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T-41-73

GP2A11 Light Modulation, Reflective Type OPIC Photointerrupter

■ Features

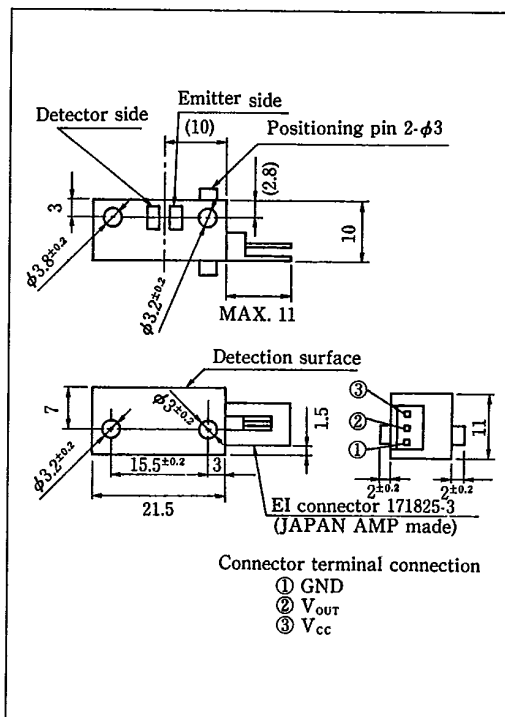
1. Light modulation type free from external disturbing light
(External disturbing light illuminance: 2,000 lx)
2. OPIC provides compactness and high performance.
3. With connector provided for easier interface with peripheral control circuit

■ 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

(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.

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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 illuminanceIlluminance 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 illuminanceIlluminance 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

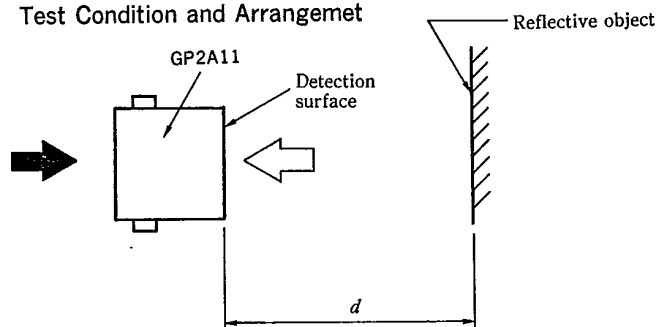
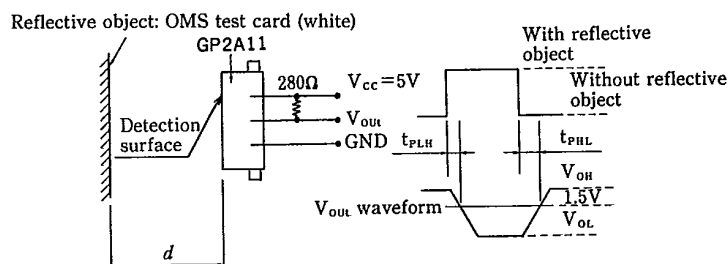


Fig. (B) Test Circuit for Response Time



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Circuit Block Diagram

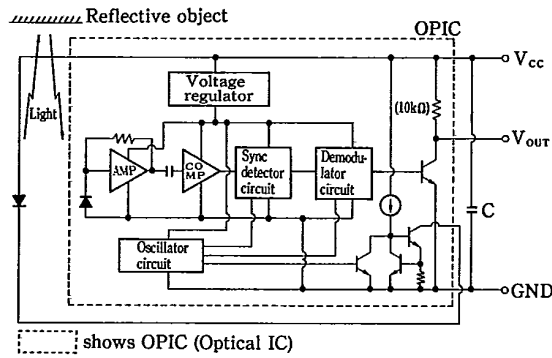


Fig. 1 Dissipation Current (Peak Pulse Value) vs. Ambient Temperature

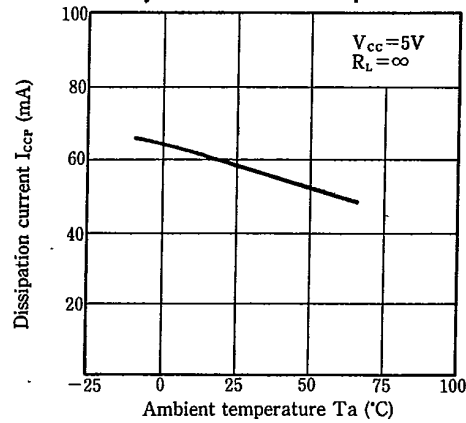


Fig. 2 Dissipation Current (Smoothing Value) vs. Ambient Temperature

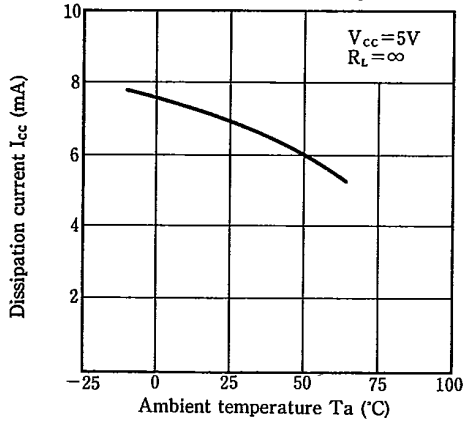


Fig. 3 Low Level Output Current vs. Ambient Temperature

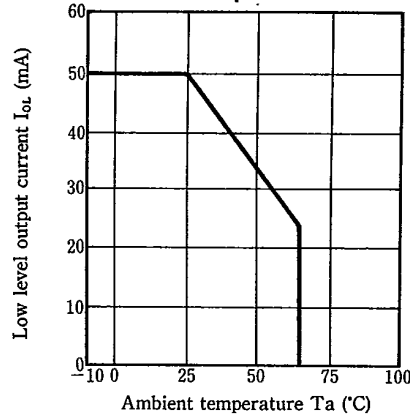


Fig. 4 Low Level Output Voltage vs. Ambient Temperature

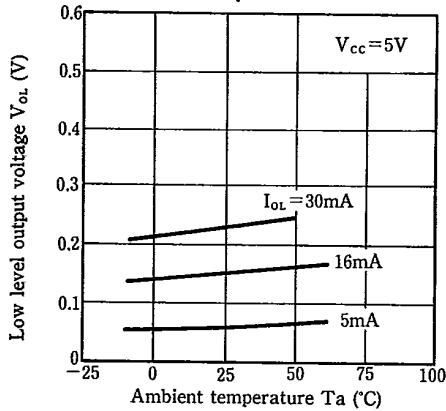
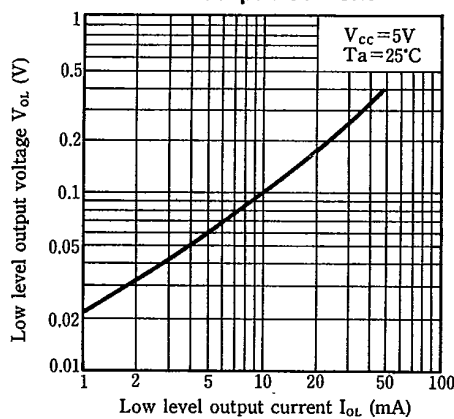


Fig. 5 Low Level Output Voltage vs. Low Level Output Current



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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