



IR1011

Photovoltaic Infrared Sensor

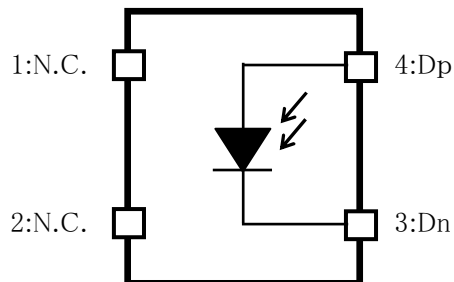
GENERAL DESCRIPTION

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

Absolute maximum ratings

Parameter	Symbol	Min.	Max.	Units
Voltage	V _{in}	-20	20	V
Ambient Temperature* ¹	T _{op}	-40	85	°C
Storage Temperature	T _{st}	-40	85	°C

Note1: No bias voltage applied

Electrical properties

At room temperature T_a=25°C; unless otherwise specified

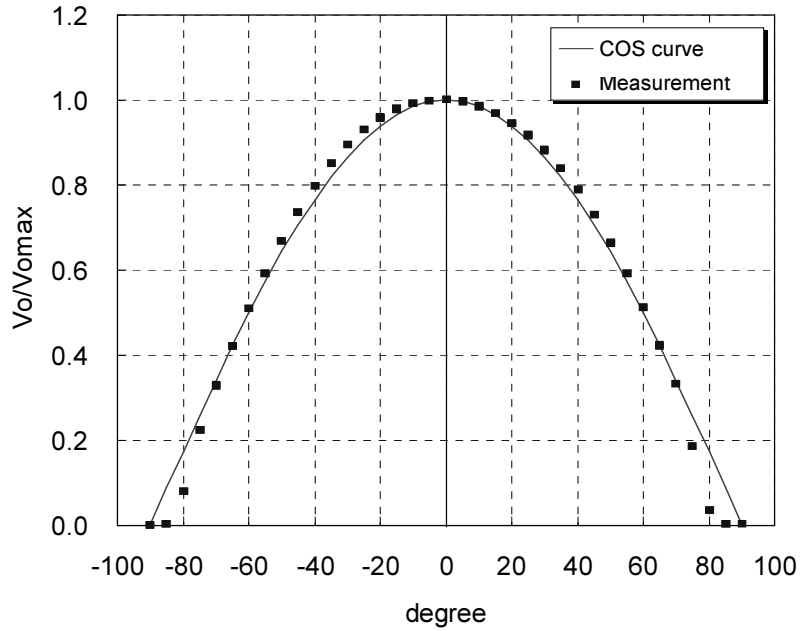
Parameter	Symbol	Min.	Typ.	Max.	Condition	Units
Output Current	I _p	4.5	6	7.5	500K Blackbody : diameter 22.2mmφ distance 10cm* ²	nA* ³
Internal resistance	R _o	112	150	188	I _c = ±0.005mA	kΩ

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

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

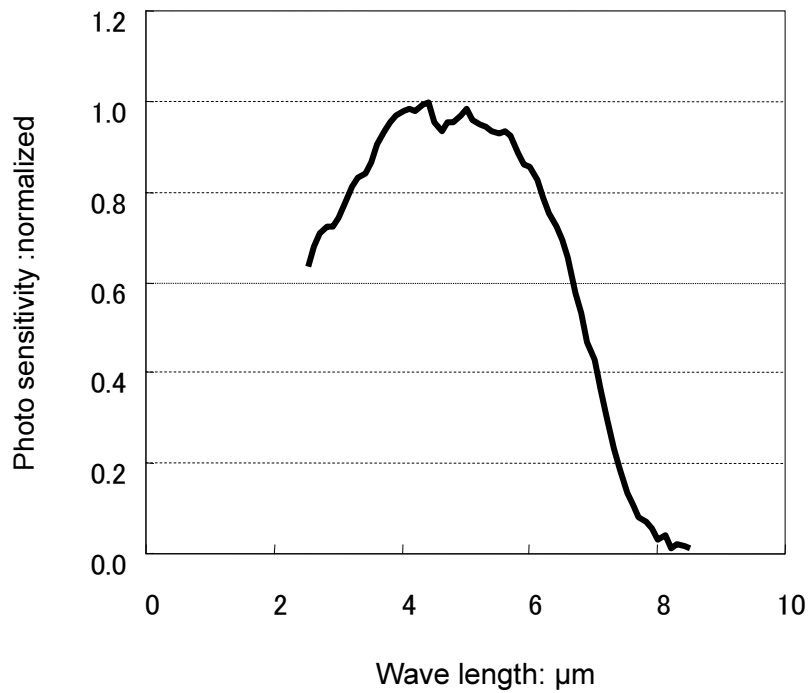
Optical characteristics

1. Incident angle and Output voltage



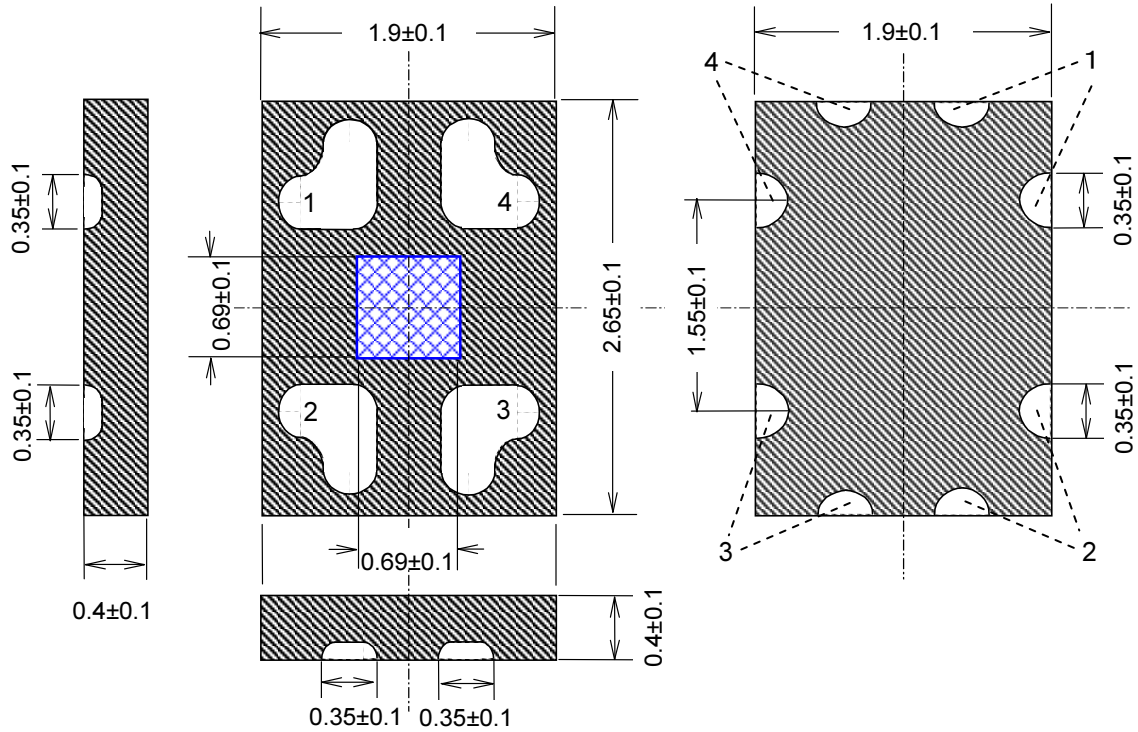
Incident angle and Output voltage

2. Spectral response



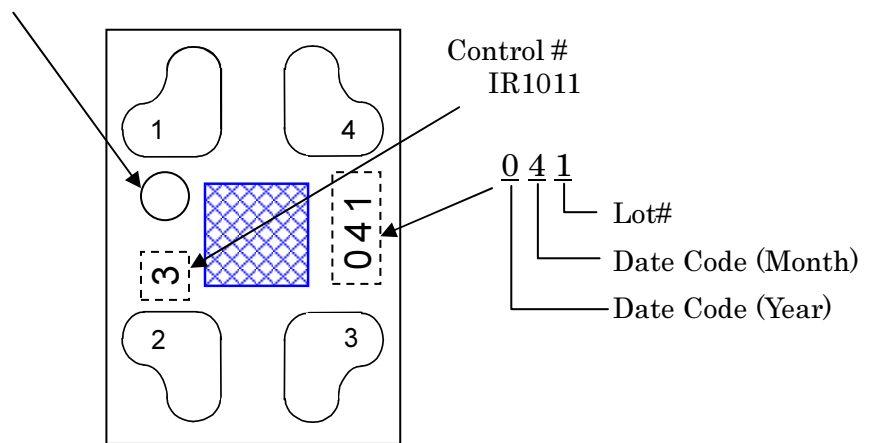
Spectral response

Package



Marking

Pin#1 indication



View from sensor side

<i>Handling instructions</i>

<Electrostatic Discharge (ESD)>

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.

<Storage Environment>

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.

<Other Instructions >

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.

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 - Note2) A hazard related device or system is one designed or intended for life support or maintenance of safety or for applications in medicine, aerospace, nuclear energy, or other fields, in which its failure to function or perform may reasonably be expected to result in loss of life or in significant injury or damage to person or property.
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