

# GP2A20/GP2A22

Light Modulation, Long Focal Distance Type **OPIC** Photointerrupter

## ■ Features

1. Light modulation type, free from external disturbing light
2. Long focal distance type  
 Detecting range  
 (GP2A20 : 3 to 7mm)  
 (GP2A22 : 9 to 15mm)
3. Capable of TTL direct connection
4. With 3-pin connector provided for easier interface with peripheral control circuit

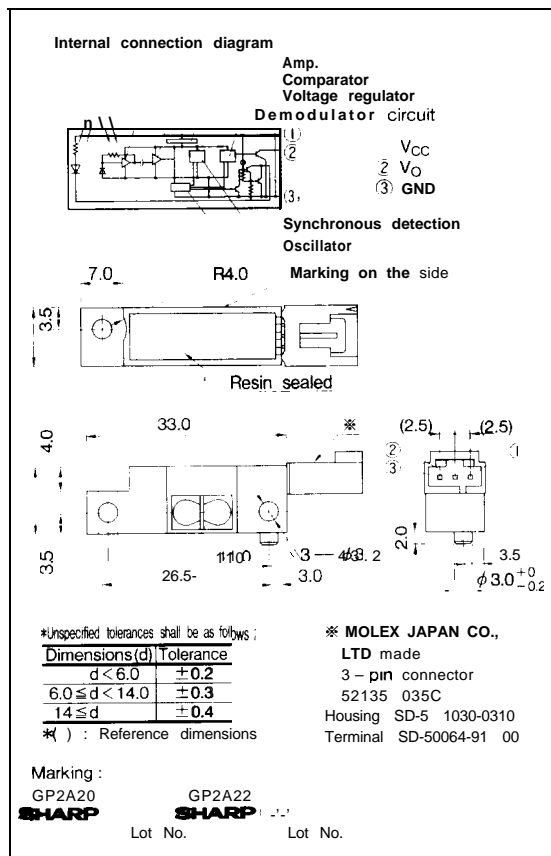
## ■ Applications

1. Copiers
2. Laser beam printers
3. Facsimiles

## ■ Line-ups

Model No.	Detecting range	
	3 to 7mm	9 to 15mm
	<b>GP2A20</b>	<b>GP2A22</b>

## ■ 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.

## ■ Absolute Maximum Ratings (T<sub>a</sub> = 25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	-0.5 to 7	V
*1 Output voltage	V <sub>O</sub>	30	V
*2 Low level output current	I <sub>OL</sub>	50	mA
*3 Operating temperature	T <sub>opr</sub>	-10 to +60	°C
*4 Storage temperature	T <sub>stg</sub>	-20 to +80	°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

Photointerrupters

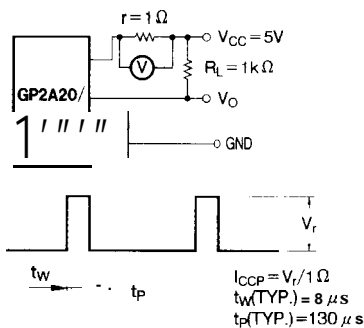


■ Electro-optical Characteristics

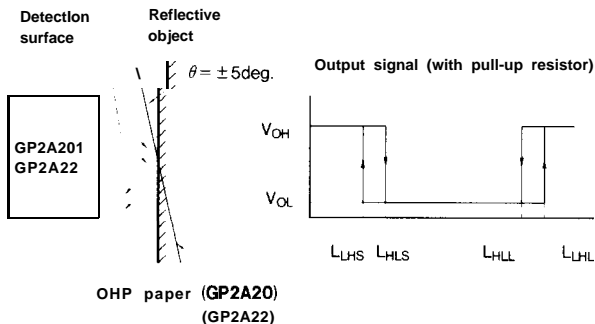
( $V_{CC}=5V, T_a=25^{\circ}C$ )

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating supply voltage		$V_{CC}$		4.75		5.25	V
Dissipation current	Peak pulse value	$I_{CCP}$	* $r=1\Omega$	—		150	mA
	Smoothing value	$I_{CC}$	$R_L=\infty$	—	—	30	mA
Low level output voltage		$V_{OL}$	$I_{OL}=16mA$ at detecting time	—		0.4	V
High level output voltage		$V_{OH}$	$R_L=1k\Omega$ at non-detecting time	4.5	—		V
Non-detecting distance	GP2A20	$L_{LHL}$	* Reflective object Kodak 90% reflective paper	—		20	mm
	GP2A22		* Reflective object Chloroprene rubber	—	—	50	
Minimum detecting distance	GP2A20	$L_{HLS}$	* Reflective object : Artwork tape	—		3.0	mm
	GP2A20 2A22		* Reflective object Kodak 90% reflective paper	—		10 7.0	
	GP2A22		* Reflective object : Black paper	—	—	9.0	
	GP2A20 GP2A22		* Reflective object OHP paper, $\theta=5deg$ (X,Y direction)	—	—	3.0 9.0	
	GP2A22		* Reflective object : Artwork tape	7.0	—	—	
Maximum detecting distance	GP2A20	$L_{HLL}$	* Reflective object Kodak 90% reflective paper	9.0	—	—	mm
	GP2A22		* Reflective object : Black paper	17.0	—	—	
	GP2A22		* Reflective object : Black paper	15.0	—	—	
	GP2A20 GP2A22		* Reflective object OHP paper, $\theta=5deg$ (X,Y direction)	7.0 15.0	—	—	
	GP2A22						
Response time	High→Low propagation delay time	$t_{PHL}$	*6			1	ms
	Low→High propagation delay time	$t_{PLH}$				1	ms

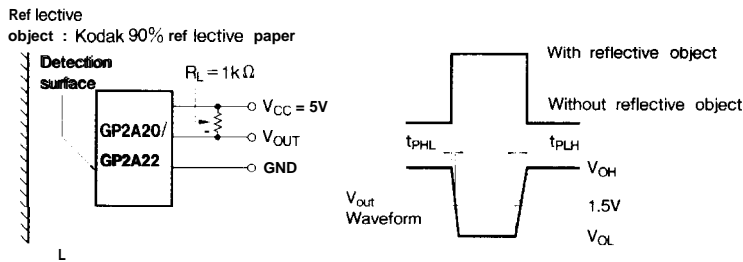
\*4 Test Condition for Dissipation Current (Peak Pulse Value)



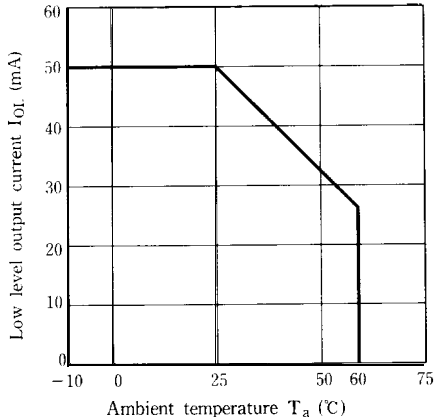
\*5 Test Condition for Detecting Distance Characteristics



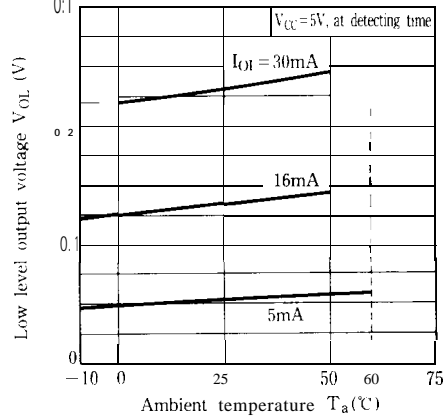
\*6 Test Condition for Response Time



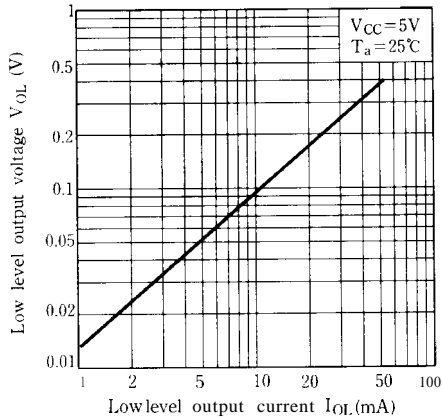
**Fig. 1 Low Level Output Current vs. Ambient Temperature**



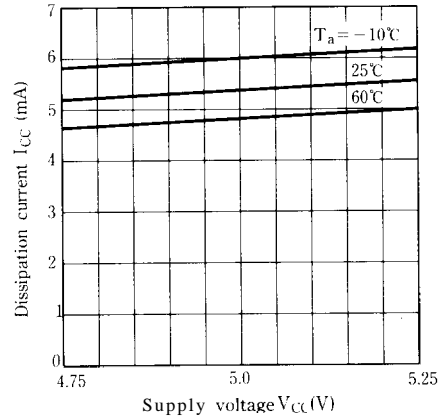
**Fig. 2 Low Level Output Voltage vs. Ambient Temperature**



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



**Fig. 4 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  $0.33 \mu F$  between  $V_{CC}$  and GND near
- (2) Please do not perform dip cleaning or ultrasonic cleaning because lens part of this product is an optical device of acrylic resin.
- (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." (Page 78 to 93)