

GP1S74P Datasheet



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DiGi Electronics Part Number	GP1S74P-DG
Manufacturer	Sharp Microelectronics
Manufacturer Product Number	GP1S74P
Description	SENSOR OPT SLOT PHOTOTRANS MODUL
Detailed Description	Optical Sensor Through-Beam 0.197" (5mm) Photo transistor Module, Connector

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Manufacturer Product Number:

GP1S74P

Series:

-

Sensing Distance:

0.197" (5mm)

Output Configuration:

Phototransistor

Current - Collector (Ic) (Max):

20 mA

Response Time:

3µs, 4µs

Mounting Type:

Snap-In

Type:

Unamplified

Manufacturer:

Sharp Microelectronics

Product Status:

Obsolete

Sensing Method:

Through-Beam

Current - DC Forward (If) (Max):

50 mA

Voltage - Collector Emitter Breakdown (Max):

35 V

Operating Temperature:

-25°C ~ 85°C

Package / Case:

Module, Connector

Environmental & Export classification

RoHS Status:

RoHS non-compliant

ECCN:

EAR99

Moisture Sensitivity Level (MSL):

1 (Unlimited)

HTSUS:

8541.49.8000

GP1S73P/GP1S74P

Compact Photointerrupter with Connector

■ Features

1. Compact type
2. Snap-in mounting type
3. 3 kinds of mounting plate thickness
(Applicable plate thickness : 1.0, 1.2 and 1.6 mm)

■ Applications

1. Copiers
2. Laser beam printers
3. Facsimiles

■ Absolute Maximum Ratings

(Ta=25°C)

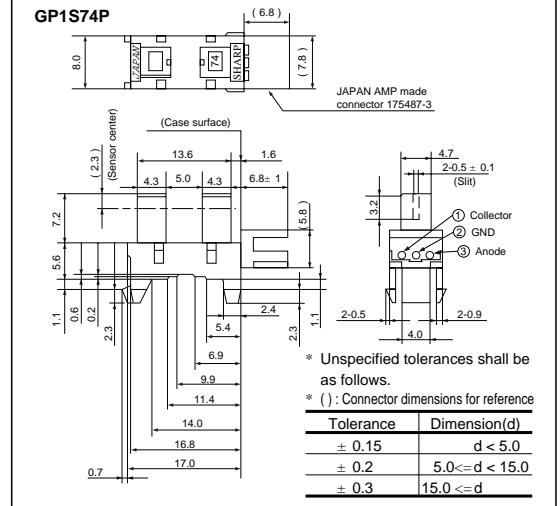
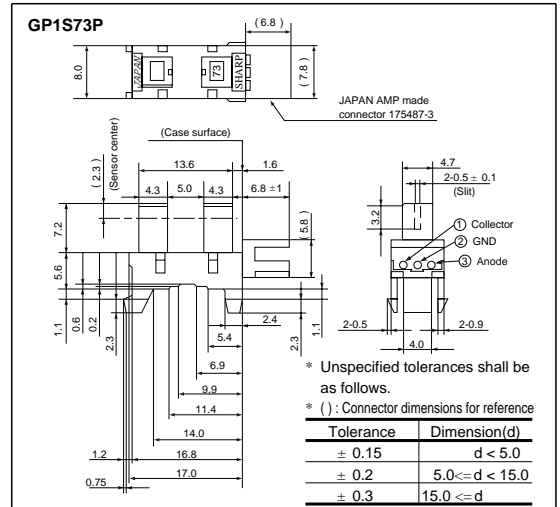
Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	*1 Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P	75	mW
Output	Collector-emitter voltage	V_{CEO}	35	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	20	mA
	Collector power dissipation	P_C	75	mW
	Operating temperature	T_{opr}	- 25 to + 85	°C
	Storage temperature	T_{stg}	- 40 to + 85	°C

*1 Pulse width 100 μ s, Duty ratio=0.01

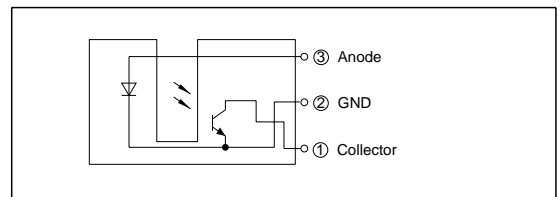
*2 The connector should be plugged in/out at normal temperature.

■ Outline Dimensions

(Unit : mm)



■ Internal Connection Diagram (Both GP1S73P/GP1S74P)



■ **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	
	Peak forward voltage	V_{FM}	$I_{FM} = 0.5\text{A}$	-	3.0	4.0	V	
	Reverse current	I_R	$V_R = 3\text{V}$	-	-	10	μA	
Output	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	-	15	mA	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 40\text{mA}, I_C = 0.5\text{mA}$	-	-	0.4	V	
	Response time	Rise time	t_r	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$	-	3	15	μs
		Fall time	t_f	$R_L = 100\Omega$	-	4	20	μs

Fig. 1 Forward Current vs. Ambient Temperature

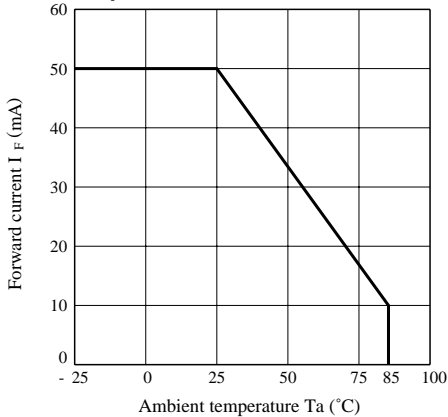


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

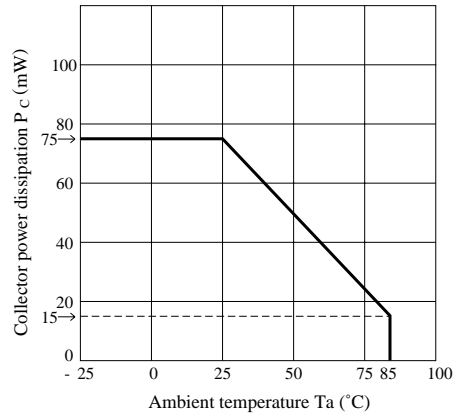


Fig. 3 Peak Forward Current vs. Duty Ratio

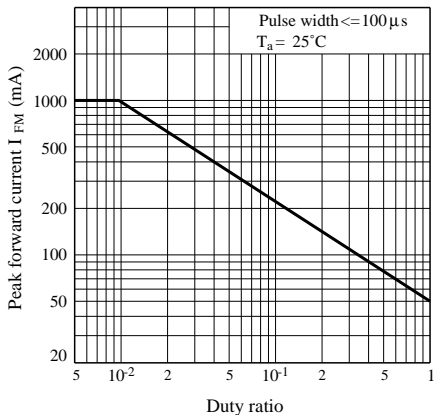


Fig. 4 Forward Current vs. Forward Voltage

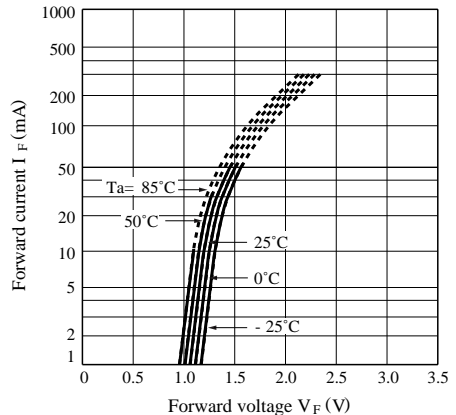


Fig. 5 Collector Current vs. Forward Current

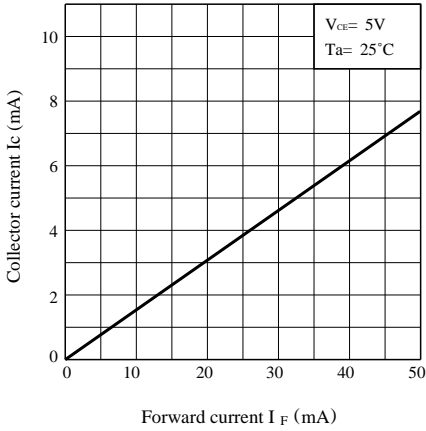


Fig. 6 Collector Current vs. Collector-emitter Voltage

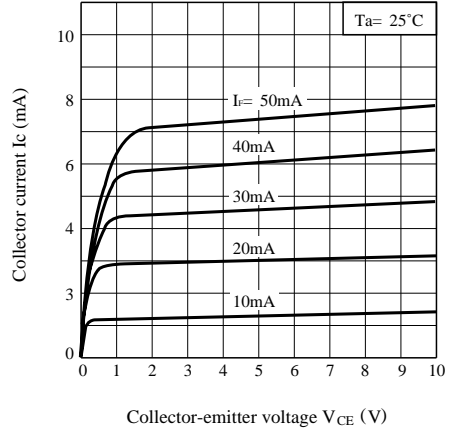


Fig. 7 Collector Current vs. Ambient temperature

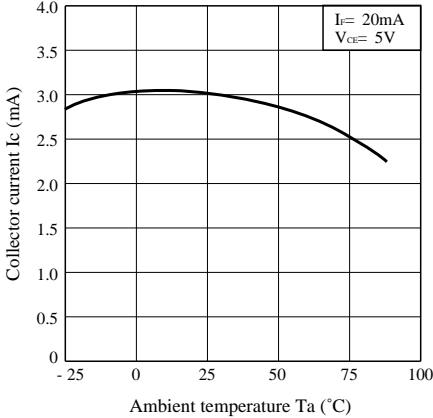


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature

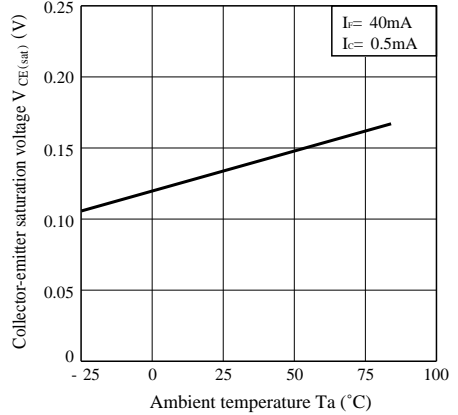
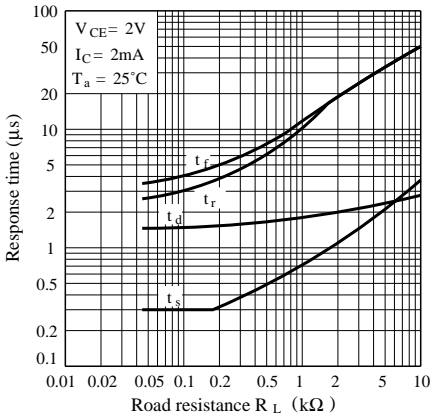


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

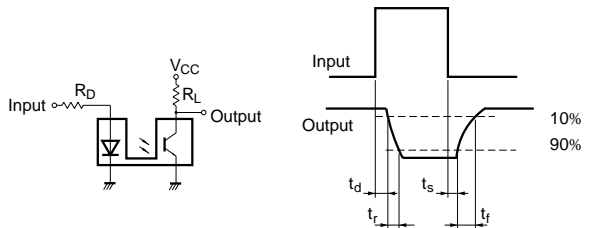


Fig. 10 Frequency Characteristics

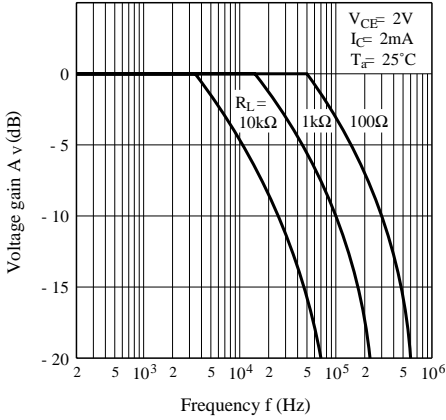


Fig. 11 Dark Current vs. Ambient Temperature

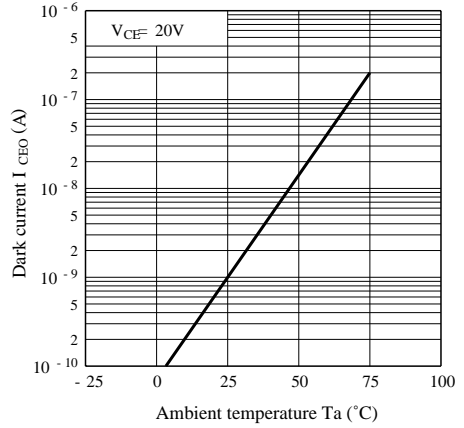


Fig. 12 Detecting Position Characteristics (1)

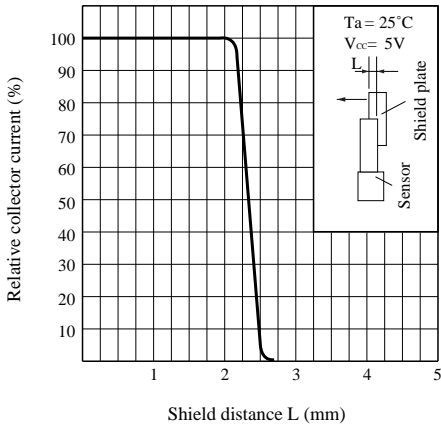
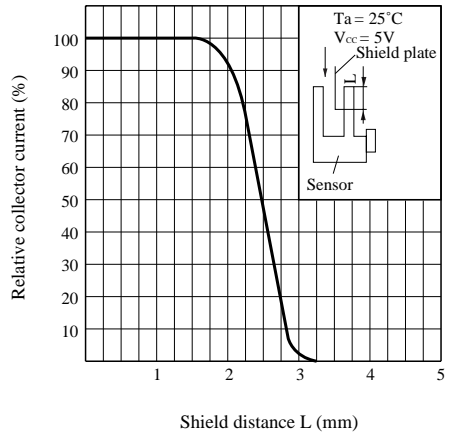


Fig. 13 Detecting Position Characteristics (2)

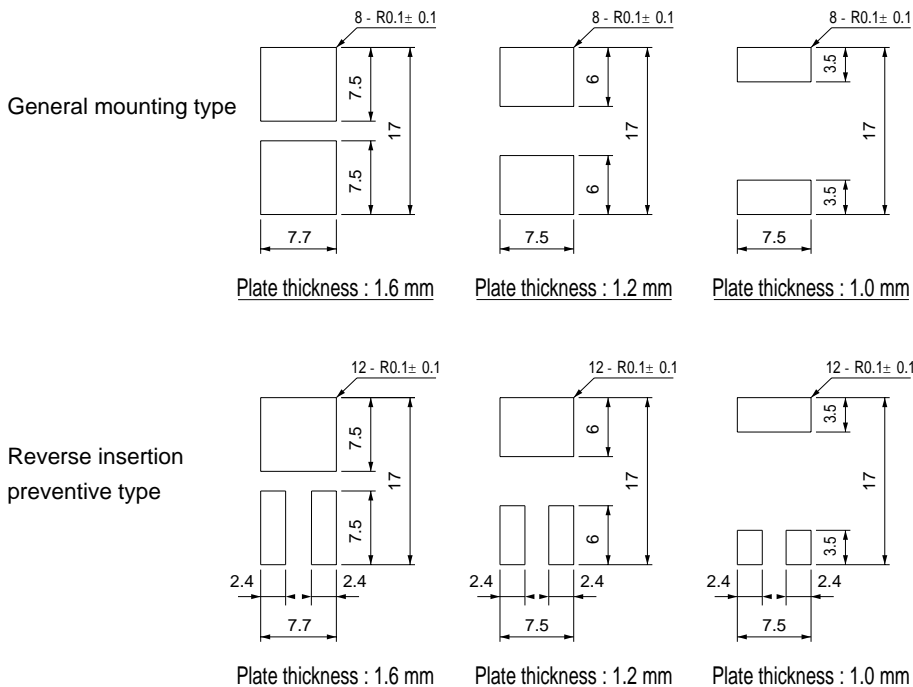


Recommended Mounting Hole Drawing (Dimensions shown are recommended values.)

Use the photointerrupters after checking the mounting strength and others on an actual machine.)

1. It is recommended to mount the photointerrupters on the shear droop surface (punch side) of the mounting plate (metal plate).
2. Mounting workability, shaking after mounting and mounting strength depend on the corner radius of the mounting plate and state of punching.
Determine the mounting hole dimensions after check on an actual machine.
3. General dimensional tolerances shall be ± 0.1 mm.

(Unit : mm)



(Precautions for Operation)

- 1) In this product, the PWB is fixed with a hook, and cleaning solvent may remain inside the case; therefore, dip cleaning or ultrasonic cleaning are prohibited.
 - 2) Remove dust or stains, using an air blower or a soft cloth moistened in cleaning solvent.
However, do not perform the above cleaning using a soft cloth with solvent in the marking portion.
In this case, use only the following type of cleaning solvent for wiping off;
Ethyl alcohol, Methyl alcohol, Isopropyl alcohol
When the cleaning solvents except for specified materials are used, please contact us.
- As for other general precautions, please refer to the chapter "Precautions for Use".

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