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# GP2A11 Light Modulation, Reflective Type OPIC Photointerrupter

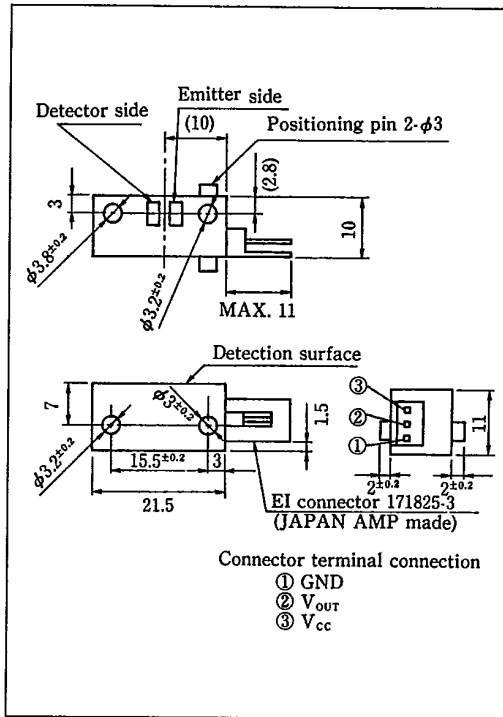
## ■ Features

1. Light modulation type free from external disturbing light  
(External disturbing light illuminance: 2,000 lx)
2. OPIC provides compactness and high performance.
3. With connector provided for easier interface with peripheral control circuit

## ■ Applications

1. Copiers
2. Printers
3. Automatic vending machines

## ■ Outline Dimensions (Unit : mm)



\* OPIC is a registered trademark of Sharp and stands for Optical IC. It has a light detecting element and signal processing circuitry integrated onto a single chip.



## ■ Absolute Maximum Ratings

(T<sub>a</sub> = 25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	-0.5 ~ +16	V
Output voltage	V <sub>OUT</sub>	16	V
Output current	I <sub>OL</sub>	50	mA
Operating temperature	T <sub>opr</sub>	-10 ~ +65	°C
Storage temperature	T <sub>stg</sub>	-40 ~ +80	°C

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

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Electro-optical Characteristics

(Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Supply voltage	$V_{CC}$		4.5	5.0	5.5	V
Current dissipation	$I_{CCP}$	Peak pulse value, $R_L = \infty$	—	—	100	mA
Current dissipation	$I_{CC}$	Smoothing value, $R_L = \infty$	—	—	20	mA
Low level output voltage	$V_{OL}$	$I_{OL} = 16\text{mA}$ at detecting time (Note 1)	—	0.2	0.4	V
High level output voltage	$V_{OH}$	$R_L = \infty$ at non-detecting time (Note 2)	4.7	—	—	V
Response time	$t_{PHL}$	(Note 3)	—	—	1	msec.
	$t_{PLH}$		—	—	1	msec.
External disturbing light illuminance	$E_{V1}$	(Note 4)	2000	—	—	lx
	$E_{V2}$	(Note 5)	2000	—	—	lx

(Note 1) Detecting condition

In Fig. (A)  $d = 2 \sim 5\text{mm}$  with OMS test card (white) as the reflective object (Specified by Sharp)

(Note 2) Non-detecting condition

In Fig. (A)  $d = 11\text{mm}$  or more with suade as the reflective object (Specified by Sharp)

(Note 3) Response time

Fig. (B) shows test circuit for response time.

(Note 4)  $E_{V1}$ : Reflective object surface illuminance

Illuminance that enables the OMS test card (white) to be detected with  $d = 2 \sim 5\text{mm}$  when the external disturbing light from direction as indicated by the arrow,  $\rightarrow$  irradiates light source A in Fig. (A)

(Note 5)  $E_{V2}$ : Detection surface illuminance

Illuminance that does not allow for detection when the external disturbing light from the direction as indicated by the arrow,  $\leftarrow$  irradiates light source A in Fig. (A)

Fig. (A) Test Condition and Arrangemet

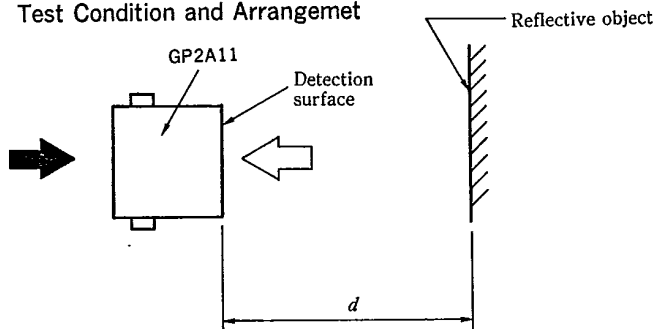
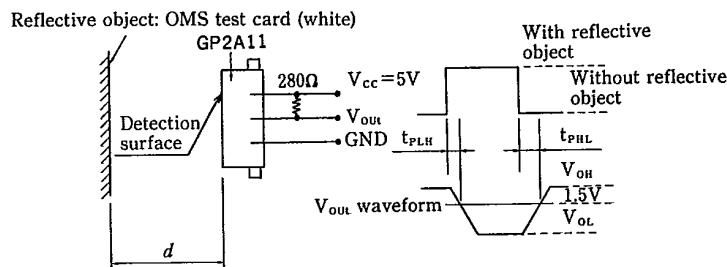
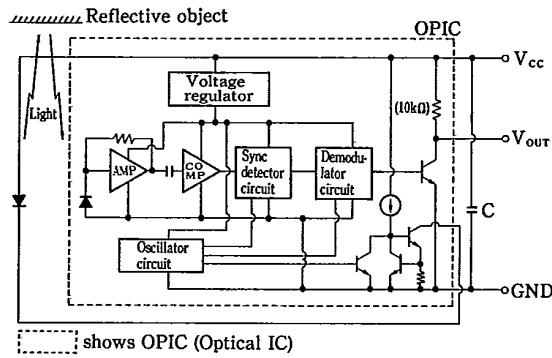


Fig. (B) Test Circuit for Response Time

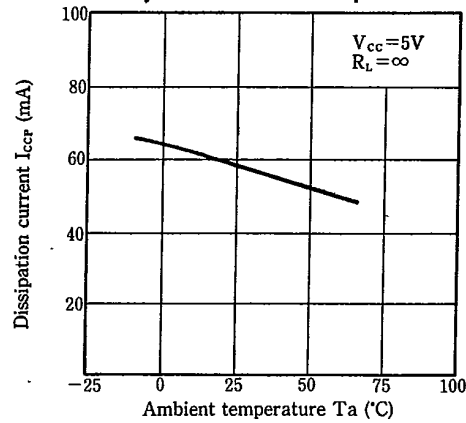


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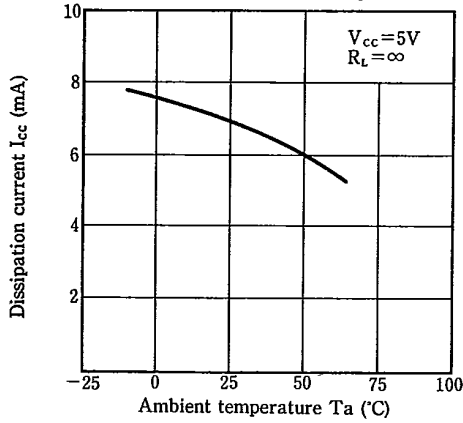
**■ Circuit Block Diagram**



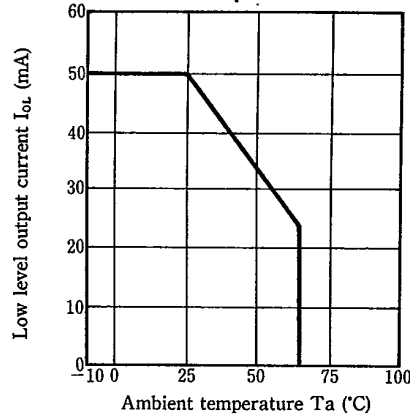
**Fig. 1 Dissipation Current (Peak Pulse Value) vs. Ambient Temperature**



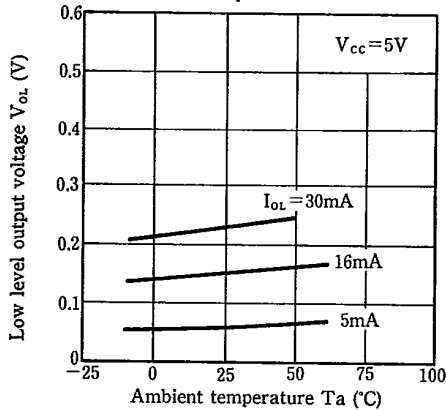
**Fig. 2 Dissipation Current (Smoothing Value) vs. Ambient Temperature**



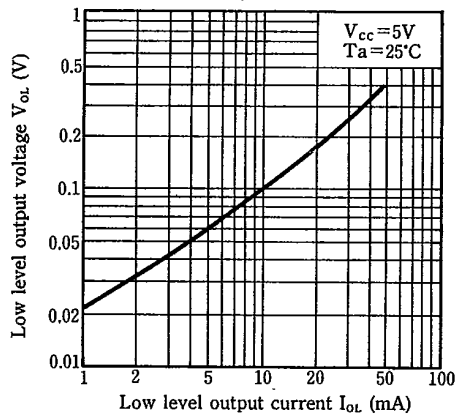
**Fig. 3 Low Level Output Current vs. Ambient Temperature**



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



**Fig. 5 Low Level Output Voltage vs. Low Level Output Current**



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■ Precautions for Use

This reflective type photointerrupter pulse-drives an infrared light emitting diode, and power supply fluctuations are induced with the pulse current, thereby causing malfunctions of the equipment.

Therefore, supply a stable supply voltage.

In addition, operation check using the actual equipment is recommended.

- 1) In this product, the PWB is fixed with a rear cover, and cleaning solvent may remain inside the case; therefore, dip cleaning or ultrasonic cleaning is 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 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,  
Freon TE, Freon TF, Diflon solvent S3-E