

# PS310L Proximity Sensor with VCSEL

## 1. Features

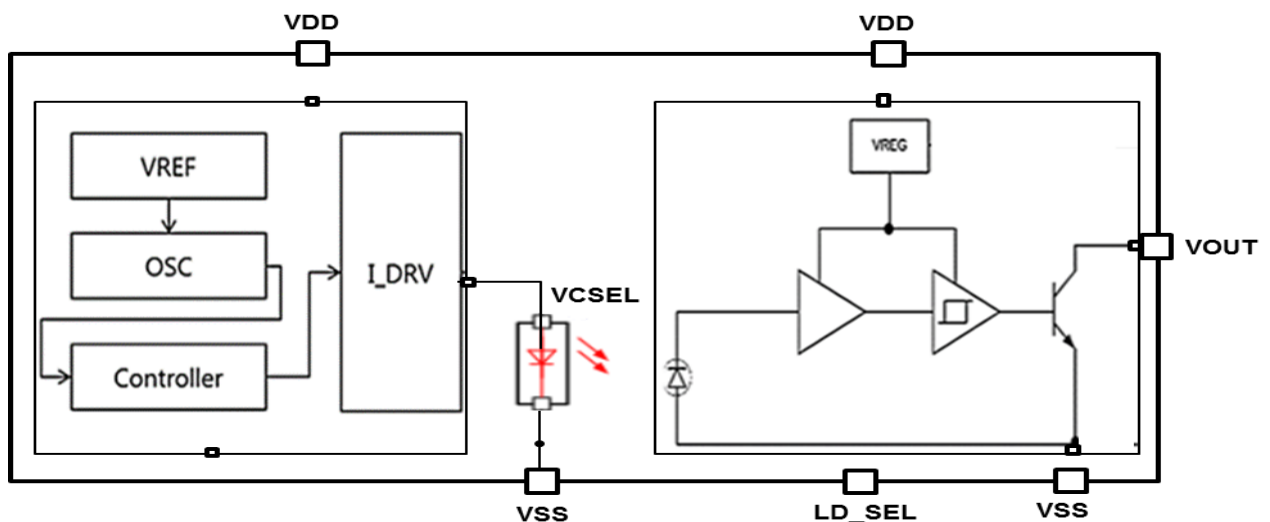
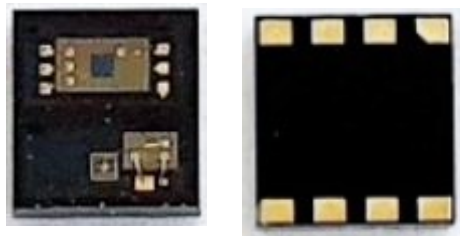
- Asynchronous detection
- Allowable background illuminance: 2000 lx Min.
- Light detection level: 0.4μW/mm<sup>2</sup> Typ.
- Digital output
- Detect objects from near zero to 100mm
- Compact size 2.5 X 2.7 X 0.9mm (ODFN)
- Output type selection available(LD\_SEL)

## 2. Applications

- Contactless Switches
- Industrial Automation
- Sanitary Automation
- Portable and Handheld devices

## 3. Description

The PS310V is an Logic-output reflective sensor with Built-in VCSEL, photodiode and signal processing circuit for proximity function. PS310L is an asynchronous type light modulation photo IC designed for reliable detection even under disturbance background light.

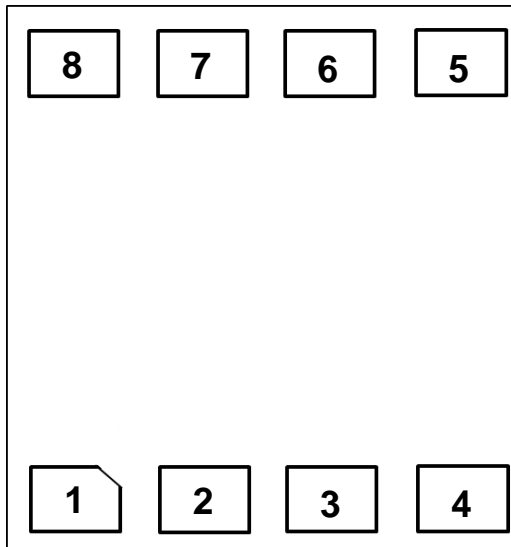


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## 4 Pin Configuration and Functions



TOP View

### Pin Functions

Pin No.	Pin Name	I/O	Description
1	VDD	Power	Power Supply
2	VOUT	Out	An open drain output, require A 1K $\Omega$ pull-up resistor.
3	VSS	Power	Ground
4	LD_SEL	Input	Output type selection input <ul style="list-style-type: none"> <li>• Open: Light ON output</li> <li>• VSS: Dark ON output</li> </ul>
5	NC	-	No connect
6	NC	-	No connect
7	VDD	Power	Power Supply
8	VSS	Power	Ground

## 5. Specifications

### 5.1 Absolute Maximum Ratings

(Ta = 25 °C)

ITEM	Symbol	Min	Max	Unit
Supply Voltage	VDD		6	V
Operating temp.	Topr.	-25	60	°C
Storage temp.	Tstg.	-40	110	°C

### 5.2 Electro-optical Characteristics

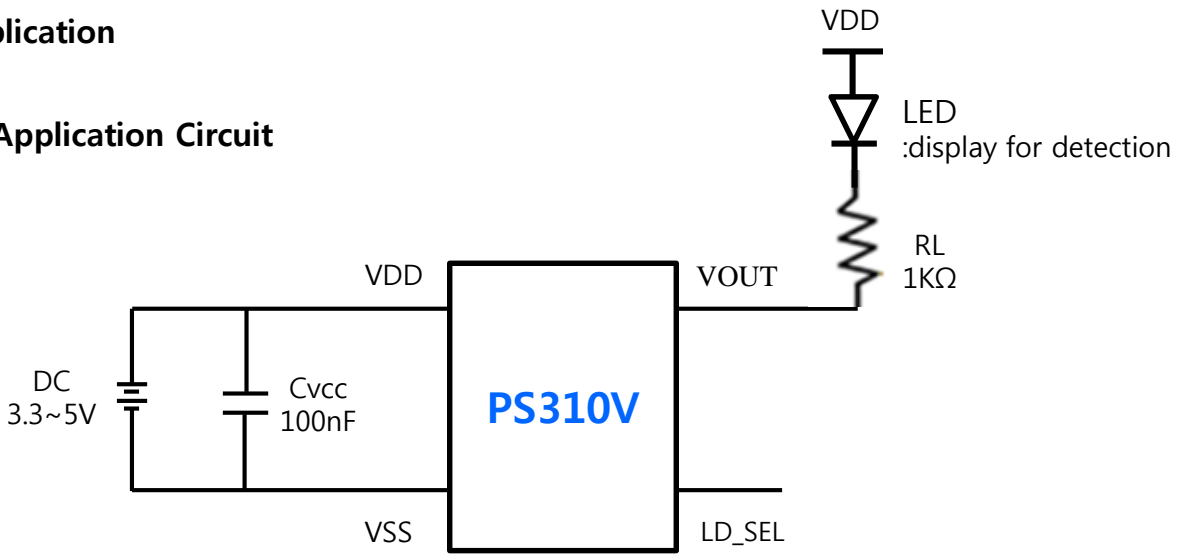
(VDD = 5.0V, Ta = 25 °C)

Parameter		Symbol	Condition	Min	Typ	Max	Unit
Supply current		IDD	-	-	22		mA
Output	Low level output voltage	V <sub>OL</sub>	1k $\Omega$ between VDD and OUTPUT	-	-	0.35	V
	High level output voltage	V <sub>OH</sub>		4.9	-	-	V
LED Drive	VLED	VLED	VDD = 5V	2	-	-	V
	Forward pulse current	IFP	VDD = 5V	45	50	55	mA
Measurement distance range		$\Delta$ L	(Note 1)	0		25	cm
External disturbing light illuminance		-		2000	-	-	lx

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

**6. Application**

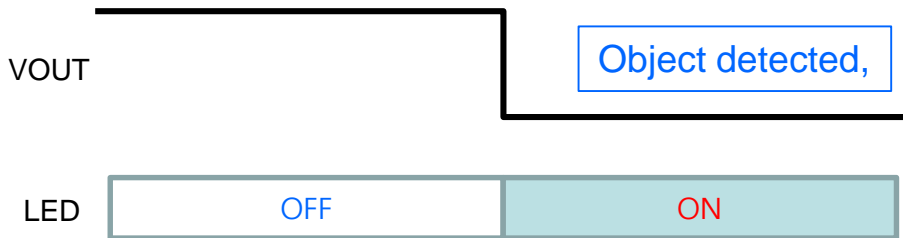
**6.1 Application Circuit**



Output type selection input terminal.

- Open: Light ON output
- VSS : Dark ON output

1) When LD\_SEL is open,

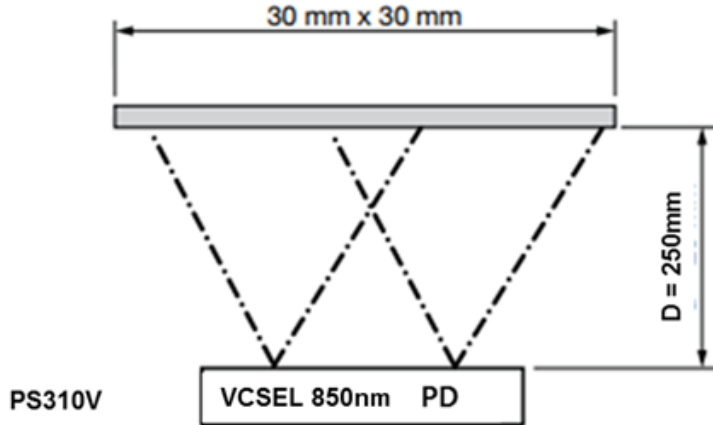


2) When LD\_SEL is connected to VSS,



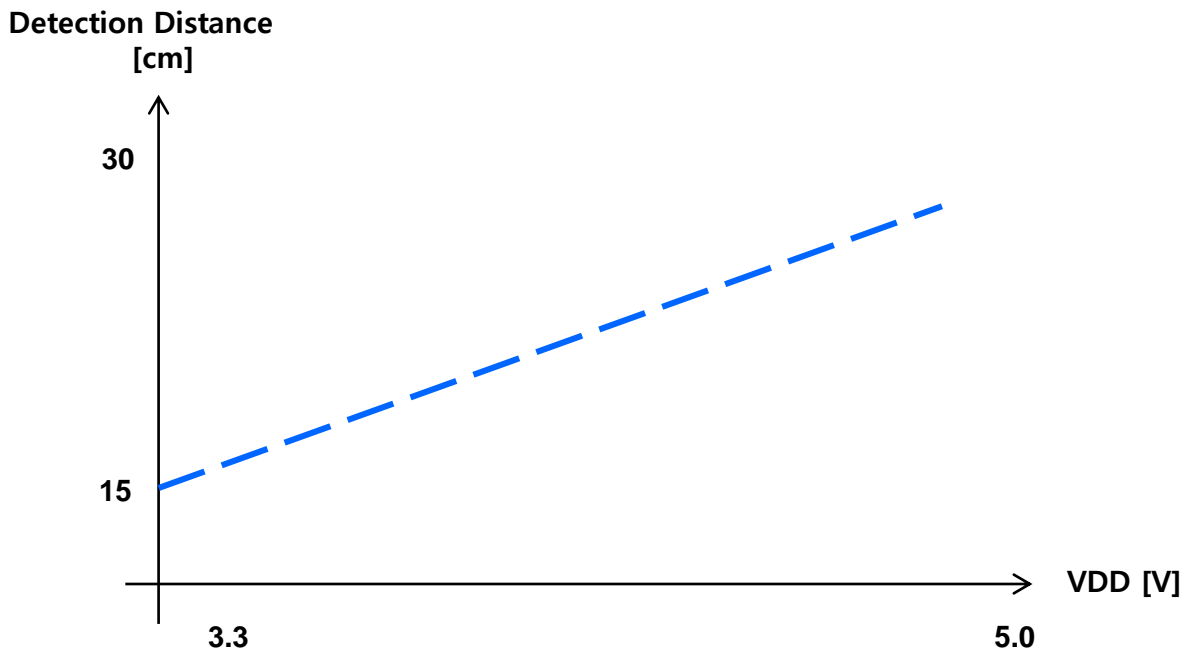
## 6. Application

### 6.2 Distance Test environment

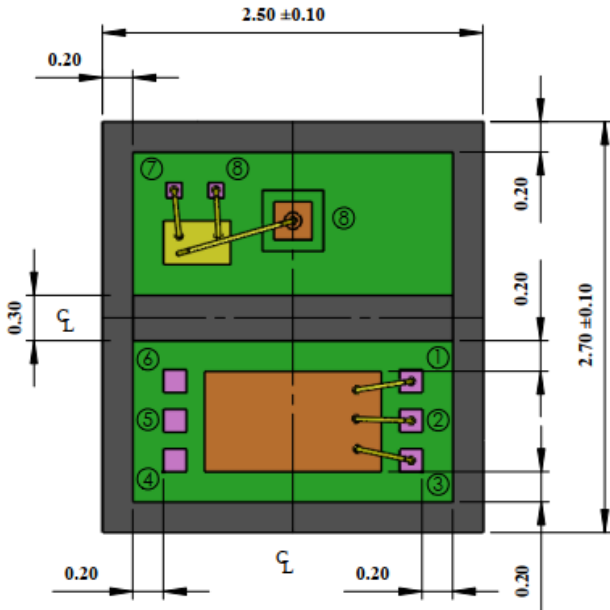


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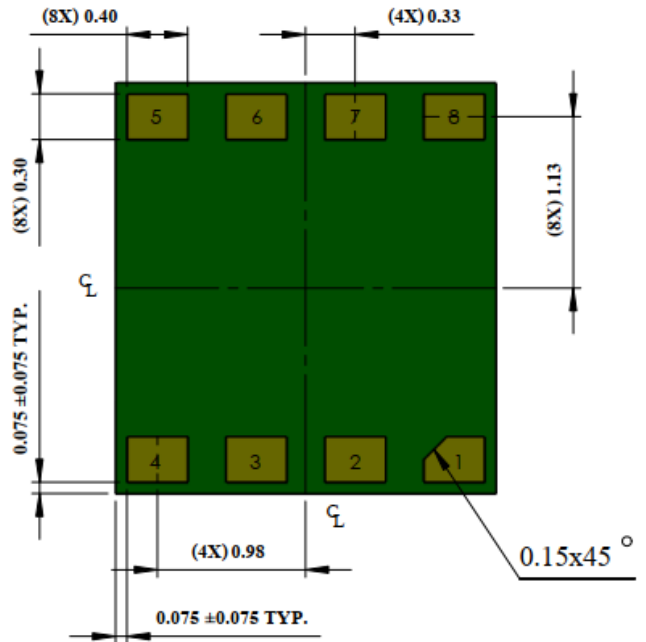
### 6.3 Detection distance vs VDD



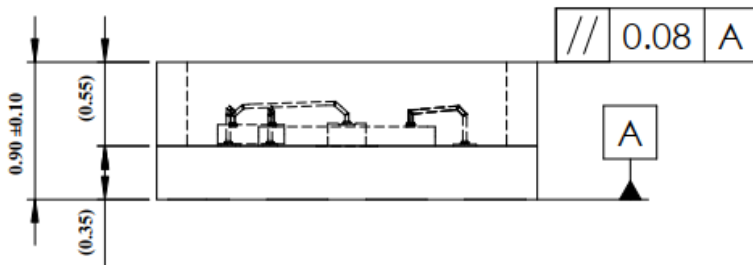
**7. Package Dimension**



**Top view**



**Bottom view**



**Side view**

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