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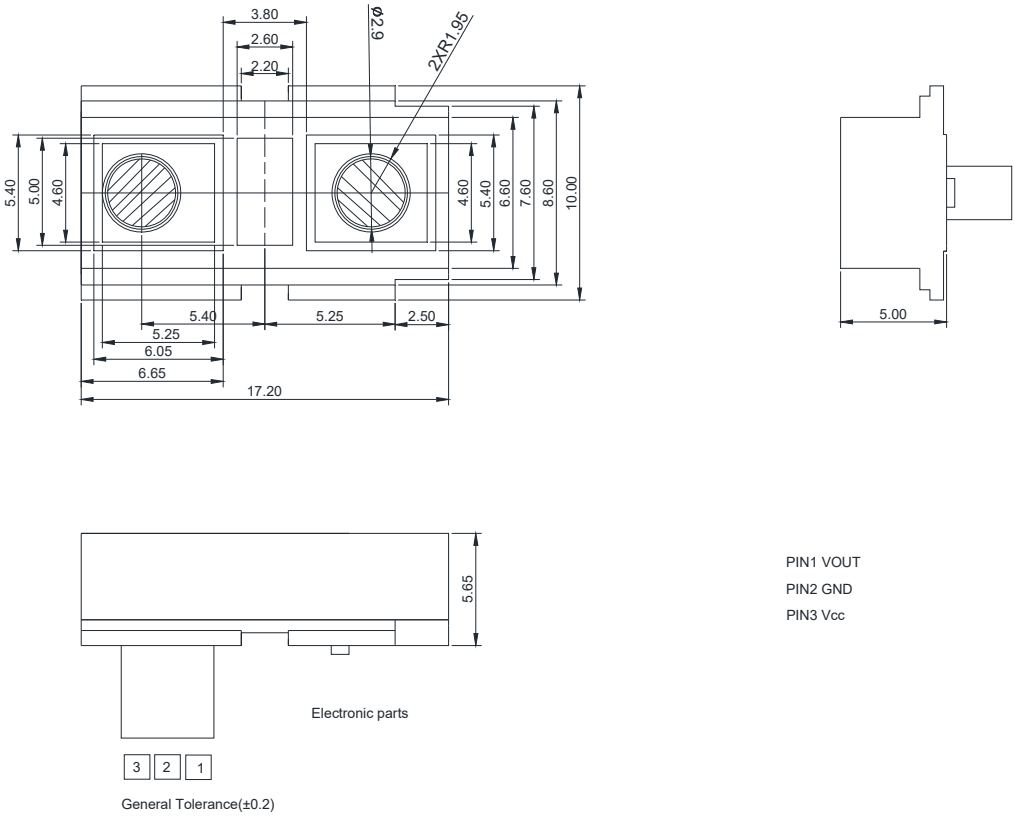
DATA SHEET

PART NO. : PL-ZSPSD1710-S20

REV: A / 0

CUSTOMER'S APPROVAL : _____ DCC : _____

PACKAGE OUTLINE DIMENSIONS



Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.2mm (.008") unless otherwise noted.

Features

- ✳ Operating voltage range: 4.5V-5.5V.
- ✳ Ranging range: 15mm - 150mm.
- ✳ Strong anti-interference ability: Can work normally under sunlight; High dust resistance.
- ✳ Data output: Analog voltage (DAC).
- ✳ Data update cycle: 12~24ms.

● Chip Materials

＊ Lens Color :Black

● Pin definition description

NO.	Symbol	Pin name	Voltage
1	VDD	Power supply	4.5 ~ 5.5V
2	GND	Ground	0V
4	VOUT	Analog voltage	0 ~ 3.0V

● Maximum absolute rating (@Ta=25℃)

Parameter	Symbol	Min.	Max.	Unit
Voltage	VDD	-0.3	5.5	V
Meas range	-	15	150	nm
ESD withstand voltage	ESD	-	2000	V
Working temperature	Topt	-10	60	°C
Storage temperature	Tstg	-20	70	°C

● Photoelectric parameters

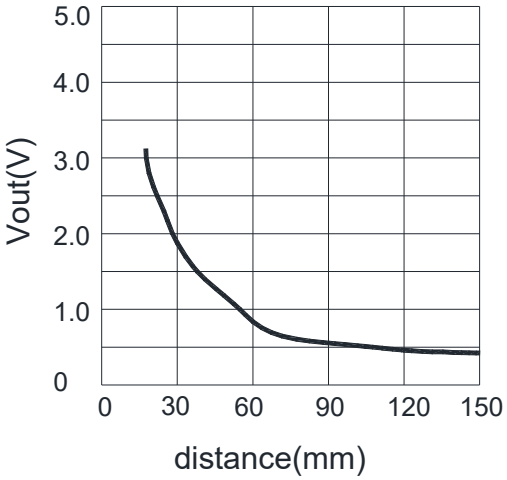
Parameter	Min.	Typ.	Max.	Unit
Voltage	4.5	-	5.5	V
Storage temperature	-10	25	60	°C

●Electrical parameters（@Ta=25℃）：

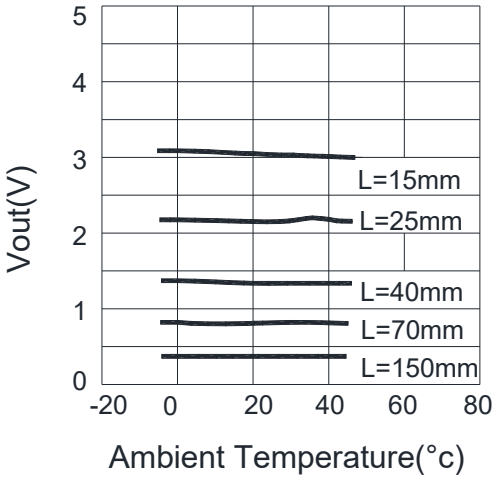
parameter	symbol	Min.	Typ.	Max.	unit	Condition
Power supply voltage	*VDD*	4.5	5.0	5.5	V	-
Current consumption	*ICC*	-	8	10	V	Average value
Detection distance	▲*L*	15	-	150	mm	*1
Output voltage	*Vout*	0.75	-	1.15	V	L=70 mm
Output amplitude	▲*Vout*	1.90	-	2.55	V	L=15→150 mm

●Analog voltage output curve:

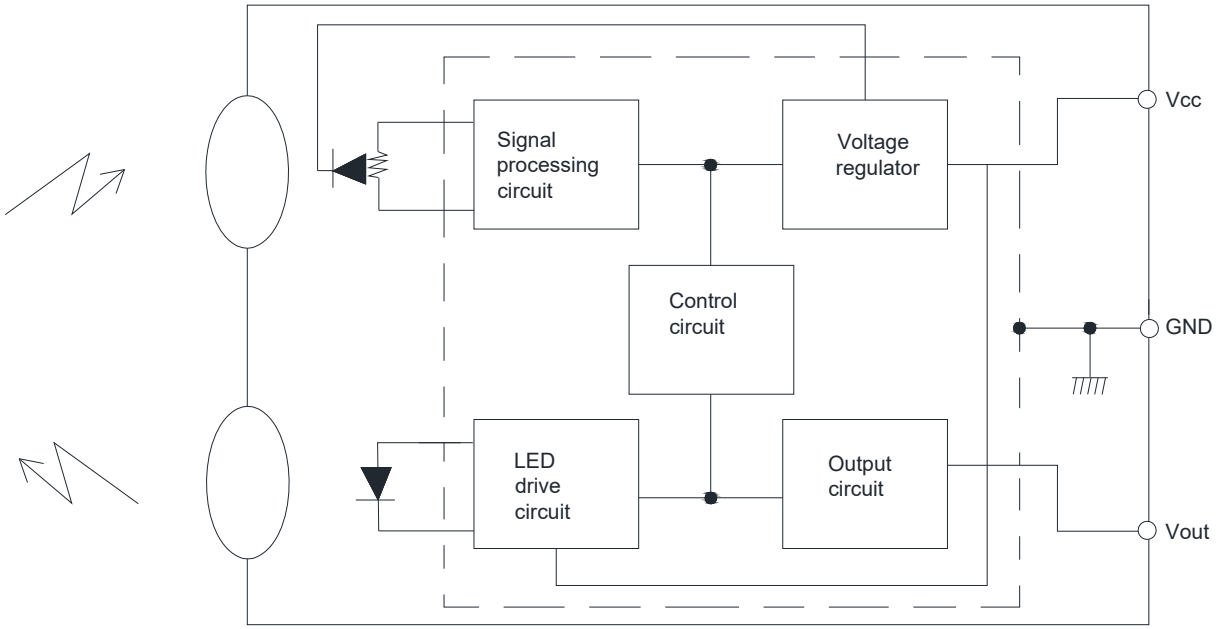
Range characteristics



Temperature performance



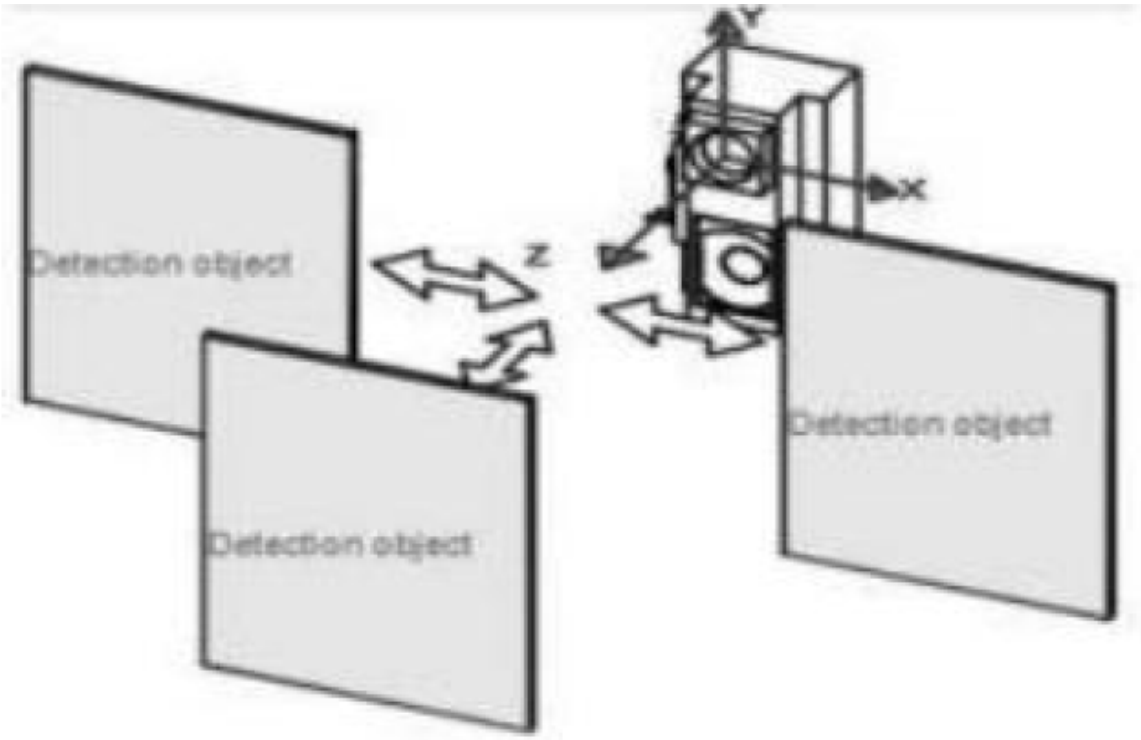
● Internal working principle diagram:



Precautions for Use：

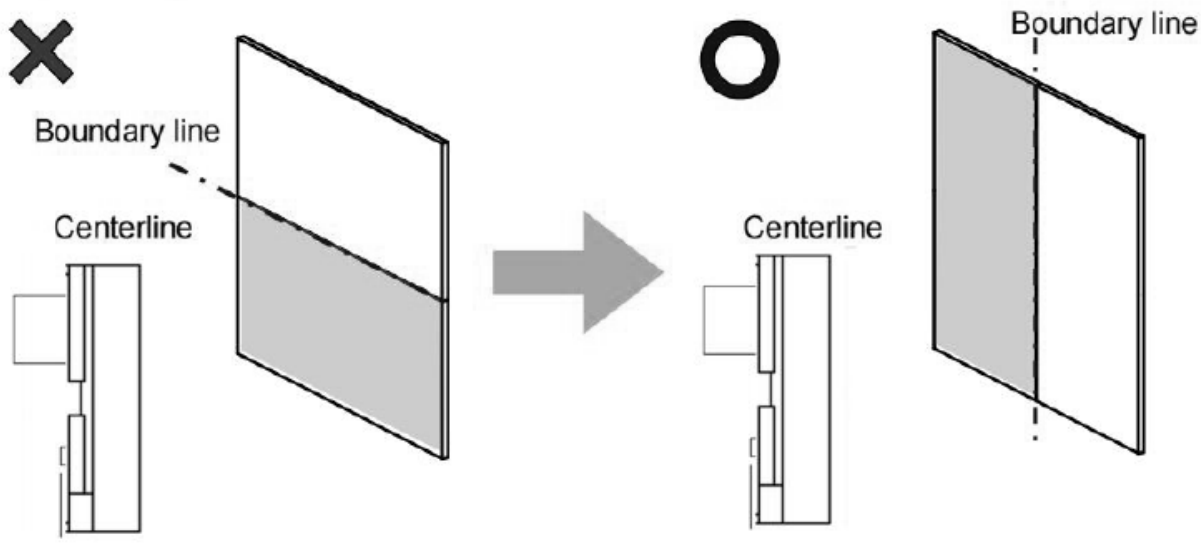
1. To avoid deformation, deterioration, or adverse effects on optical and other properties, store and use the product without applying load.
2. Do not store or use the product near corrosive gases (e.g., hydrogen sulfide), sea breeze, or oil.
3. Do not allow dirt, dust, water, or oil to adhere to the lens part of the product.
4. Do not use the light-receiving element in an area exposed to external stray light.
5. Cleaning may adversely affect optical and other properties, so avoid cleaning. If necessary, use compressed air or a soft cloth to wipe. If soaking the soft cloth in chemicals or detergents, confirm that this will not damage the actual product.
6. Connect or disconnect the connector at room temperature. Doing so at high or low temperatures may cause damage.
7. This product uses a strong locking mechanism. To prevent damage from tension on the cable harness:- Do not frequently apply external force to the connector (other than the natural tension/load of the harness).- Keep the cable loose enough to not interfere with connector insertion/removal.
- Perform insertion/removal along the mating axis.- Do not bend the cable excessively due to external force; secure long cables properly.
8. IC components may be damaged by static electricity. When using the product, take anti-static measures (e.g., grounding, protective circuits).

9. If the product is unstable, connect a capacitor of 10μF or larger to the power input line and ground line. Additionally, the LED is driven by pulse current, requiring an instantaneous current of ~300mA—ensure the power supply can deliver 300mA or more.
10. Use an object that can completely block the sensor's light-emitting and light-receiving parts.
11. Normal detection may fail when detecting objects with:- High specular reflection (e.g., mirrors, glass);- Extremely low reflectivity (e.g., matte black cloth, rubber);- Transparency (e.g., transparent materials).
12. Use the output terminal under the following conditionsSink current (Isink) < 30μA, Source current (Isource) < 1mA
13. Detection Direction：
When the detected object moves, detection is performed in the Z direction (distance direction) and X direction. There may be false detection in the Y direction.



Setting Direction for Objects with Different Materials and Colors

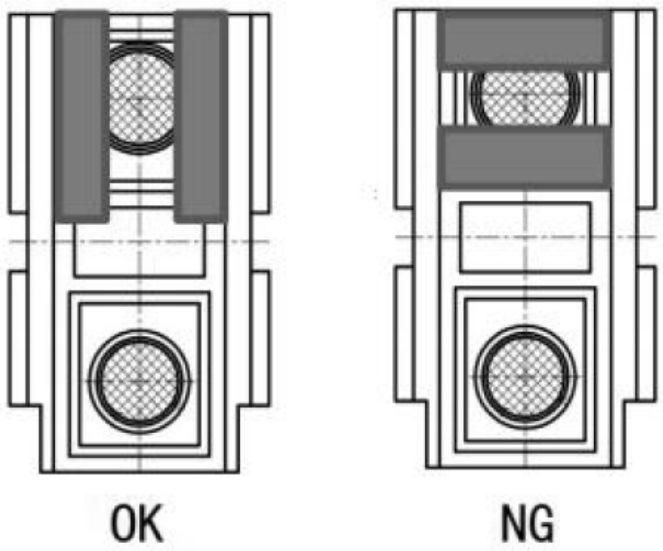
The surface conditions of detected objects are not all the same. When the materials or colors are different, the boundary line between the light-emitting part and light-receiving part should be set to be parallel to the boundary line of different detected objects.



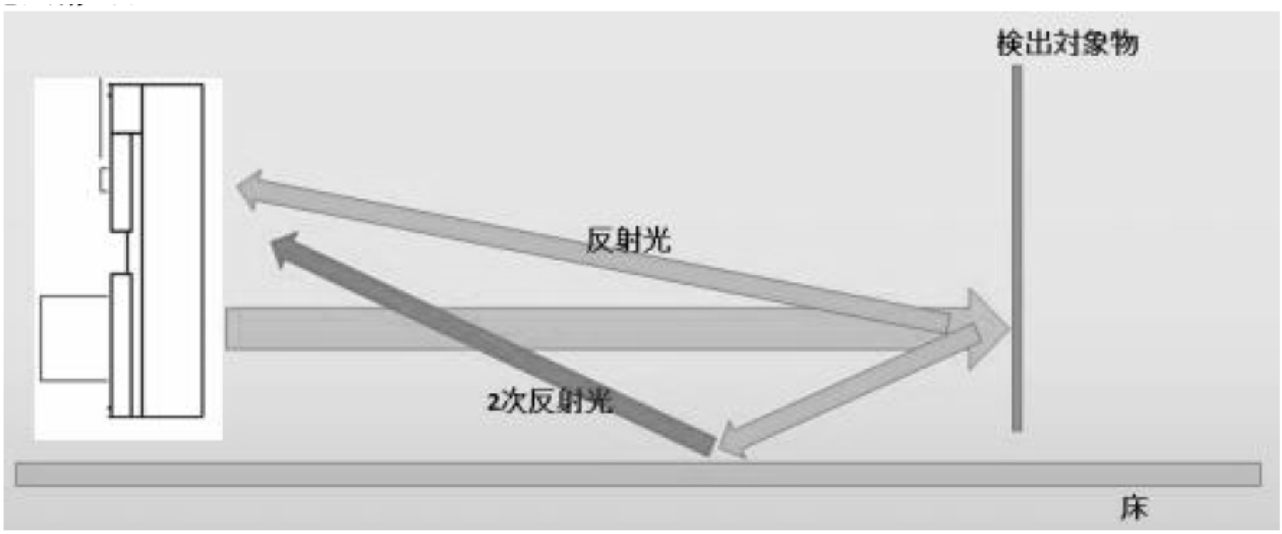
14. Since each Sensor has some deviation, not all Sensors can measure an accurate distance. Therefore, please prepare an approximate calculation in advance.

15. Precautions for Self-Limitation (e.g., Limitation of Projection Area)- Insufficient brightness caused by excessive blocking- Characteristic changes caused by improper blocking direction

- The blocking object is too large, which blocks the incident path of the reflected light



16. Interference - Secondary Reflected Light- When multiple distance-measuring Sensors are arranged adjacent to each other, their reflected lights interact, causing malfunction.- When installed near the ground, it will be affected by secondary reflected light depending on the installation direction, reflectivity of the detected object, and distance.



Assuming the configuration in the diagram above: When the detected object is placed farther away and the ground has high reflectivity, the proportion of reflected light (including secondary reflected light) on the light-receiving side increases. Thus, this results in an output diagram equivalent to when a detected object is present at a short distance.

17. Precautions for External Lens Design

When a filter is installed in front of the optical component, direct reflection from the filter surface may cause false detection or malfunction. To avoid this:- Install a cylindrical light shield on the Sensor's light-emitting side (LED side), or install a light shield between the light-emitting side (LED side) and the light-receiving side (PSD side).- The filter must be made of a material transparent to wavelengths 800nm~1000nm, with mirror-finished inner and outer surfaces.- Note: Dust, debris, or water droplets on the filter surface can also cause false detection.

● Packaging

Internal packaging: packed in antistatic plastic Vacuum-formed tray, with 100 PCS / box