

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

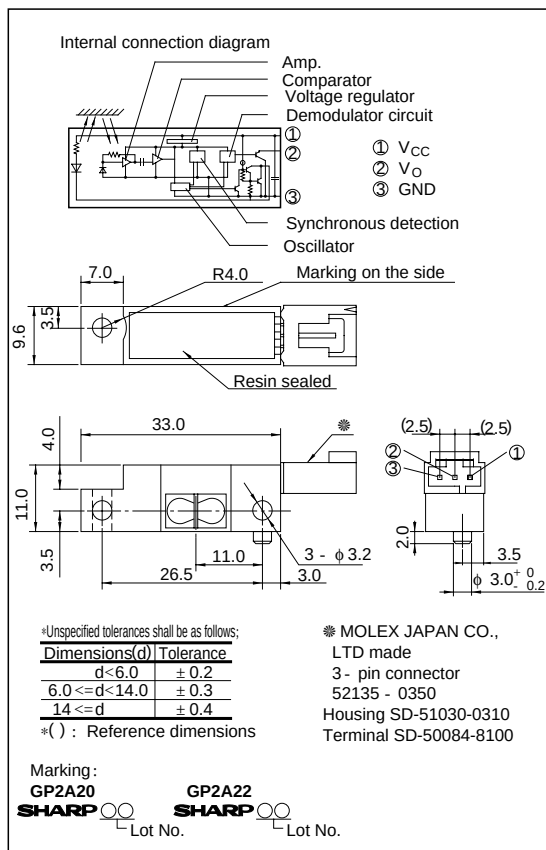
1. Copiers
2. Laser beam printers
3. Facsimiles

■ 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 (Ta= 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

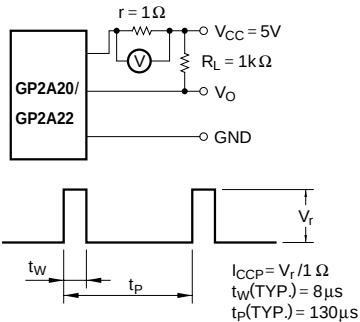
*3 The connector should be plugged in/out at normal temperature.

■ Electro - optical Characteristics

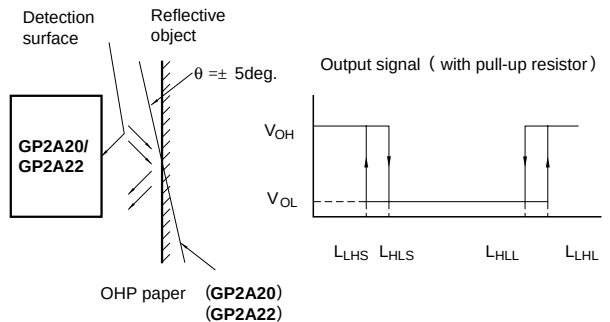
(V_{CC} = 5V, T_a = 25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating supply voltage		V _{CC}		4.75	-	5.25	V
Dissipation current	Peak pulse value	I _{CCP}	*4 r = 1Ω	-	-	150	mA
	Smoothing value	I _{CC}	R _L = ∞	-	-	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 = 1kΩ at non-detecting time	4.5	-	-	V
Non-detecting distance	GP2A20	L _{LHL}	*5 Reflective object: Kodak 90% reflective paper	-	-	20	mm
	GP2A22			-	-	50	
			*5 Reflective object: Chloroprene rubber	-	-	25	
Minimum detecting distance	GP2A20	L _{HLS}	*5 Reflective object: Artwork tape	-	-	3.0	mm
	GP2A20		*5 Reflective object: Kodak 90% reflective paper	-	-	1.0	
	GP2A22		*5 Reflective object: Black paper	-	-	9.0	
	GP2A20		*5 Reflective object: OHP paper, θ = 5deg. (X,Y direction)	-	-	3.0	
	GP2A22			-	-	9.0	
Maximum detecting distance	GP2A20	L _{HLL}	*5 Reflective object: Artwork tape	7.0	-	-	mm
	GP2A20		*5 Reflective object: Kodak 90% reflective paper	9.0	-	-	
	GP2A22			17.0	-	-	
	GP2A22		*5 Reflective object: Black paper	15.0	-	-	
	GP2A20		*5 Reflective object: OHP paper, θ = 5deg. (X,Y direction)	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

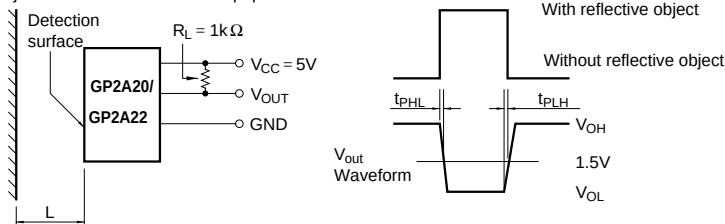


Fig. 1 Low Level Output Current vs. Ambient Temperature

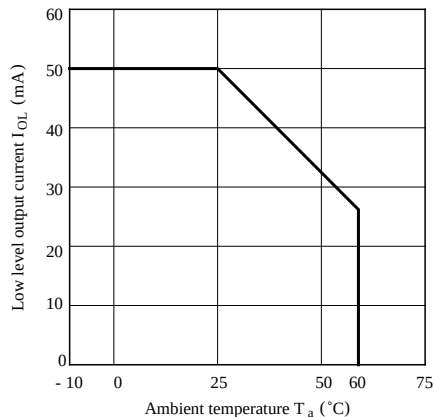


Fig. 2 Low Level Output Voltage vs. Ambient Temperature

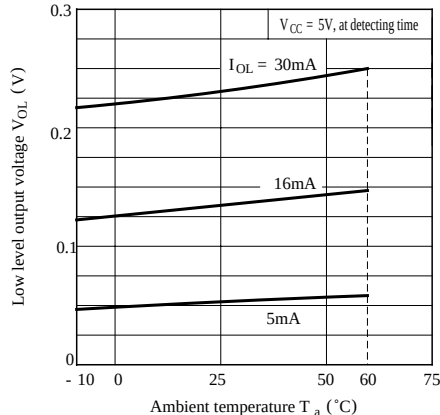


Fig. 3 Low Level Output Voltage vs. Low Level Output Current

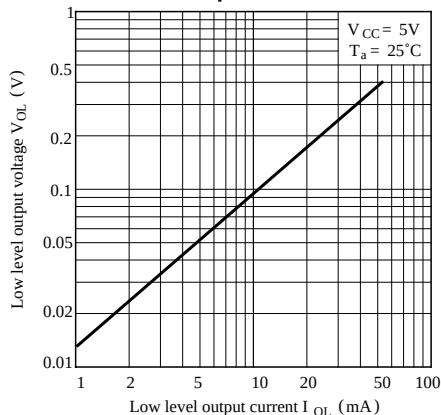
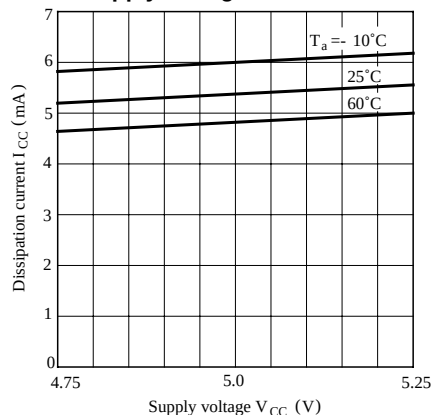


Fig. 4 Dissipation Current (Smoothing Value) vs. Supply Voltage



■ 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 the product.
- (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".