GP2A11 Light Modulation, Reflective Type OPIC Photointerrupter

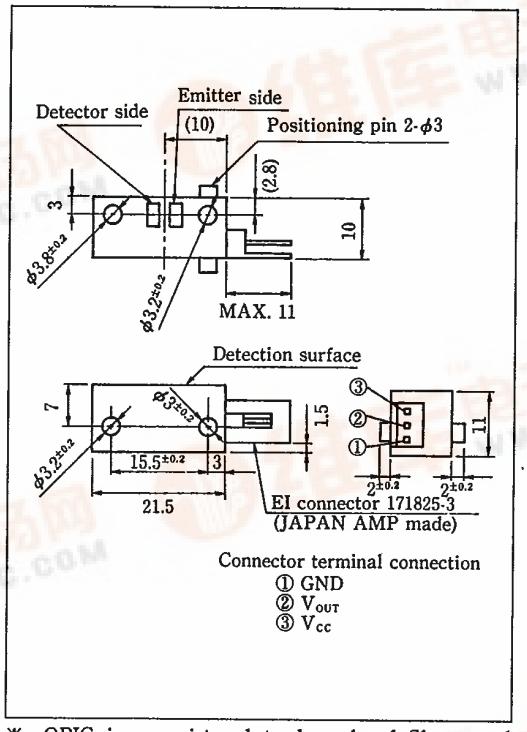
■ Features

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.

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■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	−0.5～+16	V
Output voltage	V_{OUT}	16	V
Output current	I_{OL}	50	mA
Operating temperature	T_{opr}	−10～+65	°C
Storage temperature	T_{stg}	−40～+80	°C

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

■ 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}=16mA 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=2~5mm with OMS test card (white) as the reflective object (Specified by Sharp)

(Note 2) Non-detecting condition
In Fig. (A) d=11mm 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=2~5mm when the external disturbing light from direction as indicated by the arrow, ➜ 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, ⇦ irradiates light source A in Fig. (A)

Fig. (A) Test Condition and Arrangemet

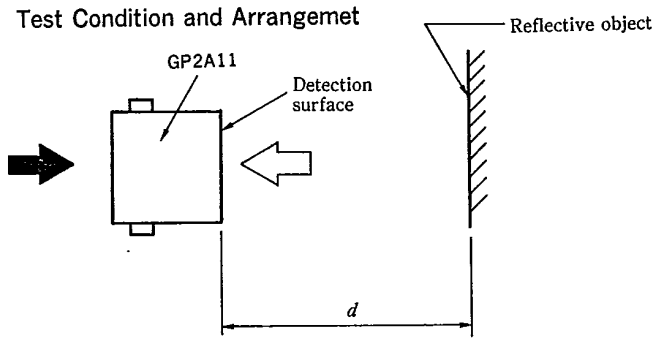
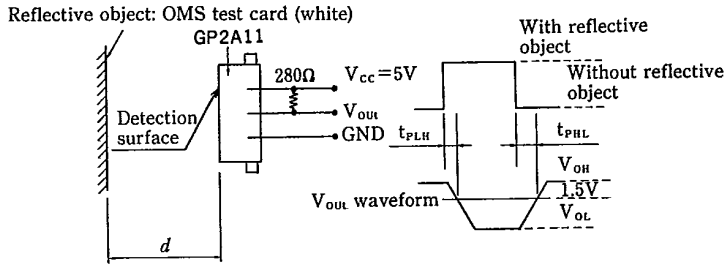


Fig. (B) Test Circuit for Response Time



■ Circuit Block Diagram

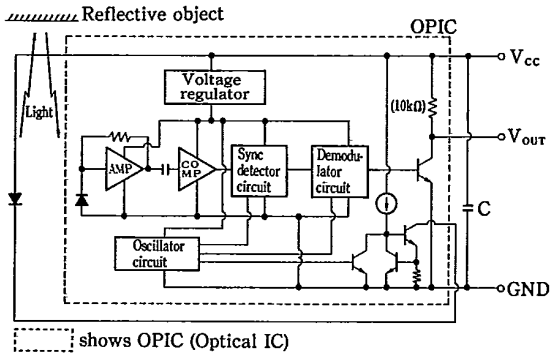


Fig. 1 Dissipation Current (Peak Pulse Value) vs. Ambient Temperature

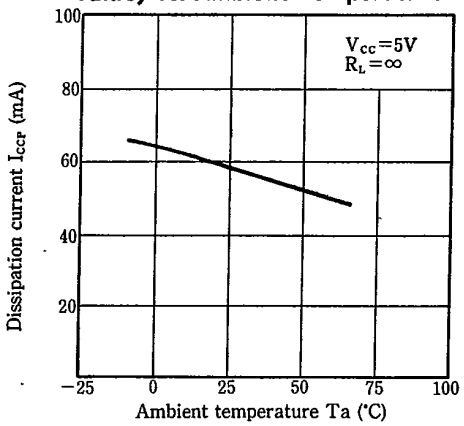


Fig. 2 Dissipation Current (Smoothing Value) vs. Ambient Temperature

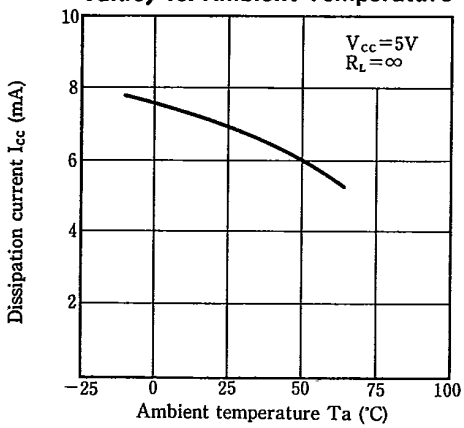


Fig. 3 Low Level Output Current vs. Ambient Temperature

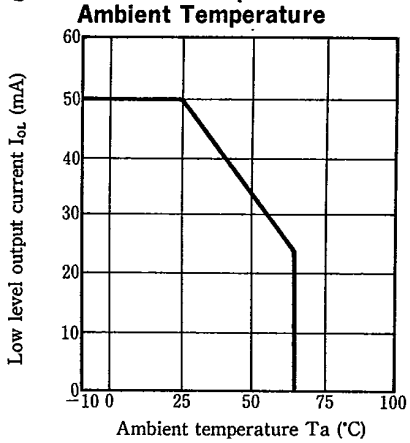


Fig. 4 Low Level Output Voltage vs. Ambient Temperature

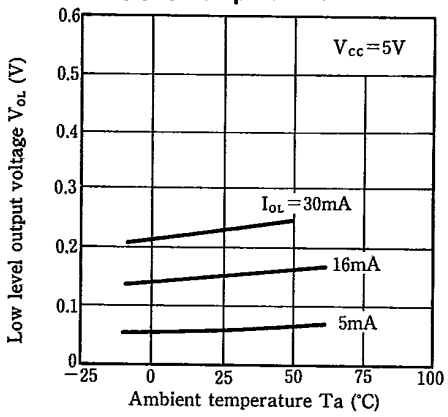
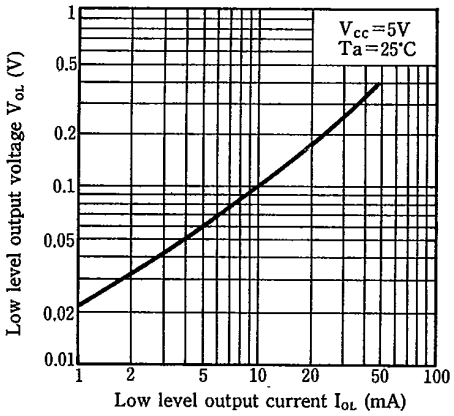


Fig. 5 Low Level Output Voltage vs. Low Level Output Current



■ 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