GP2Y0A21YK/ GP2Y0D21YK

General Purpose Type Distance Measuring Sensors

■ Features

1. Less influence on the color of reflective objects, reflectivity
2. Line-up of distance output/distance judgement type
   Distance output type (analog voltage) GP2Y0A21YK
   Detecting distance : 10 to 80cm
   Distance judgement type GP2Y0D21YK
   Judgement distance : 24cm
   (Adjustable within the range of 10 to 80cm [Optionally available])
3. External control circuit is unnecessary
4. Low cost

■ Applications

1. TVs
2. Personal computers
3. Cars
4. Copiers

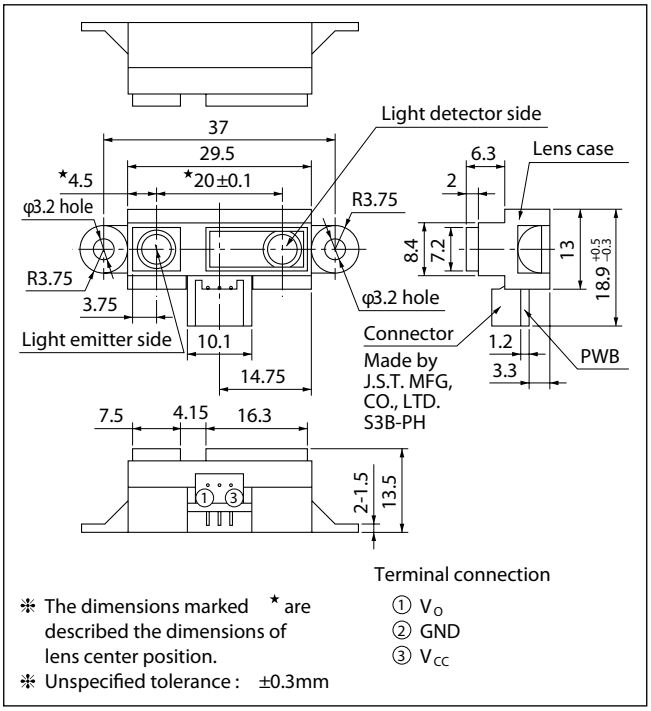
■ Absolute Maximum Ratings

(T_a=25˚C, V_{CC}=5V)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	−0.3 to +7	V
Output terminal voltage	V_O	−0.3 to V_{CC} +0.3	V
Operating temperature	T_{opr}	−10 to +60	˚C
Storage temperature	T_{stg}	−40 to +70	˚C

■ Outline Dimensions

(Unit : mm)



❊ The dimensions marked * are described the dimensions of lens center position.

❊ Unspecified tolerance : ±0.3mm

■ Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Operating supply voltage	V_{CC}	4.5 to +5.5	V

■ Electro-optical Characteristics

(T_a=25°C, V_{CC}=5V)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Distance measuring range		ΔL	*1 *3	10	–	80	cm
Output terminal voltage	GP2Y0A21YK	V_O	L=80cm *1	0.25	0.4	0.55	V
	GP2Y0D21YK	V_{OH}	Output voltage at High*1	V_{CC} –0.3	–	–	V
		V_{OL}	Output voltage at Low*1	–	–	0.6	V
Difference of output voltage	GP2Y0A21YK	ΔV_O	Output change at L=80cm to 10cm*1	1.65	1.9	2.15	V
Distance characteristics of output	GP2Y0D21YK	V_O	*1 *4 *2	21	24	27	cm
Average Dissipation current		I_{CC}	L=80cm *1	–	30	40	mA

Note) L : Distance to reflective object
*1 Using reflective object : White paper (Made by Kodak Co. Ltd. gray cards R-27 white face, reflective ratio ; 90%)
*2 We ship the device after the following adjustment : Output switching distance=24cm±3cm must be measured by the sensor
*3 Distance measuring range of the optical sensor system
*4 Output switching has a hysteresis width. The distance specified by Vo should be the one with which the output L switches to the output H

Fig.1 Internal Block Diagram

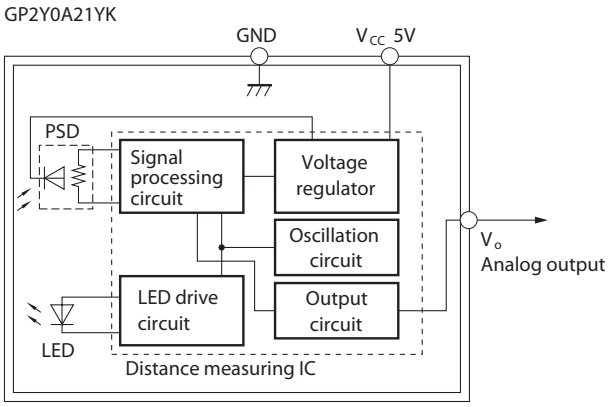


Fig.2 Internal Block Diagram

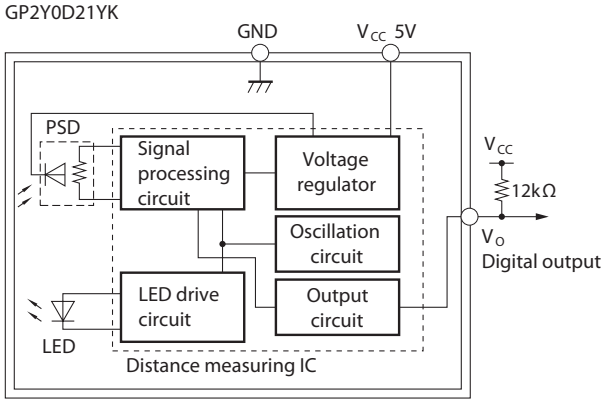


Fig.3 Timing Chart

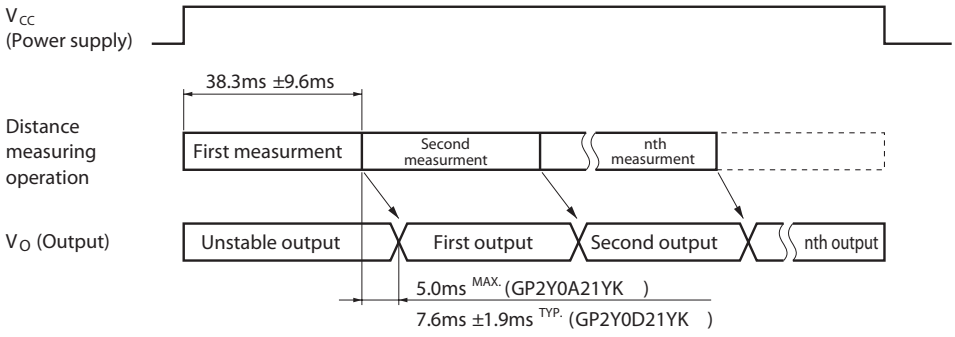


Fig.4 Distance Characteristics

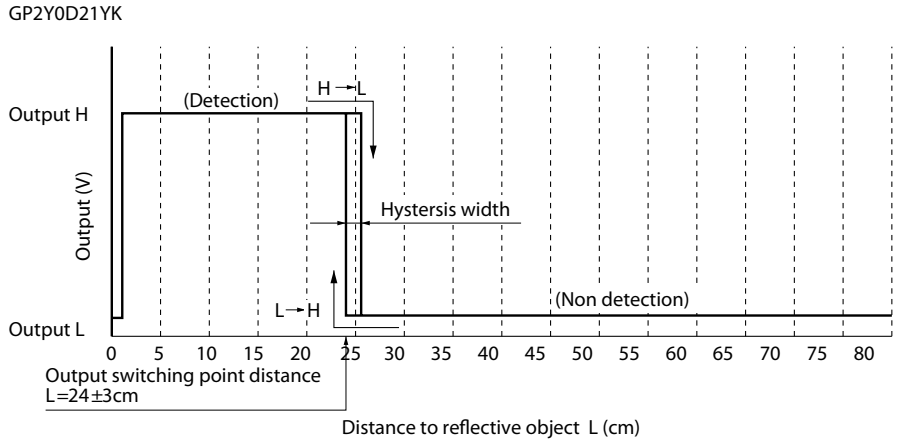
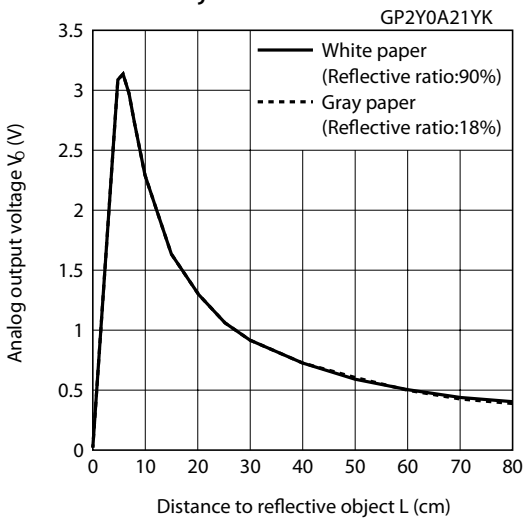


Fig.5 Analog Output Voltage vs. Distance to Reflective Object



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- --- Personal computers
- --- Office automation equipment
- --- Telecommunication equipment [terminal]
- --- Test and measurement equipment
- --- Industrial control
- --- Audio visual equipment
- --- Consumer electronics

(ii) Measures such as fail-safe function and redundant design should be taken to ensure reliability and safety when SHARP devices are used for or in connection with equipment that requires higher reliability such as:
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- --- Traffic signals
- --- Gas leakage sensor breakers
- --- Alarm equipment
- --- Various safety devices, etc.

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