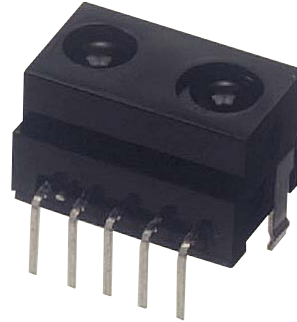


GP2Y0D310K

Distance Measuring Sensor Unit
Digital output (100 mm) type



■Description

GP2Y0D310K0F is a distance measuring sensor unit, composed of an integrated combination of PSD (position sensitive detector), IRED (infrared emitting diode) and signal processing circuit.

The variety of the reflectivity of the object, the environmental temperature and the operating duration are not influenced easily to the distance detection because of adopting the triangulation method.

The output voltage of this sensor stays high in case an object exists in the specified distance range. So this sensor can also be used as proximity sensor.

■Features

1. Digital output type
2. Detecting distance : Typ. 100 mm
3. Compact type
Package size : 15×9.6×8.7 mm
4. Consumption current : Typ. 31 mA
5. Supply voltage : 4.5 to 5.5 V
6. High-speed measurement cycle : 8 ms

■Agency approvals/Compliance

1. Compliant with RoHS directive (2002/95/EC)

■Applications

1. Touch-less switch
(Sanitary equipment, Control of illumination, etc.)
2. Robot cleaner
3. Amusement equipment
(Robot, Arcade game machine)

Notice The content of data sheet is subject to change without prior notice.

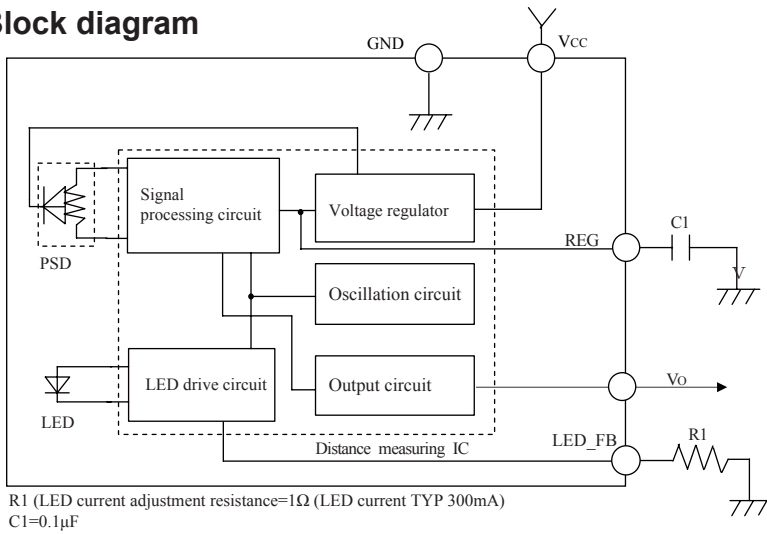
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Block diagram



Outline Dimensions

(Unit : mm)

Stamp (Example)

s	SHARP
310K	Model name
5 X	Month(1 to 9,X,Y,Z)
	Year(2005:5)

Terminal No.	Symbol
1	Vcc
2	LED_FB
3	Vo
4	GND
5	Reg
6	—

C=0.1μF
R=1Ω

* Position of the detector lens is not fixed because the sensor output is adjusted by moving the lens.
 Note 1. Unspecified tolerances shall be ± 0.3 mm.
 Note 2. () : Reference value
 Note 3. Terminal No.7 which connect LED cathode is used for testing
 Please this terminal don't use

Product mass : Approx. 1.5g

■ Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}, V_{CC}=5\text{V}$)

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	$^{\circ}\text{C}$
Storage temperature	T_{stg}	-20 to +70	$^{\circ}\text{C}$

■ Electro-optical Characteristics ($T_a=25^{\circ}\text{C}, V_{CC}=5\text{V}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Output terminal voltage	V_{OH}	Output voltage at high level	$V_{CC}-0.3$	—	—	V
	V_{OL}	Output voltage at Low level	—	—	0.6	V
Detecting distance	L	Note (1) (2) (3)	80	100	120	mm
Average supply current	I_{CCL}	$R1 = 1 \Omega$ (detection)	—	31	50	mA
	I_{CCH}	$R1 = 1 \Omega$ (non detection)	—	18	35	mA

* L : Distance to reflective object

(Note 1) Using reflective object : White paper (Made by Kodak Co., Ltd. gray cards R-27·white face, reflectance; 90%)

(Note 2) The individual product shall be adjusted to have $L = 100 \pm 20$ mm as the distance before shipping detecting.

(Note 3) Output voltage switch has a hysteresis width. The distance specified by L should be the distance which the output turns from L to H in case an object moves to the sensor.

■ Recommended operating conditions

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	4.5 to 5.5	V

Fig. 1 Timing chart

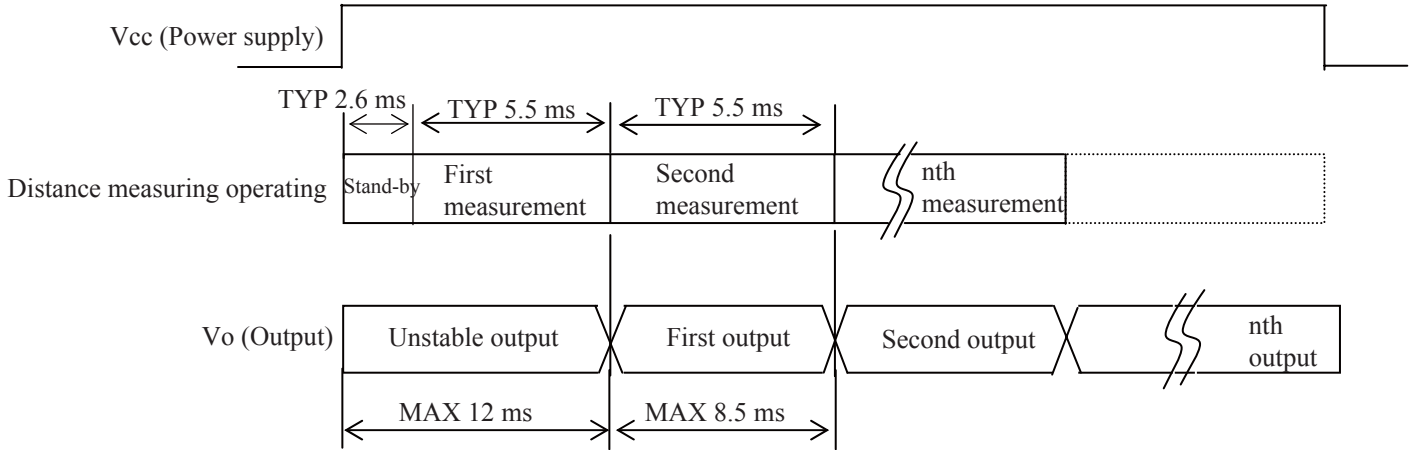
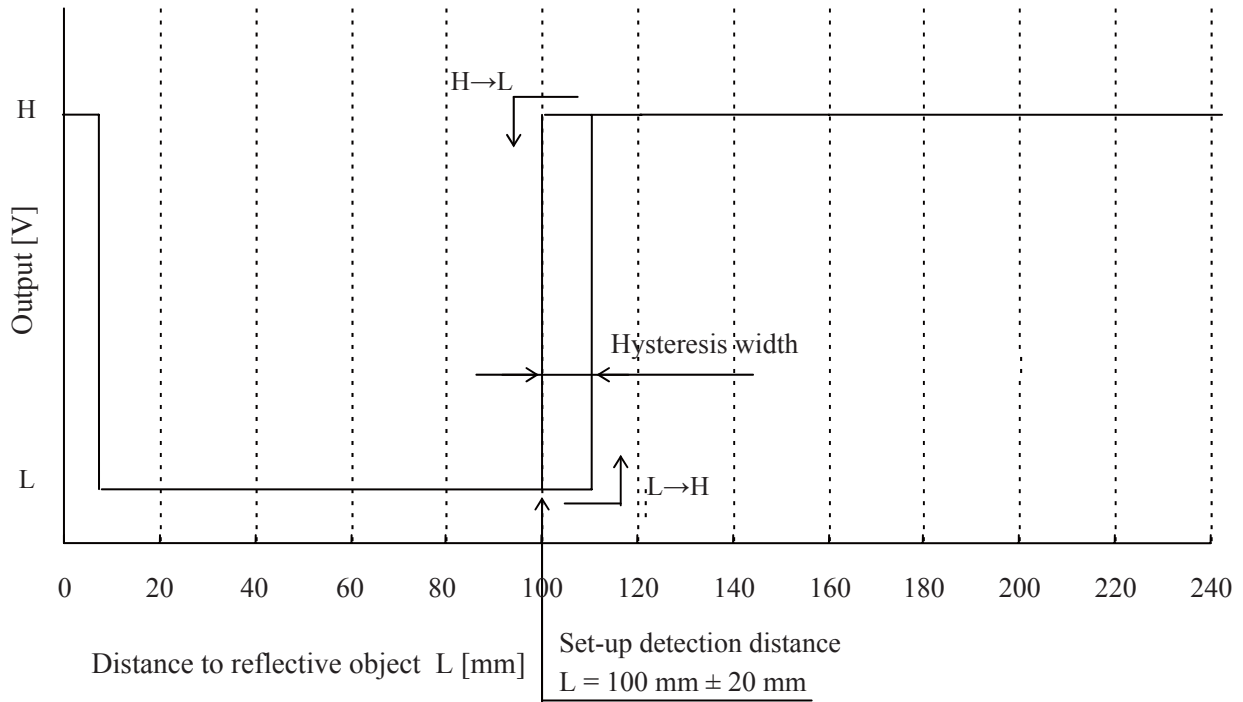


Fig. 2 Example of Output distance characteristics



● Presence of ODC etc.

This product shall not contain the following materials.

And they are not used in the production process for this product.

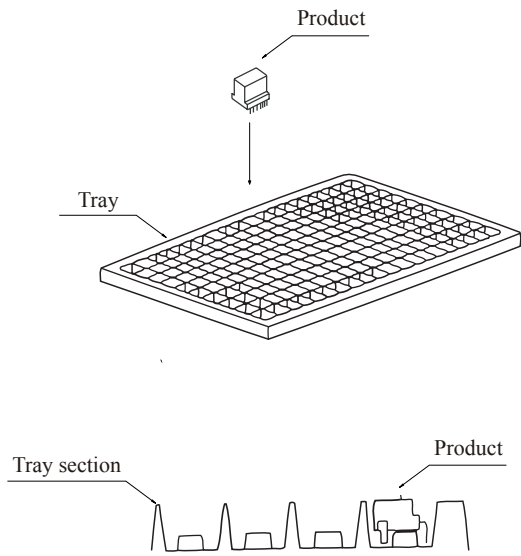
Regulation substances : CFCs, Halon, Carbon tetrachloride, 1.1.1-Trichloroethane (Methylchloroform)

Specific brominated flame retardants such as the PBB and PBDE are not used in this product at all.

This product shall not contain the following materials banned in the RoHS Directive (2002/95/EC).

- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE).

■ Package specification



MAX. 200 pieces per tray

■ Important Notices

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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

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- Traffic signals
- Gas leakage sensor breakers
- Alarm equipment
- Various safety devices, etc.

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- Telecommunication equipment [trunk lines]
- Nuclear power control equipment
- Medical and other life support equipment (e.g., scuba).

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