



# THE DATASHEET OF IR1011





# IR1011

## Photovoltaic Infrared Sensor

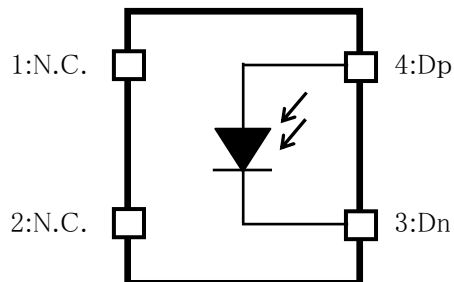
### GENERAL DESCRIPTION

IR1011 is the world smallest mid-infrared quantum photo diode, made of InSb. This surface mount type sensor can be operated at room temperature, and applicable to human body detection, non-contacting temperature measurement, and NDIR gas sensor.

### FEATURES

- Very small / thin package (2.65mm×1.9mm×0.4mm)
- High sensitivities
- Very fast response
- No bias current required

### Pin Layout



### Pinning / Function

Pin	Pin Name	Function
1	N.C.	N.C. (Please Open N.C. pin.)
2	N.C.	N.C. (Please Open N.C. pin.)
3	Dn	n- Output
4	Dp	p- Output

<b>Absolute maximum ratings</b>
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Parameter	Symbol	Min.	Max.	Units
Voltage	V <sub>in</sub>	-20	20	V
Ambient Temperature* <sup>1</sup>	T <sub>op</sub>	-40	85	°C
Storage Temperature	T <sub>st</sub>	-40	85	°C

Note 1: No bias voltage applied

<b>Electrical properties</b>
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At room temperature T<sub>a</sub>=25°C; unless otherwise specified

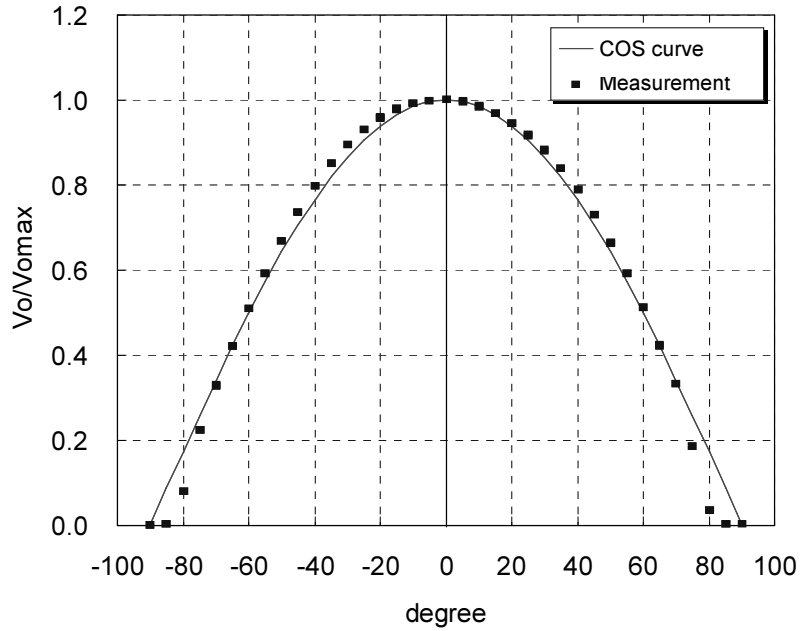
Parameter	Symbol	Min.	Typ.	Max.	Condition	Units
Output Current	I <sub>p</sub>	4.5	6	7.5	500K Blackbody : diameter 22.2mmφ distance 10cm* <sup>2</sup>	nA* <sup>3</sup>
Internal resistance	R <sub>o</sub>	112	150	188	I <sub>c</sub> = ±0.005mA	kΩ

Note 2: Measurement conditions are subject to change without notice.

Note 3: 10Hz lock-in amplifier is used in this measurement.

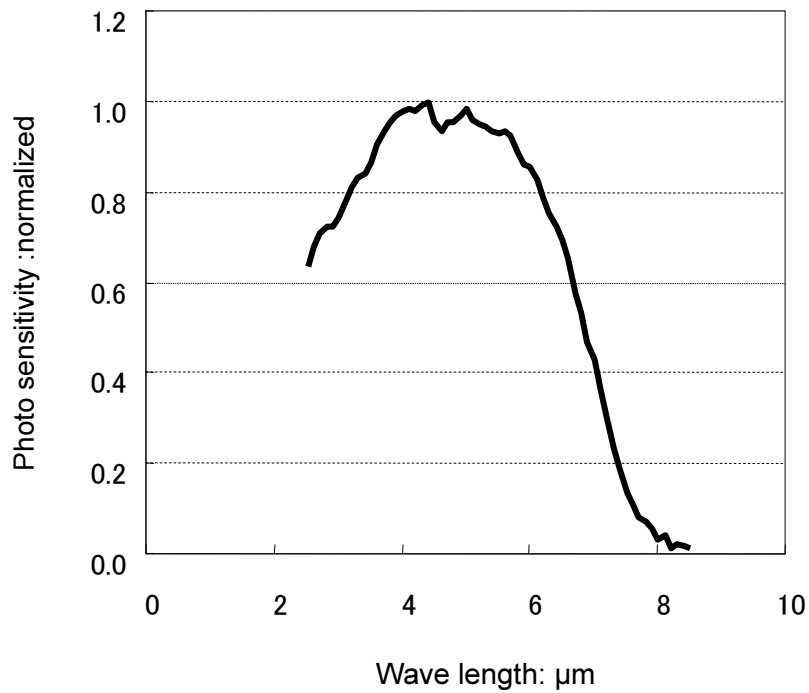
**Optical characteristics**

1. Incident angle and Output voltage



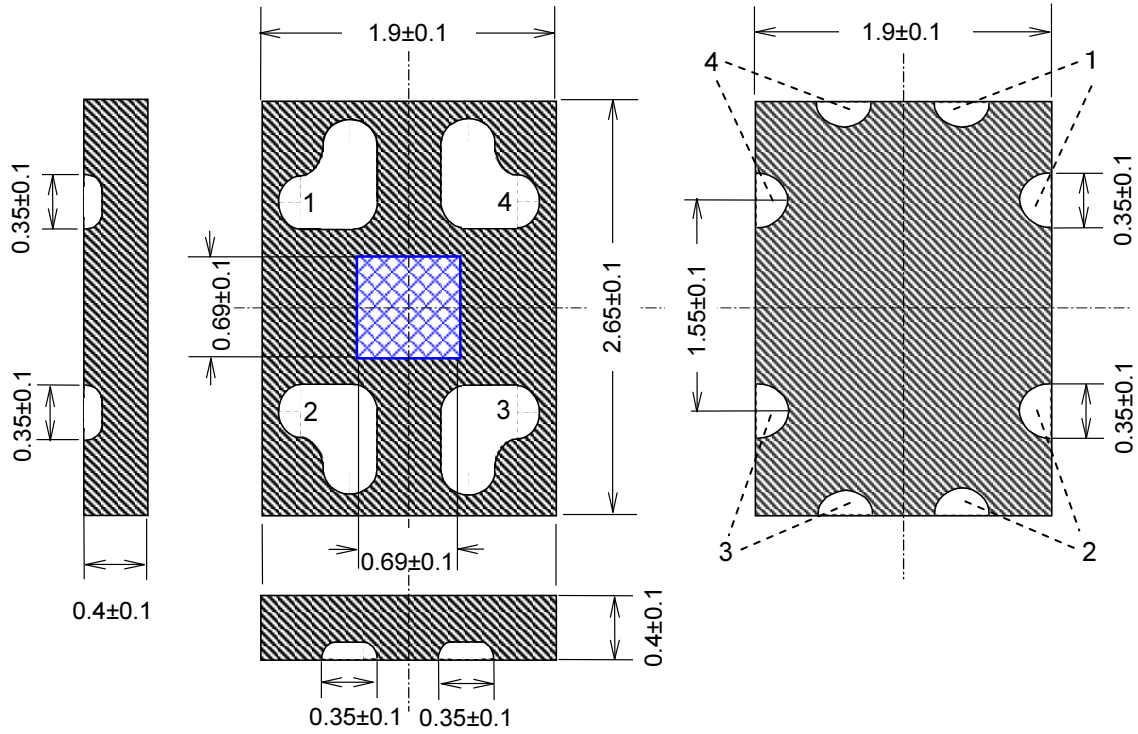
Incident angle and Output voltage

2. Spectral response



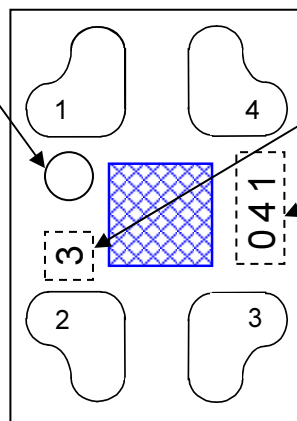
Spectral response

**Package**



**Marking**

Pin#1 indication



Control #  
IR1011

0 4 1  
Lot#

Date Code (Month)

Date Code (Year)

View from sensor side

<b><i>Handling instructions</i></b>
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## &lt;Electrostatic Discharge (ESD)&gt;

This product is sensitive to Electrostatic Discharge (ESD).

In the case of the handling, please be careful about the following matters.

- When you handle a product, please work in the environment to protect against static electricity (ex. More than 40%RH).
- Always use an ESD wrist strap and wearing antistatic clothes.
- Please take electrostatic measures against the container etc. which a product touches directly.

## &lt;Storage Environment&gt;

Please, avoid exposed to direct sunlight. Please, keep it as much as possible at room temperature and normal humidity. (The desirable condition is 5-35 °C, 40 - 85%RH.)

In addition, please, avoid the chlorine gas and the causticity gas.

When this product is kept in inappropriate environment, it may influence product properties.

## &lt;Other Instructions &gt;

Gallium Arsenide (GaAs) and Indium Antimonide (InSb) are used for this product.

Please be careful about the next matters.

- 1) Please, do not take this product to burning and melting and destroys, chemical processing etc..
- 2)When you discard this product, please handle it according to related laws and a waste disposal treatment rule of your company.



Please, be careful not to damage and pollute the sensor surface, because sensor properties may change.

## IMPORTANT NOTICE

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