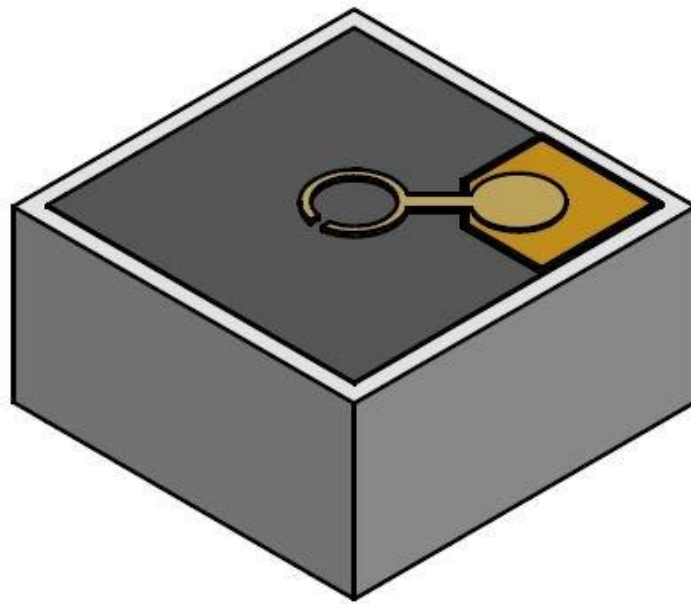


# ***InGaAs 2.5G APD Chip***

## **SPECIFICATION**



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## General Description

This InGaAs/InP avalanche photodiode (APD) chip was designed for 2.5Gbps optical communication use. It has a low dark current, low capacitance and high avalanche gain. Using this chip an optical receiver with a high sensitivity can be achieved.

### Features

- Operation at 1000~1650nm
- Low dark current
- Low capacitance
- Linear response
- Low cost

### Applications

- 1.25 / 2.5 / 3.125 Gbps optical receiver for long-distance optical communication.

### Absolute Maximum Ratings (Tc=25°C)

Parameter	Symbol	Rating	Unit
Reverse voltage	$V_R$	VB	V
Reverse current	$I_R$	2	mA
Operating temperature range	$T_{OPR}$	-40 to +85	°C
Storage temperature range	$T_{STG}$	-40 to +85	°C

### Electro-Optical Characteristics (Tc=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Dark current	$I_D$	$V_R = 0.9 V_B$		1	10	nA
Capacitance	$C_{PD}$	$V_R = 0.9 V_B$		0.45	0.6	pF
Responsivity <sup>1)</sup>	R	$V_R = 0.98 V_B(1550nm)$		7		A/W
Breakdown voltage	$V_B$	$I_D = 10 \mu A, T=25^\circ C$	35		55	V
Temperature coefficient	$\gamma$	$\Delta V_B / \Delta T$	0.07		0.11	V/°C
Gain-bandwidth product	GBP			30		GHz
Operating range <sup>2)</sup>	$\lambda$	-	1.0	-	1.65	$\mu m$

1) The responsivity when M=1 is calculated as 0.9A/W, but there is no way to measure the voltage of unity gain.

2) The APD chip can be operated at the wavelength range between 1.0 and 1.65  $\mu m$  with different responsivity.

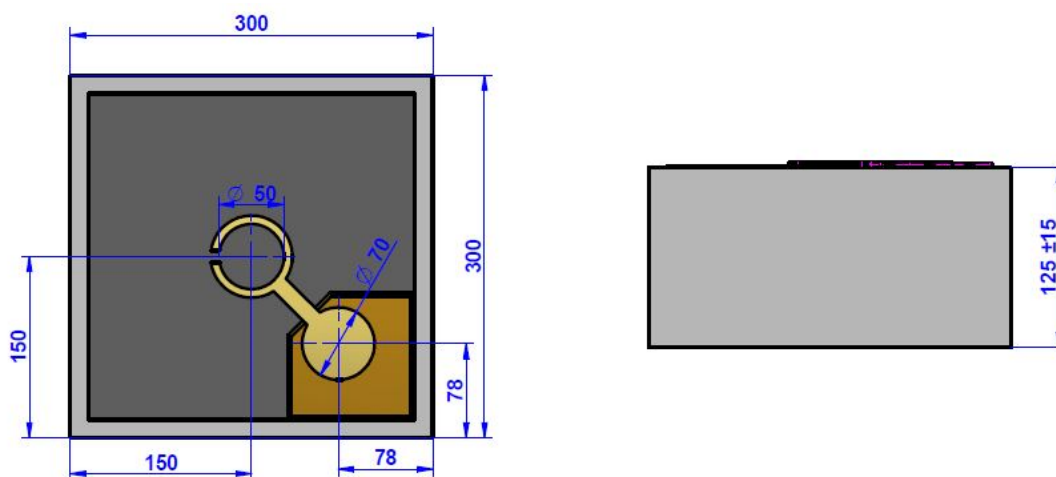
## Structure

### Dimension Parameter

Parameter	Symbol	Typ.	Unit
Light receiving area diameter	D	50	$\mu\text{m}$
Chip size	-	300×300	$\mu\text{m}^2$
Bonding pad diameter	-	70	$\mu\text{m}$
Chip thickness	t	125 ± 15	$\mu\text{m}$

### Dimension

(unit:  $\mu\text{m}$ )



## Other Requirements

### Precautions for use

- 1) This device is susceptible to damage as a result of ESD(electrostatic discharge). Use of ground straps, anti static mats, and other standard ESD protective equipment is recommended when handling or testing an InGaAs PIN/APD or any other junction photodiode. Soldering temperature of the leads should not exceed 350 °C for more than 3 seconds.
- 2) During the optical alignment before laser welding or epoxy bonding, the APD chip would respond to input optical signal under the condition of high applied voltage larger than 60% of  $V_B$ . Thus, 80% of  $V_B$  is recommended for optical alignment.
- 3) Any kinds of high input optical power can cause a serious damage to APD chip.

### Ordering Information- PD CHIP

