

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

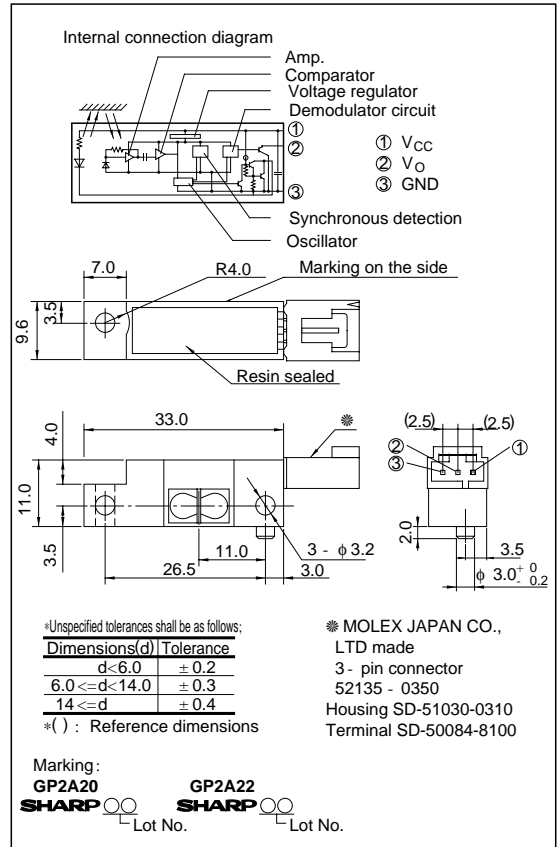
1. Copiers
2. Laser beam printers
3. Facsimiles

■ Line-ups

	Detecting range	
	3 to 7mm	9 to 15mm
Model No.	GP2A20	GP2A22

■ 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_a = 25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	- 0.5 to 7	V
*1 Output voltage	V _O	30	V
*2 Low level output current	I _{OL}	50	mA
*3 Operating temperature	T _{opr}	- 10 to + 60	°C
*3 Storage temperature	T _{stg}	- 20 to + 80	°C

*1 Collector-emitter voltage of output transistor

*2 Collector current of output transistor

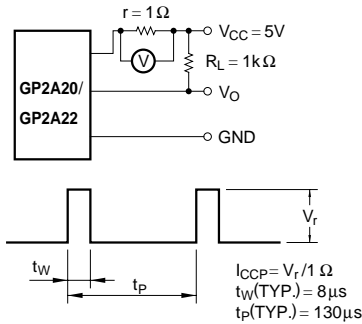
*3 The connector should be plugged in/out at normal temperature.

■ Electro - optical Characteristics

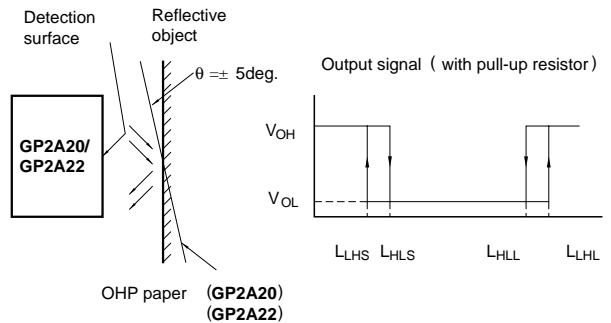
($V_{CC}= 5V, T_a= 25^{\circ}C$)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Operating supply voltage		V_{CC}		4.75	-	5.25	V	
Dissipation current	Peak pulse value	I_{cp}	*4 $r= 1\Omega$	-	-	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}	*5 Reflective object: Kodak 90% reflective paper	-	-	20	mm	
	GP2A22			-	-	50		
Minimum detecting distance	GP2A20	L_{HLS}	*5 Reflective object: Chloroprene rubber	-	-	25	mm	
	GP2A20			*5 Reflective object: Artwork tape	-	-		3.0
	GP2A22				*5 Reflective object: Kodak 90% reflective paper	-		-
	GP2A22			*5 Reflective object: Black paper		-		-
	GP2A20				*5 Reflective object: OHP paper, $\theta = 5deg.$ (X,Y direction)	-		-
	GP2A22			-		-		3.0
Maximum detecting distance	GP2A20	L_{HLL}	*5 Reflective object: OHP paper, $\theta = 5deg.$ (X,Y direction)	-	-	9.0	mm	
	GP2A20			*5 Reflective object: Artwork tape	7.0	-		-
	GP2A22				*5 Reflective object: Kodak 90% reflective paper	9.0		-
	GP2A22			*5 Reflective object: Black paper		17.0		-
	GP2A20				*5 Reflective object: OHP paper, $\theta = 5deg.$ (X,Y direction)	15.0		-
	GP2A22			-		-		7.0
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

Reflective object : Kodak 90 % reflective paper

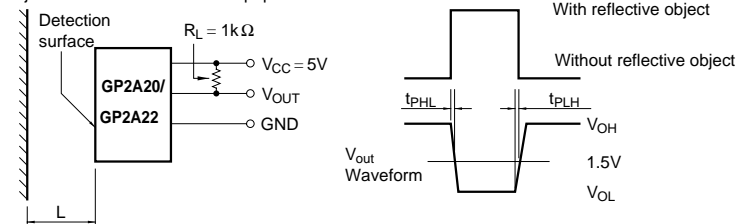


Fig. 1 Low Level Output Current vs. Ambient Temperature

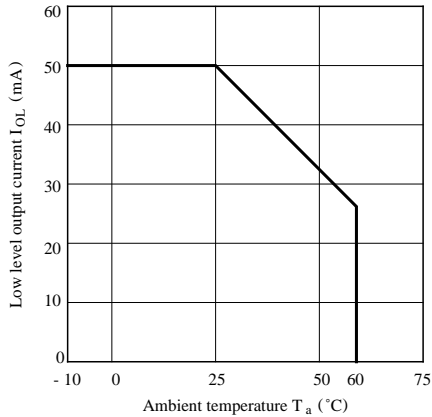


Fig. 2 Low Level Output Voltage vs. Ambient Temperature

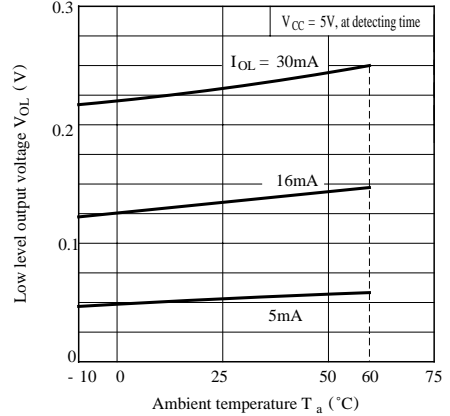


Fig. 3 Low Level Output Voltage vs. Low Level Output Current

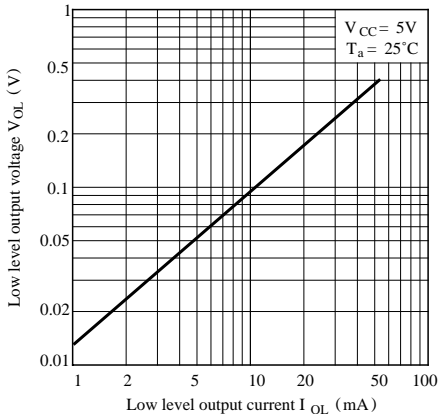
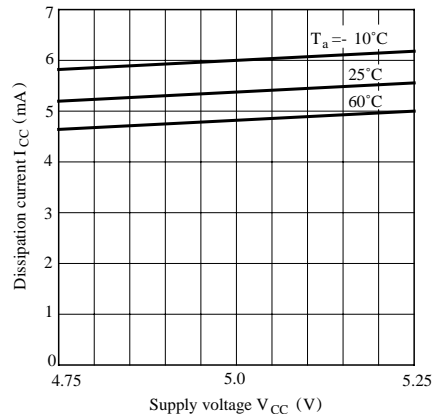


Fig. 4 Dissipation Current (Smoothing Value) vs. Supply Voltage



■ 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".