GP2A26

Light Modulation, Reflection OPIC Type Photointerrupter

■ Features

1. Light modulation system impervious to external disturbing light
2. Compact and 3-pin connector output type
3. Long focal distance type
   (Optimum detecting distance : 3 to 7 mm)
4. Capable of TTL direct connection

■ Applications

1. Copiers
2. Facsimiles
3. LBPs

■ Absolute Maximum Ratings   (Ta=25°C)

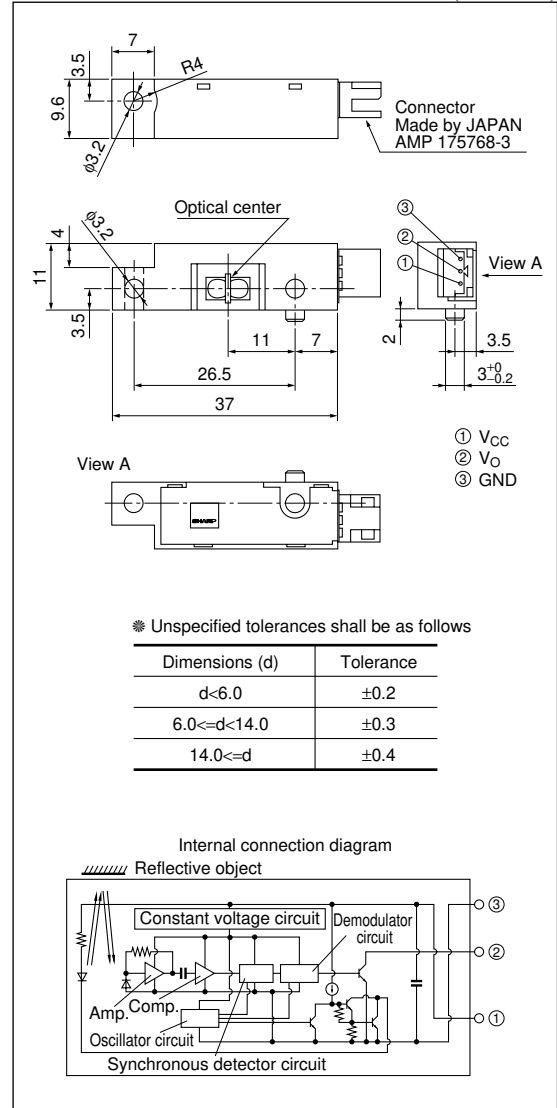| Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	−0.5 to +7	V
Output voltage	V_O	30	V
[*1] Output current	I_{OL}	50	mA
[*2] Operating temperature	T_{opr}	−10 to +60	°C
Storage temperature	T_{stg}	−20 to +80	°C

*1 Output current vs. ambient temperature : Refer to Fig.5.
   Sink current
*2 The connector should be plugged in/out at normal temperature.

■ Outline Dimensions   (Unit : mm)

Connector
Made by JAPAN
AMP 175768-3

Optical center

View A

① V_{CC}
② V_O
③ GND

View A

※ Unspecified tolerances shall be as follows

Dimensions (d)	Tolerance
d<6.0	±0.2
6.0<=d<14.0	±0.3
14.0<=d	±0.4

Internal connection diagram

Reflective object

Constant voltage circuit
Demodulator circuit
Amp. Comp.
Oscillator circuit
Synchronous detector circuit

* "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

(Vcc=5V, Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Supply voltage	V_{CC}	–	4.75	–	5.25	V
Dissipation current (I)	I_{CC}	Vcc=5V, R_L=∞, smoothing value	–	–	30	mA
Dissipation current (II)	I_{CCP}	[3] Vcc=5V, peak pulse value	–	–	150	mA
Low level output voltage	V_{OL}	Vcc=5V, I_{OL}=16mA, at detecting time	–	–	0.4	V
High level output voltage	V_{OH}	Vcc=5V, R_L=1kΩ, at non-detecting time	4.5	–	–	V
Non-detecting distance	L_{LHL}	[4]Kodak 90% reflective paper, Vcc=5V	–	–	27.0	mm
Detecting distance	L_{HLS}	[4]Kodak 90% reflective paper, Vcc=5V	–	–	1.0	mm
	L_{HLS}	[4] Black paper, Vcc=5V	–	–	3.0	mm
	L_{HLL}	[4]Kodak 90% reflective paper, Vcc=5V	9.0	–	–	mm
	L_{HLL}	[4] Black paper, Vcc=5V	7.0	–	–	mm
Response time	t_{PHL}	[5] Vcc=5V	–	–	1.0	ms
	t_{PLH}	[5] Vcc=5V	–	–	1.0	ms
External disturbing light illuminance	E_{V1}	[6]	3 000	–	–	lx
	E_{V2}	[6]	1 500	–	–	lx

[3] Refer to Fig.1
[4] Refer to Fig.2
[5] Refer to Fig.3
[6] Refer to Fig.4
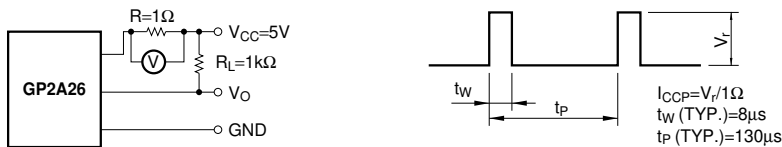
Fig.1 Test Condition for Peak Pulse Value I_{CCP}

R=1Ω
○ V_{CC}=5V
R_L=1kΩ
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○ V_O
○ GND

$I_{CCP}=V_r/1Ω$
t_W (TYP.)=8μs
t_P (TYP.)=130μs

Fig.2 Test Condition for Detecting Distance Characteristics

Reflective object

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Detection surface

Output V_O

V_{OH}

V_{OL}

Detecting distance L

L_{HLS}

L_{LHS}

L_{HLL}

L_{LHL}
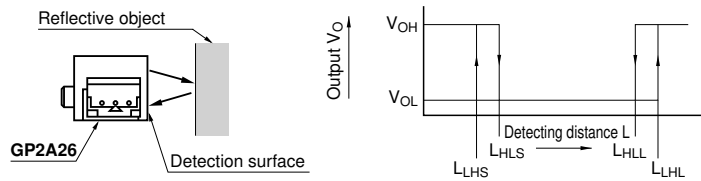
Fig.3 Test Circuit For Response Time

Reflective object: Kodak 90% reflective paper

Detection surface R_L=1kΩ

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V_{CC}=5V

V_O

GND

L

With reflective object

Without reflective object

t_{PHL}

t_{PLH}

V_{OH}

V_{out}
waveform

1.5V

V_{OL}
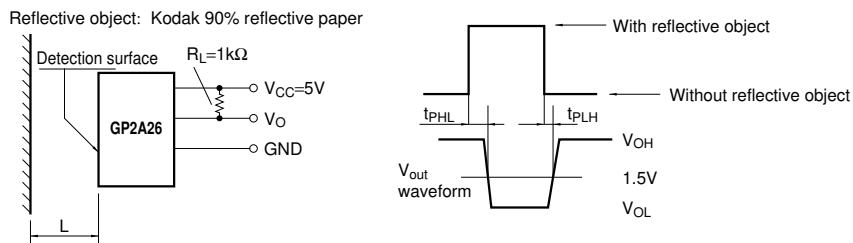
Fig.4 Test Condition for External Disturbing Light Illuminance

E_{V1} : At non-detecting time

Emission/detection
surface

Light source A

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Illuminance shall be that on the emission/detection surface.
Output shall not go from "H" to "L".

E_{V2} : At detecting time

Light source A

PPC paper

Emission/detection surface

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Illuminance shall be that on the reflective
object.
Output shall not go from "L" to "H".

7mm
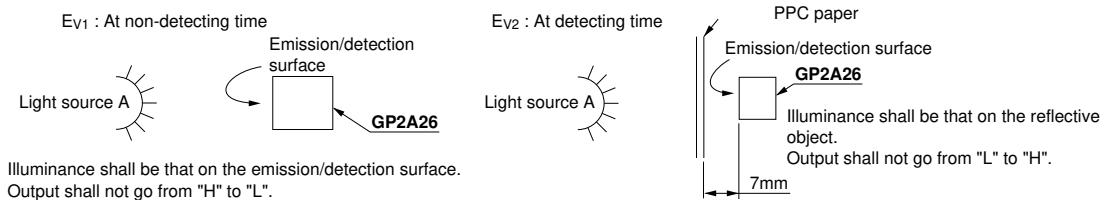
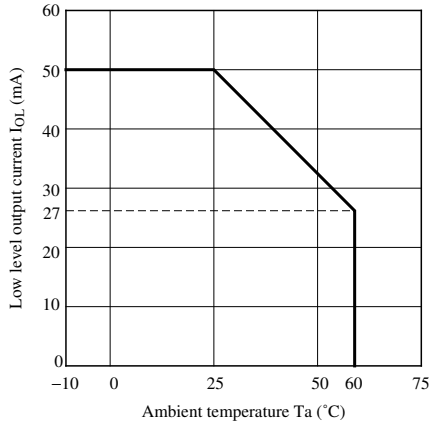**Fig.5 Low Level Output Current vs. Ambient Temperature**

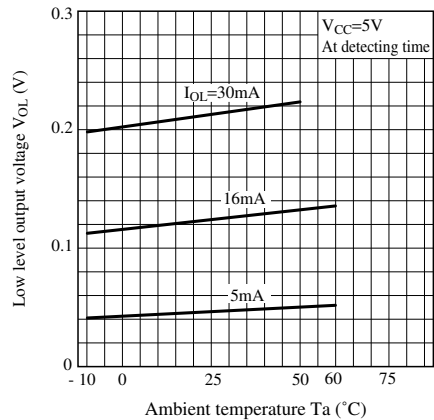**Fig.6 Low Level Output Voltage vs. Ambient Temperature**

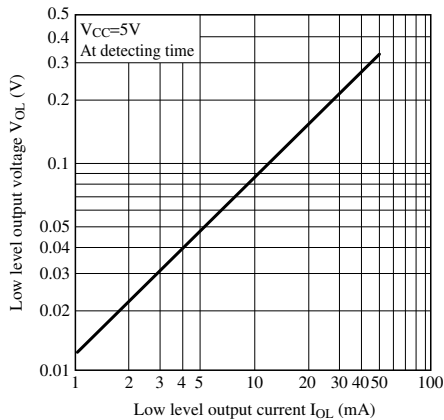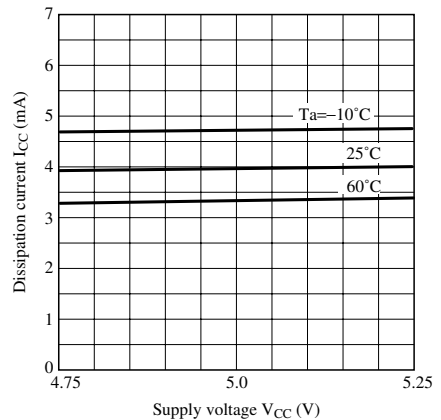**Fig.7 Low Level Output Voltage vs. Low Level Output Current**

Fig.8 Dissipation Current (Smoothing Value) vs. Supply Voltage

■ Precautions for Use

1. In order to stabilize power supply line, connect a by-pass capacitor of more than 0.33μF between V_{CC} and GND near the device.

2. For cleaning

   Acryle resin is used as the material of the lens surface. As to cleaning, this refractive type photointerrupter shall not clean by cleaning materials absolutely. Dust and stain shall clean by air blow, or shall clean by soft cloth soaked in washing materials.

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

4. As for other general precautions, refer to the chapter "Precautions for Use".

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— Gas leakage sensor breakers
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