 3 Forward Current vs. Forward Voltage

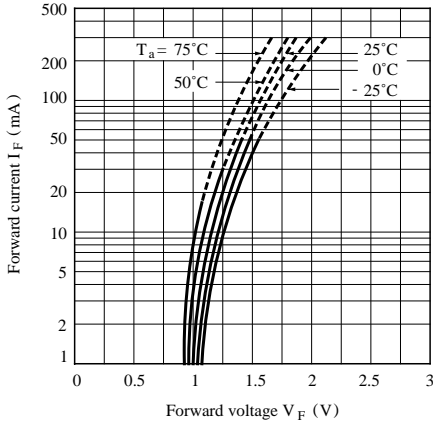


Fig. 4 Collector Current vs. Forward Current

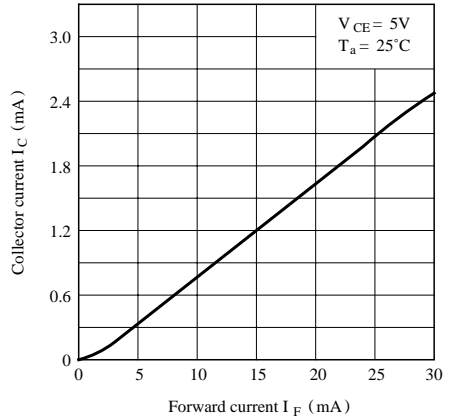


Fig. 5 Collector Current vs. Collector-emitter Voltage

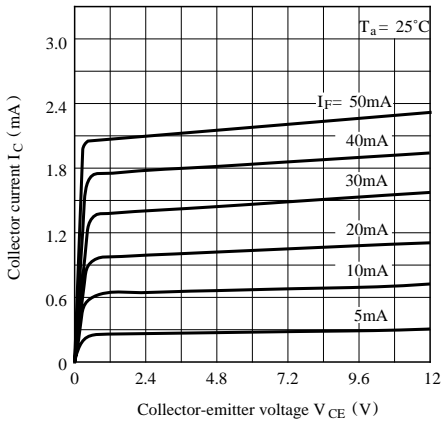


Fig. 6 Relative Collector Current vs. Ambient Temperature

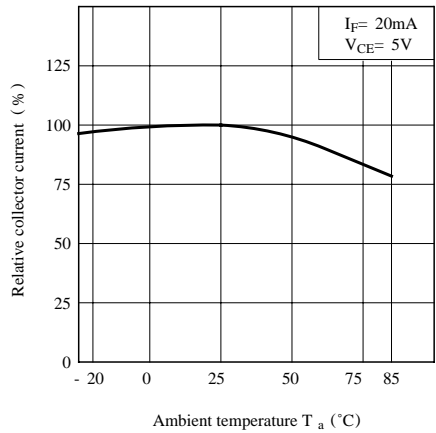


Fig. 7 Collector Dark Current vs. Ambient Temperature

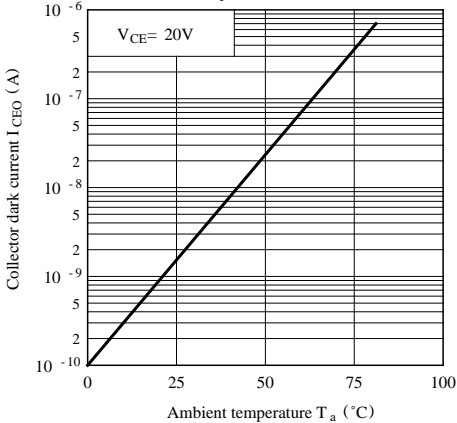
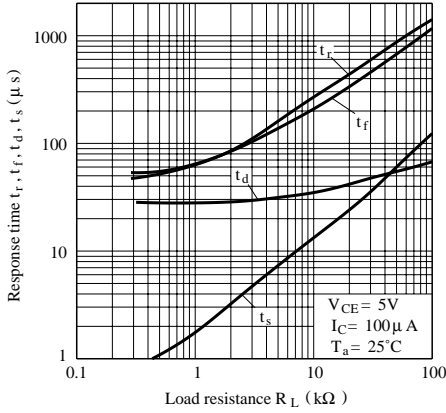


Fig. 8 Response Time vs. Load Resistance



Test Circuit for Response Time

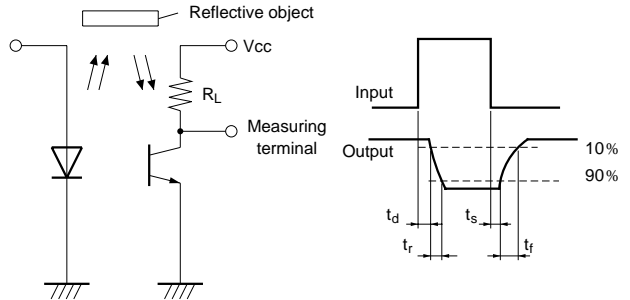


Fig. 9 Relative Collector Current vs. Sensor moving Distance (1)

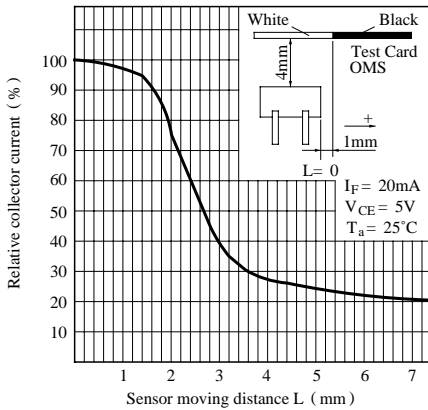


Fig.10 Relative Collector Current vs. Sensor moving Distance (2)

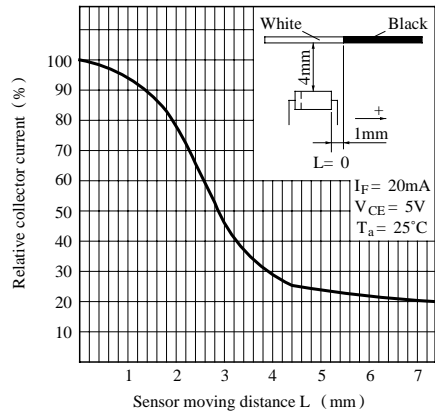
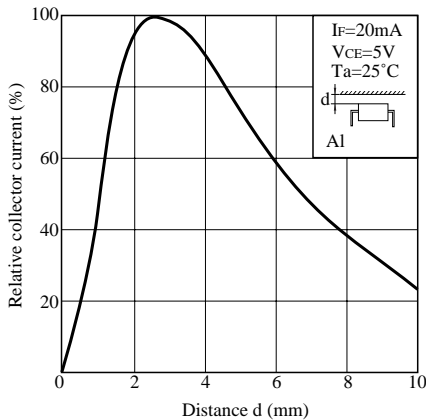


Fig. 11 Relative Collector Current vs. Distance



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