# IR1011
# Photovoltaic Infrared Sensor

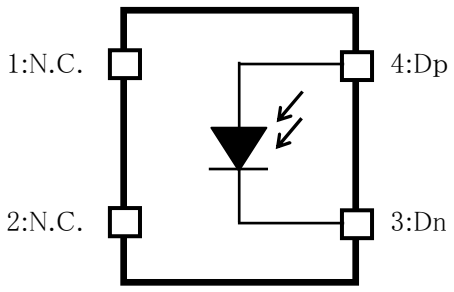
## GENERAL DESCRIPTION

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 | Vin | -20 | 20 | V |
| Ambient Temperature*1 | Top | -40 | 85 | °C |
| Storage Temperature | Tst | -40 | 85 | °C |

Note1: No bias voltage applied

## Electrical properties

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

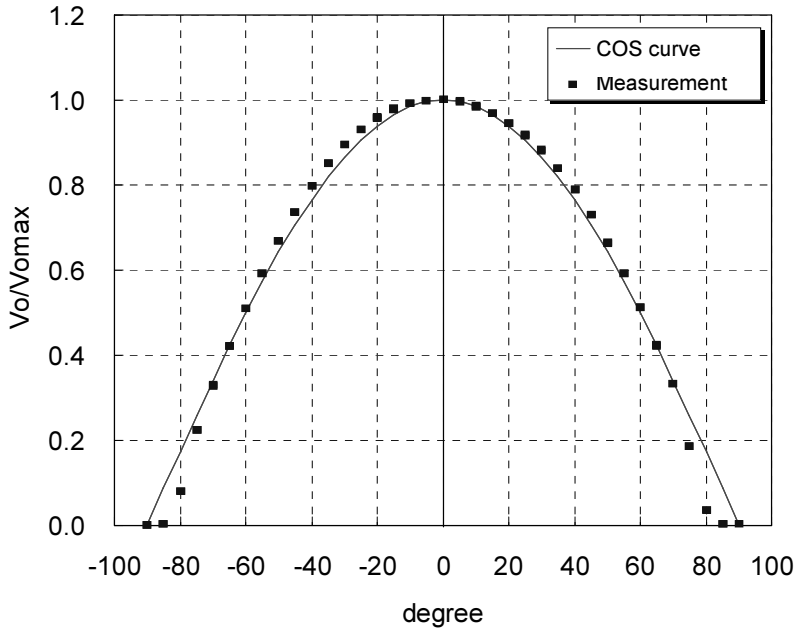
| Parameter | Symbol | Min. | Typ. | Max. | Condition | Units |
|---|---|---|---|---|---|---|
| Output Current | Ip | 4.5 | 6 | 7.5 | 500K Blackbody : diameter 22.2mmϕ distance 10cm*2 | nA*3 |
| Internal resistance | Ro | 112 | 150 | 188 | Ic = ±0.005mA | kΩ |

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

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

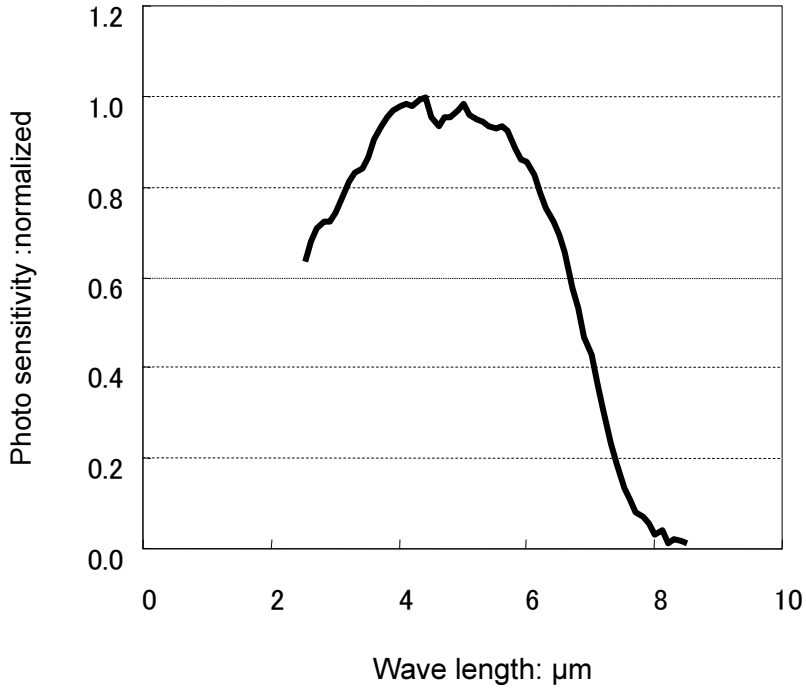
## *Optical characteristics*

1. Incident angle and Output voltage



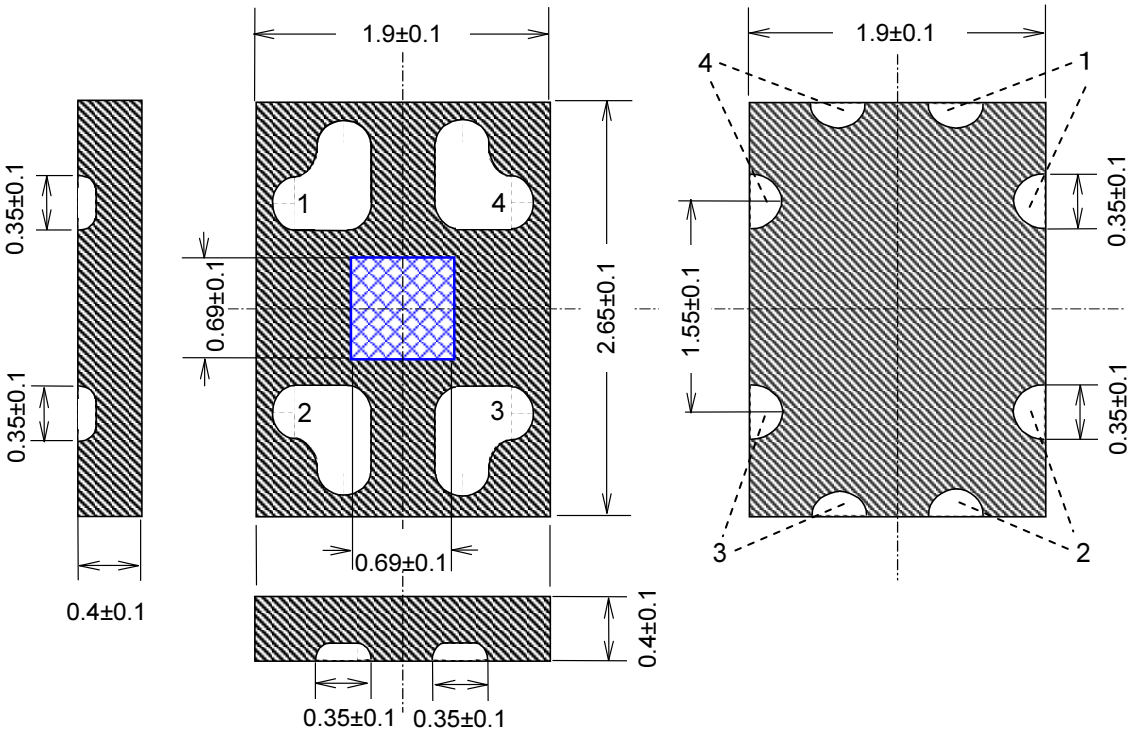

Incident angle and Output voltage

2.Spectral response

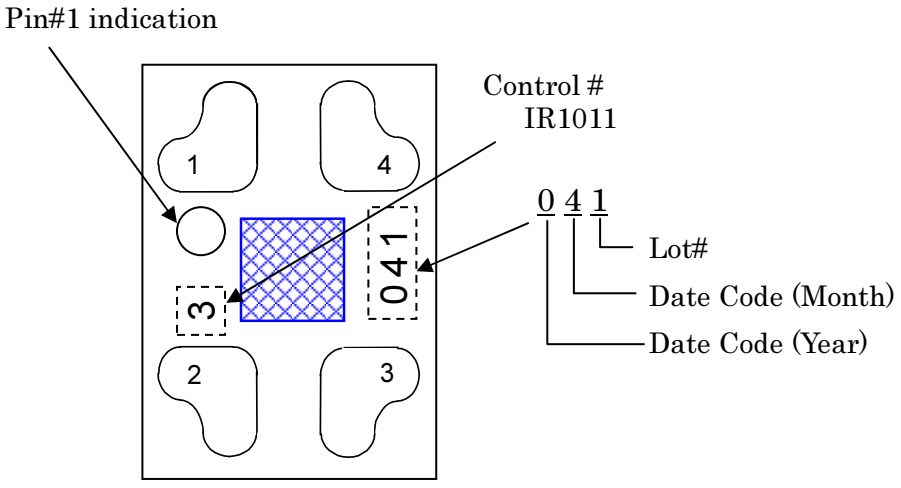



Spectral response

## Package




## Marking




View from sensor side

## Handling instructions

<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.

IMPORTANT NOTICE

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