GP2D02

Compact, **High Sensitive** Distance Measuring **Sensor**

■ Features

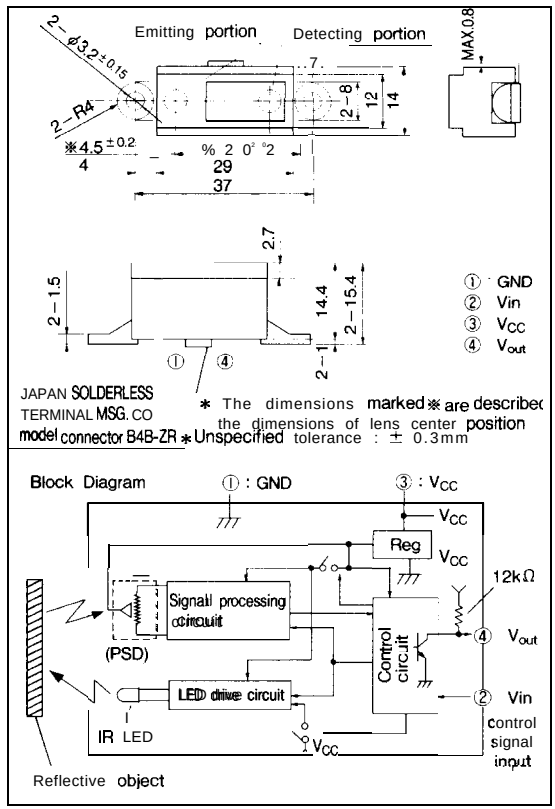
1. Integrated *PSD, infrared LED and signal processing ciruit into a compact package
2. Less influence on the color or reflectivity of reflective object
3. High precision distance measurement output for direct connection to microcomputer
4. Low dissipation current at OFF-state (Dissipation current at OFF-state: TYP. 3 μA)
5. Capable for changing of distance measuring range to change the optical portion (lens)

*PSD : Position Sensitive Detector

■ Applications

1. Sanitary sensors
2. Human body sensors for consumer pr such as electric fans, air conditioners. etc.
3. Garage sensors

■ Outline Dimensions (Unit : mm)



■ Absolute Maximum Ratings (Ta = 25°C, V_{CC} = 5V)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	-0.3 to +10	V
*1 Input terminal voltage	V_{in}	–0.3 to +3	V
Output terminal voltage	BV_O	-0.3 to +10	V
Operating temperature	T_{opr}	-lo to +60	℃
Storage temperature	T_{stg}	-40 to +70	℃

*1 Open drain operation input

■ Operating Supply Voltage

Symbol	Rating	Unit
Vcc	4.4 to 7	V

"In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that occur in equipment using any of SHARP's devices, shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

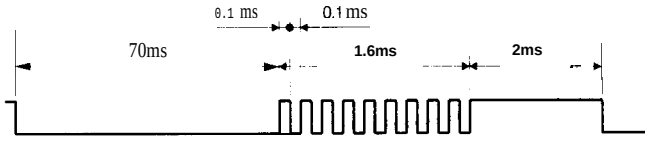
■ Electro-optical Characteristics

(Ta = 25℃, Vcc = 5V)

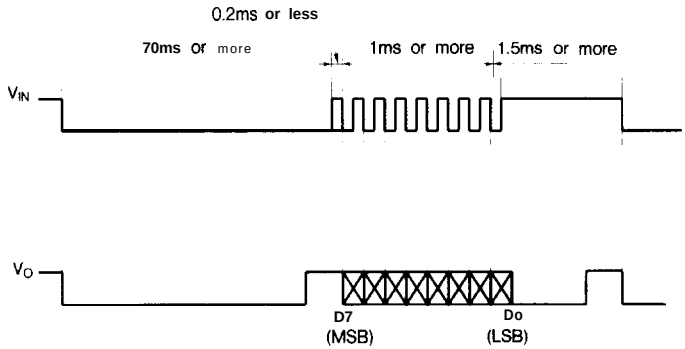
Parameter		Symbol	Conditions		MIN.	TYP.	MAX	Unit
Distance measuring range		△L	*1		10	—	80	cm
Output terminal voltage		V_{OH}	Output voltage at High	L=20cm	V_{CC}-0.3	-	—	v
		V_{OL}	Output voltage at Low	*1	—		0.3	v
Distance characteristics of output		D	L= 80cm, *1			75	—	DEC
		△D	Output change at L= 80cm to 20cm, *1		48	58	68	DEC
Dissipation current	at operating	I_{CC}	L=20cm, *1, *2			22	35	mA
	at OFF-state	I_{OFF}	L= 20cm, *1		—	3	8	μA
Vin terminal current		I_{vin}	Vin=OV		—	-170	- 280	μA

Note) L : Distance to reflective object
DEC : Decimalized value of sensor output (8bit serial)
*1 Reflective object: White paper, reflectivity : 90%
*2 Average dissipation current value during distance measuring operation when detecting of input signal, Vin as shown in the timing chart
*3 Vin terminal : Open drain drive input.
Conditions : Vin terminal current at Vin OFF-states – 1μA
Vin terminal voltage at Vin ON-state ≦0.3V

Vin Input Signal for Measurement

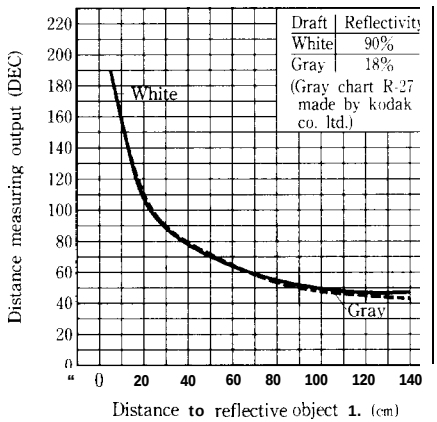


■ Timig Chart



Example of distance measuring output

■ Distance Measuring Output vs. Distance to Reflective Object



● Please refer to the chapter "Precautions for Use." (Page 78 to 93).