

# InAsSb photodiode



P11120-901

## Infrared detector in the 5 μm spectral band, with high sensitivity and high reliability

The P11120-901 is an infrared detector that provides high sensitivity in the 5 μm spectral band due to our unique crystal growth technology. The InAsSb photodiode used in the detector has a planar structure that ensures high-speed response and high reliability. Typical applications include gas analysis such as CO<sub>2</sub>, SO<sub>x</sub>, CO and NO<sub>x</sub>. HAMAMATSU also manufactures detector elements with peak sensitivity at longer wavelengths by changing the composition ratio of As and Sb.

### Features

- High speed response
- High sensitivity
- High reliability

### Applications

- Gas analysis
- Thermometers (radiometers)
- Thermal imaging
- Remote sensing
- FTIR
- Spectrophotometry

### Specifications

Parameter	Specification	Unit
Window material	Si with AR coated	-
Package	Metal dewar	-
Cooling	Liquid nitrogen	-
Active area	φ1.0	mm

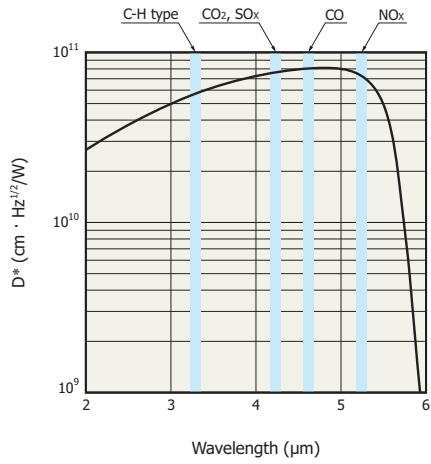
### Absolute maximum ratings

Parameter	Symbol	Value	Unit
Reverse voltage	VR	0.1	V
Operating temperature	Topr	-40 to +60	°C
Storage temperature	Tstg	-55 to +60	°C

### Electrical and optical characteristics

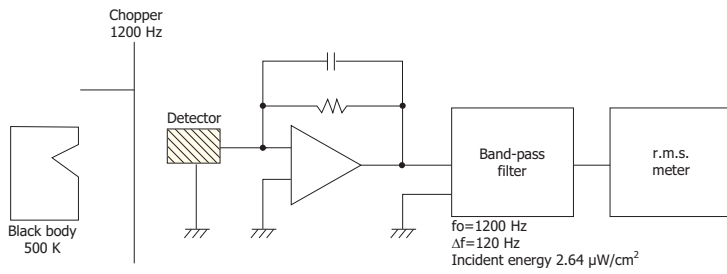
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak sensitivity wavelength	λ <sub>p</sub>		4.6	4.8	5.2	μm
Cut-off wavelength	λ <sub>c</sub>		5.6	5.8	-	μm
Photo sensitivity	S		0.7	0.8	-	A/W
Shunt resistance	Rsh		7 × 10 <sup>4</sup>	1 × 10 <sup>5</sup>	-	Ω
Detectivity	D*	(λ <sub>p</sub> , 1200, 1)	6.0 × 10 <sup>10</sup>	8.5 × 10 <sup>10</sup>	-	cm <sup>2</sup> ·Hz <sup>1/2</sup> /W
Noise equivalent power	NEP	λ=λ <sub>p</sub>	-	1.1 × 10 <sup>-12</sup>	1.5 × 10 <sup>-12</sup>	W/Hz <sup>1/2</sup>
Rise time	tr		-	200	300	ns

**Spectral response**



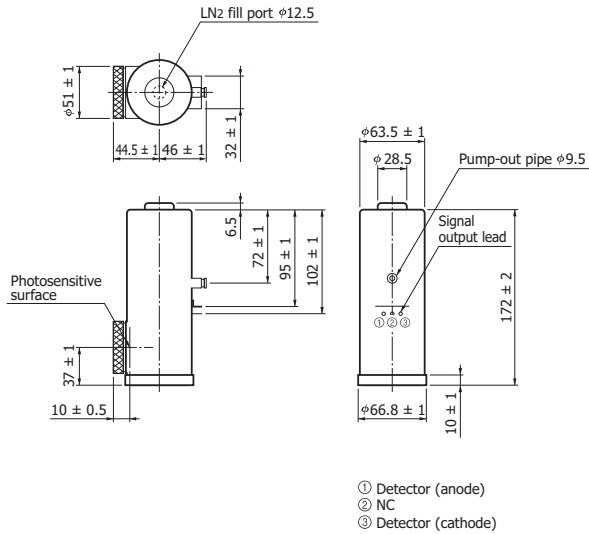
KIRDB0430EA

**Measurement circuit example**



KIRDC0004EA

### Dimensional outline (unit: mm)



KIRDA0190EC

Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions.

Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein.

Type numbers of products listed in the specification sheets or supplied as samples may have a suffix "(X)" which means tentative specifications or a suffix "(Z)" which means developmental specifications. ©2010 Hamamatsu Photonics K.K.

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