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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

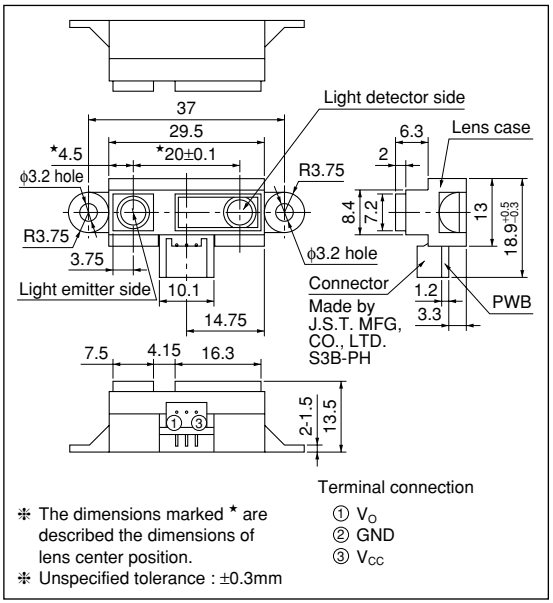
1. TVs
2. Personal computers
3. Cars
4. Copiers

■ 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)



Terminal connection

① V_O
② GND
③ V_{CC}

❊ The dimensions marked * are described the dimensions of lens center position.
❊ Unspecified tolerance : ±0.3mm

Notice In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.
Internet Internet address for Electronic Components Group http://sharp-world.com/ecg/

■ 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 L=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

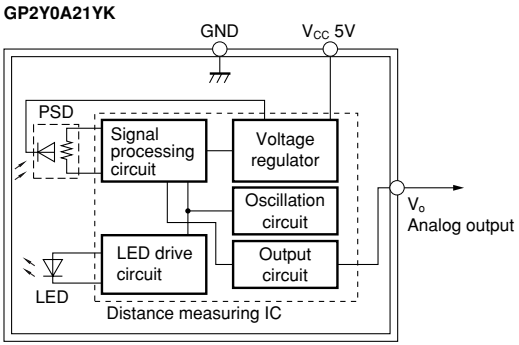


Fig.2 Internal Block Diagram

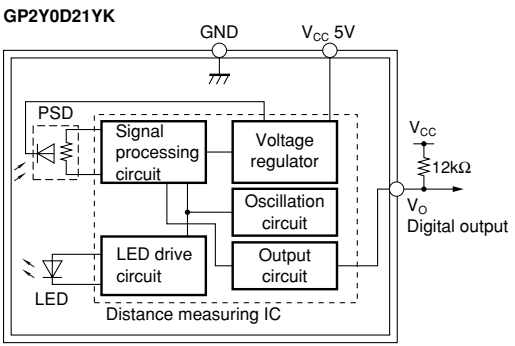


Fig.3 Timing Chart

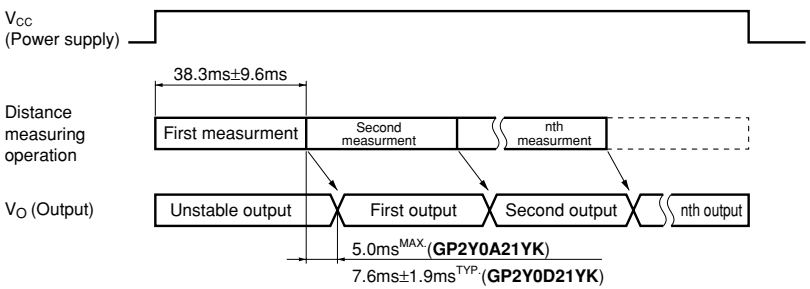


Fig.4 Distance Characteristics

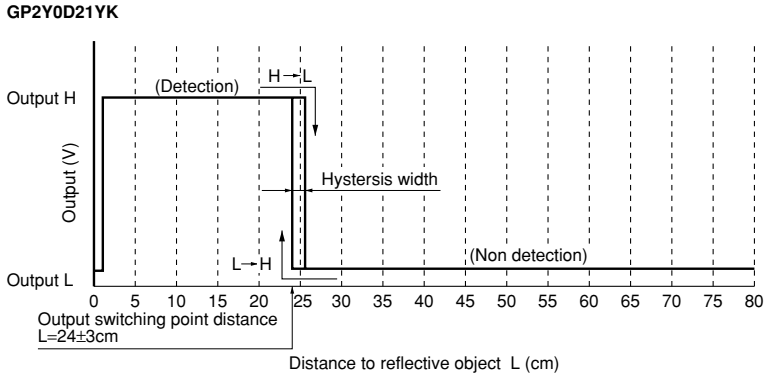
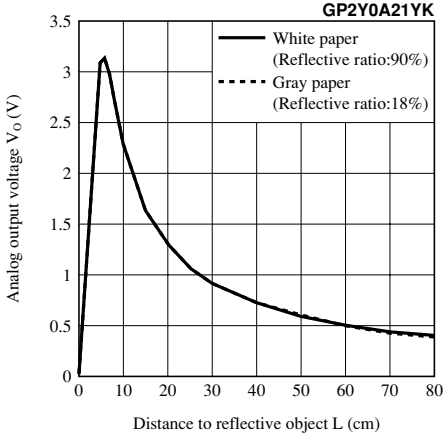


Fig.5 Analog Output Voltage vs. Distance to Reflective Object



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  --- 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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