

# GP1A05A

## OPIC Photointerrupter with Connector

### ■ Features

1. Uses 3-pin connector terminal
2. High sensing accuracy (Slit width : 0.5mm)
3. Wide gap between light emitter and detector (5mm)

### ■ Applications

1. Copiers, Printers
2. Facsimiles

### ■ Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Suppl voltage	V <sub>CC</sub>	-0.5 to +10	V
*1 Output voltage	V <sub>OUT</sub>	-0.5 to +28	V
*2 Low level output current	I <sub>OL</sub>	50	mA
*3 Operating temperature	T <sub>opr</sub>	-20 to +75	°C
*3 Storage temperature	T <sub>stg</sub>	-40 to +85	°C

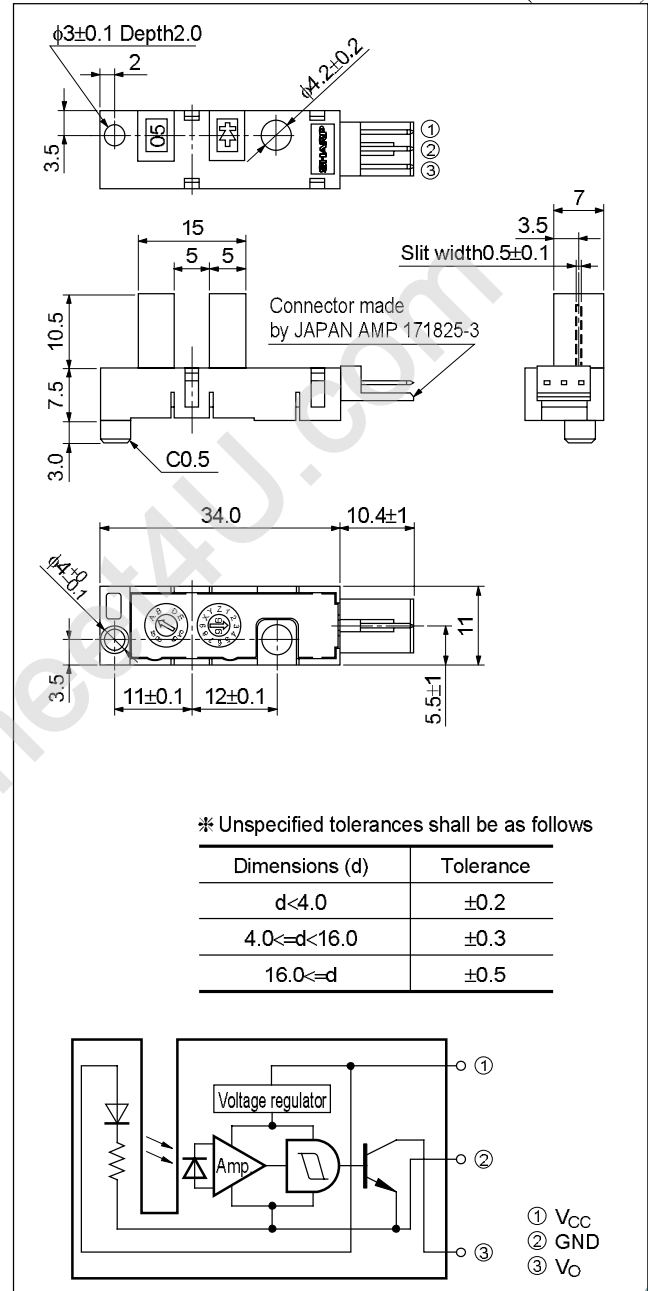
\*1 Collector-emitter voltage of output transistor.

\*2 Collector current of output transistor.

\*3 The connector should be plugged in/out at normal temperature.

### ■ Outline Dimensions

(Unit : mm)



\* "OPIC" (Optical IC) is a trademark of the SHARP Corporation.

An OPIC consists of a light-detecting element and signal-processing circuit integrated onto a single chip.

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Internet Internet address for Electronic Components Group <http://www.sharp.co.jp/ecg/>

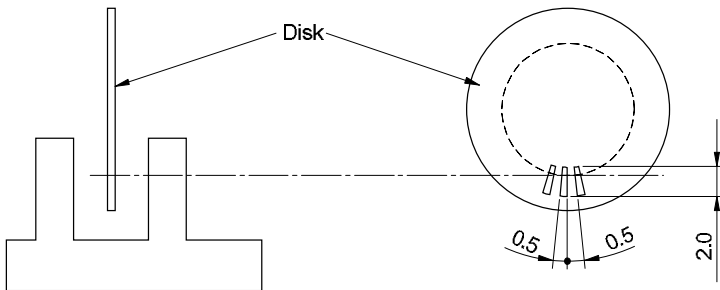
■ Electro-optical Characteristics

(Unless otherwise specified,  $V_{CC}=5V$ ,  $T_a=25^{\circ}C$ )

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating supply voltage	$V_{CC}$		4.5	–	5.5	V
Low level supply current	$I_{CCL}$	Light beam uninterrupted	–	–	30	mA
Low level output voltage	$V_{OL}$	Light beam uninterrupted, $I_{OL}=16mA$	–	–	0.35	V
High level supply current	$I_{CCH}$	Light beam interrupted	–	–	30	mA
High level output voltage	$V_{OH}$	Light beam interrupted, $R_L=47k\Omega$	$V_{CC}\times 0.9$	–	–	V
*4 Response frequency	f	No DC output is allowed, $R_L=47k\Omega$	–	–	3 000	Hz

\*4 Refer to Fig.1

Fig.1 Response Frequency



Response frequency is measured with the disk shown below being rotated. (Unit : mm)

Fig.2 Low Level Output Current vs. Ambient Temperature

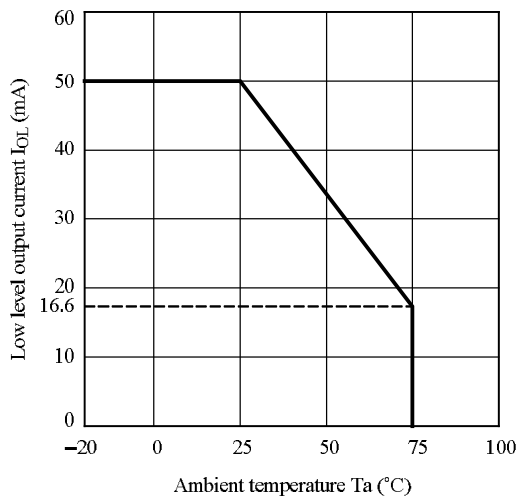
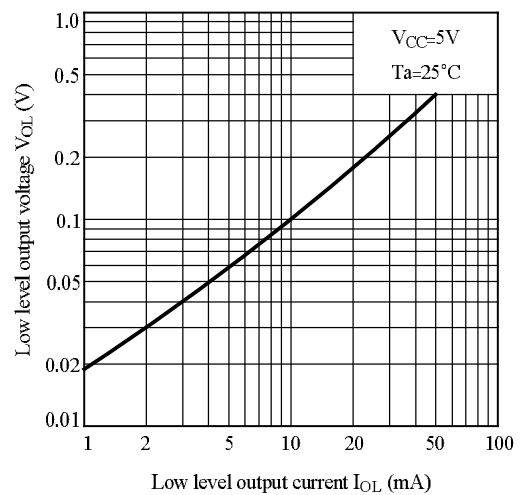
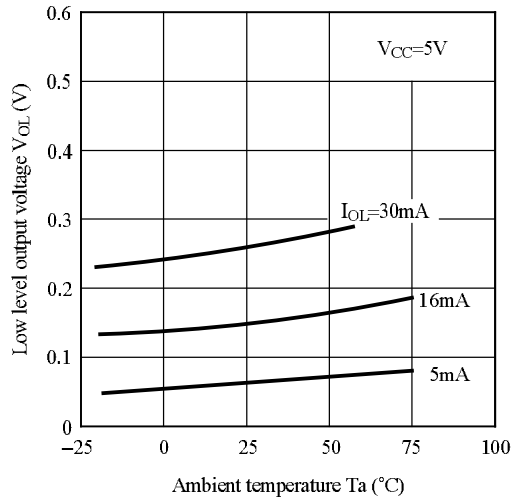


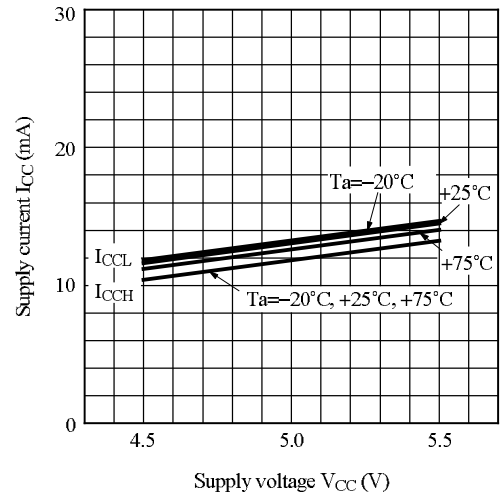
Fig.3 Low Level Output Voltage vs. Low Level Output Current



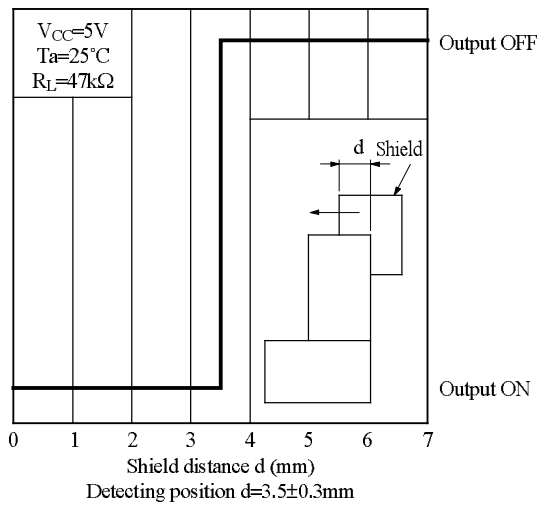
**Fig.4 Low Level Output Voltage vs. Ambient Temperature**



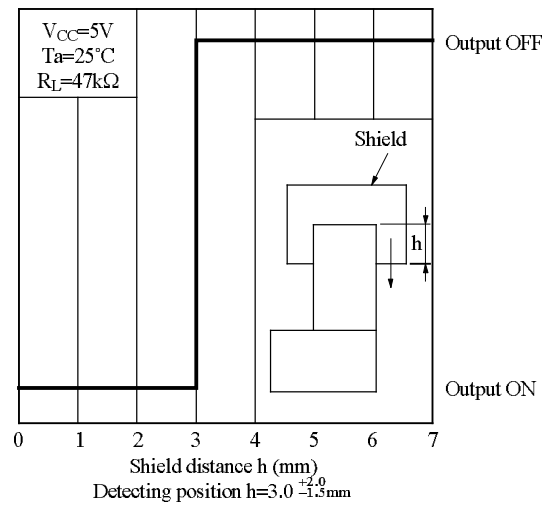
**Fig.5 Supply Current vs. Supply Voltage**



**Fig.6 Detecting Position Characteristics (1)**



**Fig.7 Detecting Position Characteristics (2)**



## ■ Recommended Connectors on the Inserted Side

### ◆ JAPAN AMP made EI series connectors (standard type)

Housing color	Natural color	Black	Blue	Green	Red
Housing Model No.	171822-3	2-171822-3	4-171822-3	6-171822-3	8-171822-3
Special terminal Model. No.	AWG size	Product shape	Material	Model No.	
	AWG 26 to 20	Bulk	Brass	170204-1	
			Copper phosphide	170204-2	
		Chain	Brass	170262-1	
			Copper phosphide	170262-2	
	AWG 30 to 26	Bulk	Brass	170205-1	
			Copper phosphide	170205-2	
		Chain	Brass	170263-1	
			Copper phosphide	170263-2	

### ◆ JAPAN AMP made EI series connectors (low profile type)

Housing color	Natural color	Black	Blue	Green	Red
Housing Model No.	172142-3	2-172142-3	4-172142-3	6-172142-3	8-172142-3
Special terminal Model. No. (Material : Copper phosphide)	AWG size	Product shape		Model No.	
	AWG 26 to 22	Bulk		170369-1	
		Chain		170354-1	
	AWG 30 to 26	Bulk		170370-1	
Chain		170355-1			

### ◆ JAPAN AMP made EI series connectors (amp mass termination)

Housing-terminal united type connector	AWG28 (Green)	AWG26 (Natural color)	AWG24 (Black)	AWG22 (Red)
	172054-3	172053-3	172052-3	172051-3

\* Terminal Material : Copper phosphide

## ■ Precautions for Use

1. It is recommended that a by-pass capacitor of more than 0.01 $\mu$ F be added between Vcc and GND near the device in order to stabilize power supply line.
2. Please don't carry out immersion cleaning or ultrasonic cleaning to avoid keeping solvent inside case of this device.
3. 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 cleaning solvent in the marking portion.  
In this case, use only the following type of cleaning solvent used for wiping off :  
Ethyl alcohol, Methyl alcohol, Isopropyl alcohol,  
When the cleaning solvents except for specified materials are used, please consult us.
4. As for other general cautions, refer to the chapter "Precautions for Use. "

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    - Office automation equipment
    - Telecommunication equipment [terminal]
    - Test and measurement equipment
    - Industrial control
    - Audio visual equipment
    - Consumer electronics
  - (ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
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    - Traffic signals
    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.
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