

# GP1A05A2

## 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 voltagey              | V <sub>CC</sub>  | -0.5 to +8  | 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   |

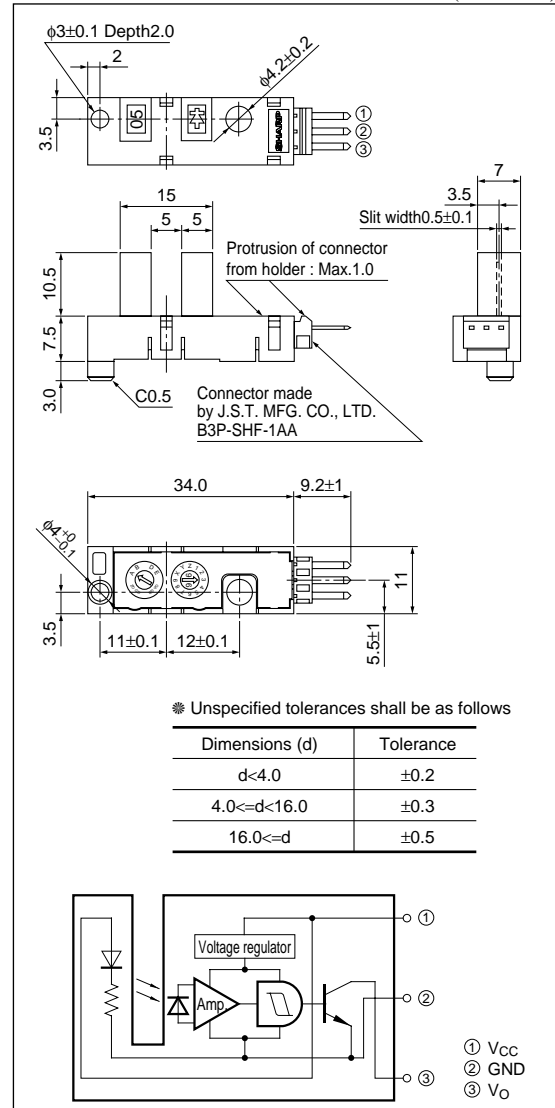
\*1 Collector-emitter voltage of output transistor.

\*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.

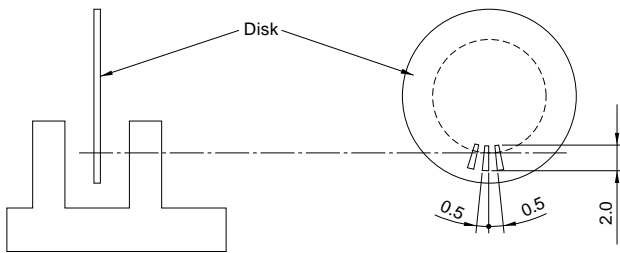
■ Electro-optical Characteristics

(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

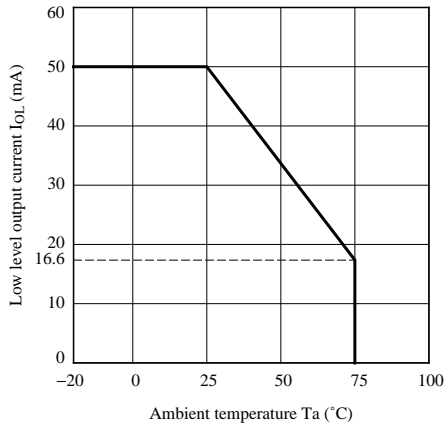
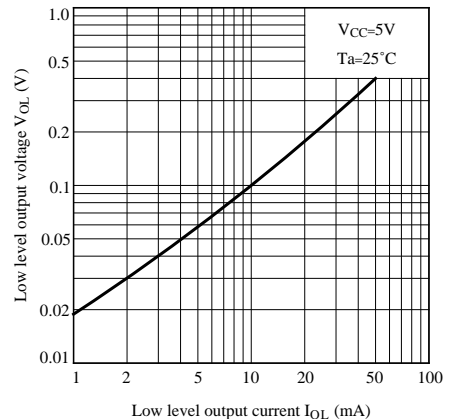
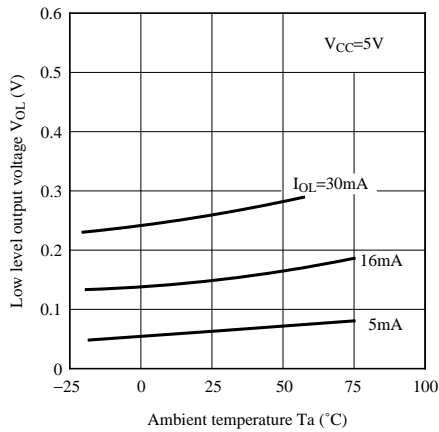


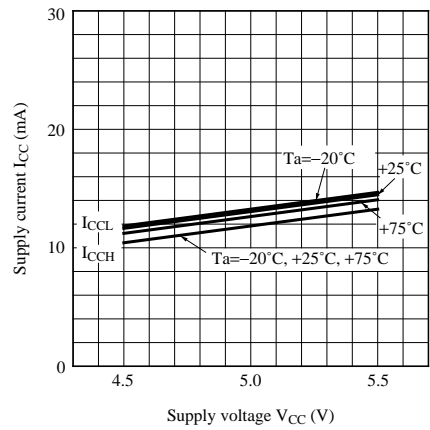
Fig.3 Low Level Output Voltage vs. Low Level Output Current



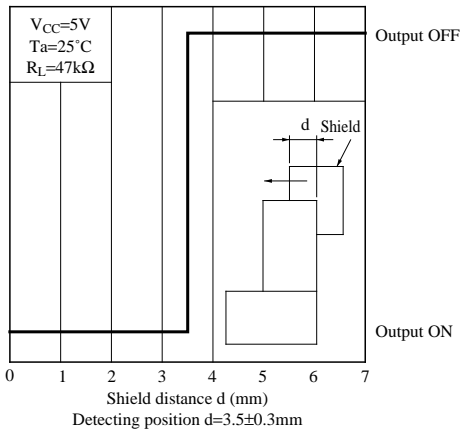
**Fig.4 Low Level Output Voltage vs. Ambient Temperature**



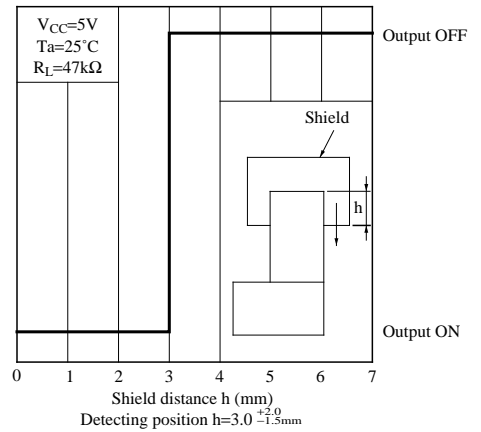
**Fig.5 Supply Current vs. Supply Voltage**



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



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



## ■ Recommended Connectors on the Inserted Side

### ◆ JAPAN SOLDERLESS TERMINAL MFG. CO., LTD. made

(Natural color • bulk)

| Housing Model No.           | H3P-SHF-AA   |                  |                | S3P-SHF-1    |                  |               |
|-----------------------------|--------------|------------------|----------------|--------------|------------------|---------------|
| Special terminal Model. No. | AWG size     | Material         | Model No.      | AWG size     | Material         | Model No.     |
|                             | AWG 28 to 22 | Brass            | SHF-001T-0.8SS | AWG 27 to 22 | Brass            | SHF-001T-0.8P |
|                             |              | Copper phosphide | SHF-001T-0.8BS |              | Copper phosphide | –             |
|                             | AWG 30 to 28 | Brass            | SHF-002T-0.8SS | AWG 30 to 28 | Brass            | SHF-002T-0.8P |
|                             |              | Copper phosphide | SHF-002T-0.8BS |              | Copper phosphide | –             |

## ■ Precautions for Use

1. It is recommended that a by-pass capacitor of more than 0.01 $\mu$ F be added between V<sub>CC</sub> 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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    - Test and measurement equipment
    - Industrial control
    - Audio visual equipment
    - Consumer electronics
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    - Traffic signals
    - Gas leakage sensor breakers
    - Alarm equipment
    - Various safety devices, etc.
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