GP2D05

■ Features

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

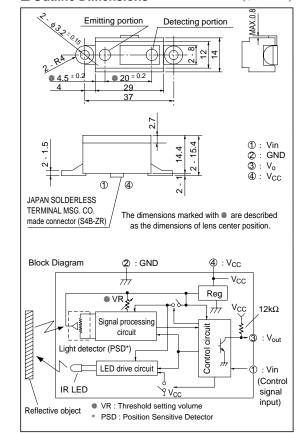
■ Applications

- 1. Sanitary sensors (human body detection)
- 2. OA equipment (paper detection)
- 3. Game equipment
- 4. For consumer products (human body detection)

Distance Measuring Sensor of 1-bit Output

■ Outline Dimensions

(Unit: mm)



■ Absolute Maximum Ratings

 $(Ta=25^{\circ}C, V_{CC}=5V)$

Parameter	Symbol	Rating	Unit	Remarks
Supply voltage	Vcc	- 0.3 to + 10	V	
Input terminal voltage	V _{in}	- 0.3 to + 3	V	Open drain operation input
Output terminal voltage	BVo	- 0.3 to + 10	V	
Operating temperature	T opr	- 10 to + 60	°C	
Storage temperature	T stg	- 20 to + 70	°C	

■ Operating Supply Voltage

Parameter	Rating	Unit	
Operating supply voltage (Vcc)	4.4 to 7	V	



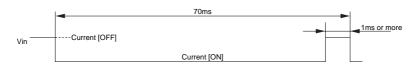
■ Electro-optical Characteristics

(Ta=25°C,Vcc=5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Distance measuring range	ΔL	*1,*3	10	-	80	cm
Output terminal voltage	V _{OH}	Output voltage at High, *1	V _{CC} -0.3	-	-	V
	V_{OL}	Output voltage at Low, *1	-	-	0.3	V
Distance characteristics of output	Vo	*1,*2	-	24	-	cm
Average dissipation current	I_{CC}	*4	-	10	22	mA
Dissipation current at OFF-state	Iccoff	*5	-	3	8	μΑ
Vin terminal current	I_{vin}	Vin = 0V	-	- 160	- 270	μΑ

L : Distance to reflective object

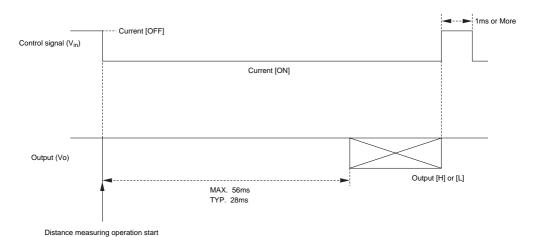
^{*4} Average dissipation current measured on the conditions shown below



^{*5} Dissipation current when Vin terminal is in High (current OFF) state.

Conditions: Vin terminal current at Vin OFF-state >= 2.6V Vin terminal current at Vin ON-state <= 0.2V

■ Timing Chart



^{*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

^{*6} Vin terminal: Open drain drive input.

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

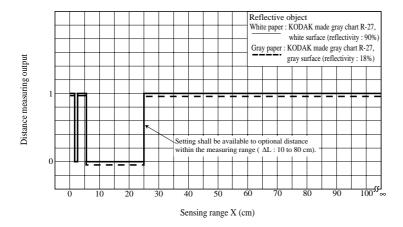


Fig. 2 Detection Distance vs. Sensing Range

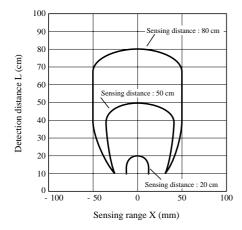
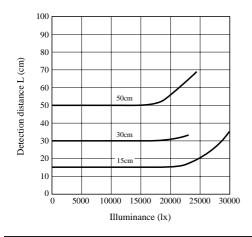
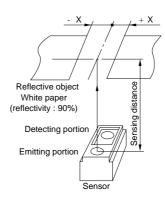


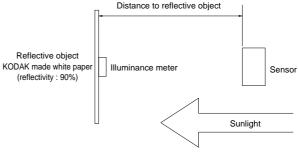
Fig. 3 Detection Distance vs. Illuminance



Test Method for Sensing Range Characteristics



Test Method for Anti External Disturbing Light Characteristics



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