

# GP2D05

## Distance Measuring Sensor of 1-bit Output

### ■ Features

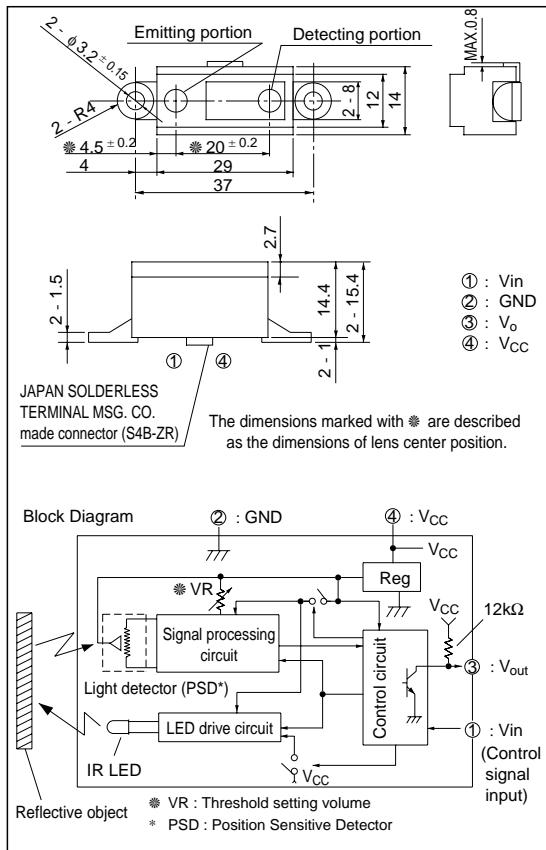
- Distance measuring type object sensor  
(Distance measuring range : Optional distance can be set as threshold level by means of built-in VR)
- Impervious to color and reflectivity of reflective object
- High precision distance measurement through output of continuous measurement average value
- Low dissipation current at OFF-state  
(dissipation current at OFF-state : TYP. 3  $\mu$ A)

### ■ Applications

- Sanitary sensors (human body detection)
- OA equipment (paper detection)
- Game equipment
- For consumer products (human body detection)

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta=25°C, V<sub>CC</sub>=5V)

Parameter	Symbol	Rating	Unit	Remarks
Supply voltage	V <sub>CC</sub>	- 0.3 to + 10	V	
Input terminal voltage	V <sub>in</sub>	- 0.3 to + 3	V	Open drain operation input
Output terminal voltage	BV <sub>O</sub>	- 0.3 to + 10	V	
Operating temperature	T <sub>opr</sub>	- 10 to + 60	°C	
Storage temperature	T <sub>stg</sub>	- 20 to + 70	°C	

### ■ Operating Supply Voltage

Parameter	Rating	Unit
Operating supply voltage (V <sub>CC</sub> )	4.4 to 7	V

## ■ Electro-optical Characteristics

(Ta=25°C, Vcc=5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Distance measuring range	$\Delta L$	*1,*3	10	-	80	cm
Output terminal voltage	V <sub>OH</sub>	Output voltage at High, *1	V <sub>CC</sub> -0.3	-	-	V
	V <sub>OL</sub>	Output voltage at Low, *1	-	-	0.3	V
Distance characteristics of output	V <sub>O</sub>	*1,*2	-	24	-	cm
Average dissipation current	I <sub>CC</sub>	*4	-	10	22	mA
Dissipation current at OFF-state	I <sub>ccoff</sub>	*5	-	3	8	μA
V <sub>in</sub> terminal current	I <sub>vin</sub>	V <sub>in</sub> = 0V	-	- 160	- 270	μA

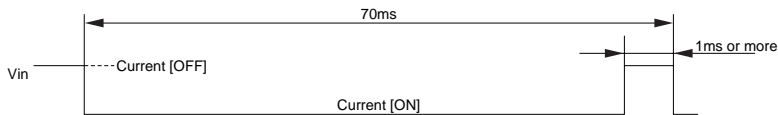
L : Distance to reflective object

\*1 Reflective object : White paper (reflectivity : 90%)

\*2 Adjustment shall be available with the VR built in the sensor so that the output switching distance may be L=24 cm.

\*3 Distance measuring range on conditions after adjustment of the output switching distance to L=24

\*4 Average dissipation current measured on the conditions shown below

\*5 Dissipation current when V<sub>in</sub> terminal is in High (current OFF) state.\*6 V<sub>in</sub> terminal : Open drain drive input.Conditions : V<sub>in</sub> terminal current at V<sub>in</sub> OFF-state >= 2.6VV<sub>in</sub> terminal current at V<sub>in</sub> ON-state <= 0.2V

## ■ Timing Chart

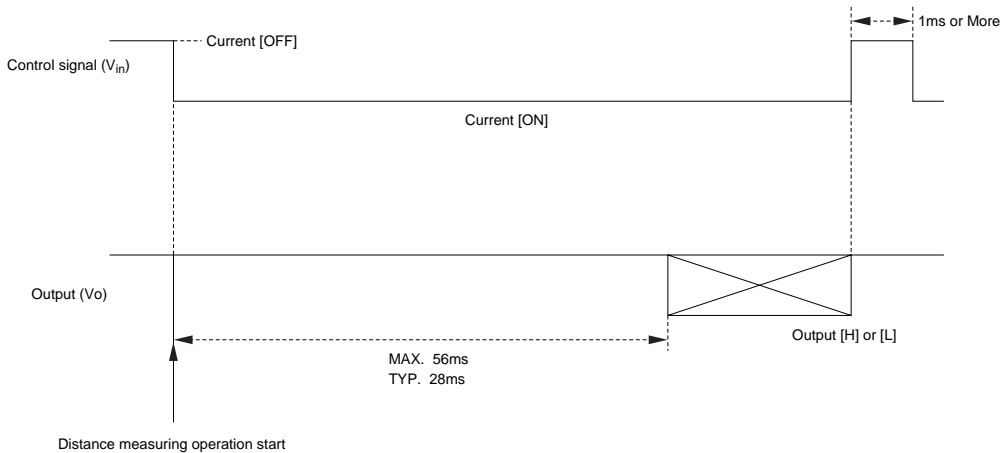


Fig. 1 Distance Measuring Output vs. Distance to Reflective Object

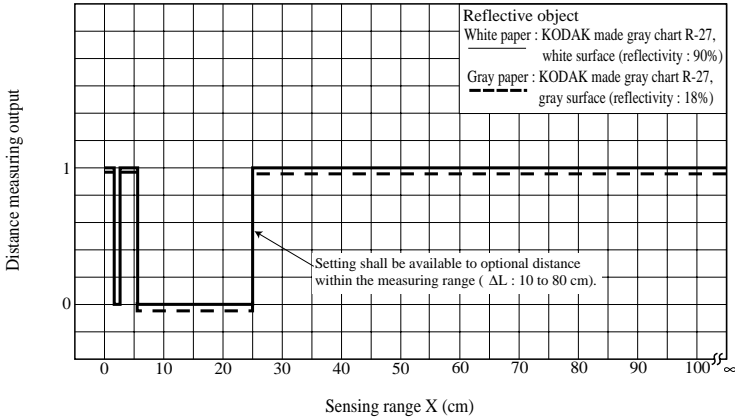
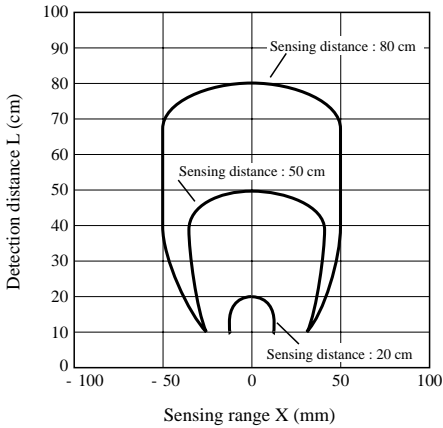


Fig. 2 Detection Distance vs. Sensing Range



Test Method for Sensing Range Characteristics

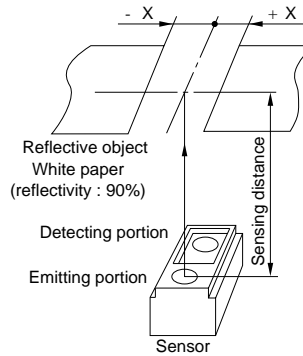
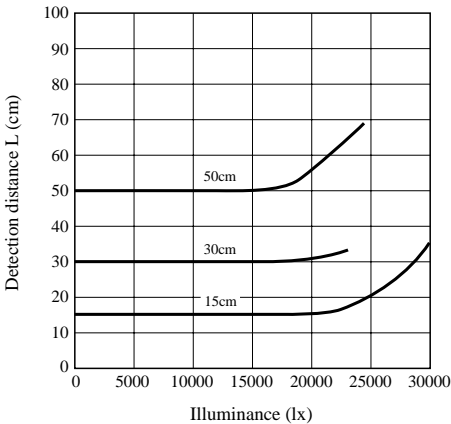


Fig. 3 Detection Distance vs. Illuminance



Test Method for Anti External Disturbing Light Characteristics

