

InSb photovoltaic detectors



P5968 series

High-speed response, low-noise photovoltaic detectors

The P5968 series are photovoltaic detectors having high sensitivity in the so-called atmospheric window at 3 to 5 μm . Custom devices are also available to meet your special requests.

Features

- Cooling hold time: 12 hours or more (at the time of shipment)
- Built-in preamp type available
Built-in preamp allows high precision photometry.
P7751-01 (Uses P5968-060.)
P7751-02 (Uses P5968-200.)

Applications

- Thermometers (radiometers)
- Gas analysis
- FTIR
- Spectrophotometry

Accessories (sold separately)

- Amplifier for InSb photovoltaic detector
C4159-01 (photosensitive area: smaller than $\phi 1$ mm)
C4159-04 (photosensitive area: $\phi 2$ mm)
[Custom amplifier is also available for use with P5968-300 ($\phi 3$ mm type).]

Structure/Absolute maximum ratings

Type no.	Window material*1	Package	Cooling	Active area (mm)	Number of element	Absolute maximum ratings		
						Reverse voltage V_R (V)	Operating temperature T_{opr} *2 (°C)	Storage temperature T_{stg} *2 (°C)
P5968-060	Si	Metal dewar	Liquid nitrogen	$\phi 0.6$	1	0.5	-40 to +60	-55 to +60
P5968-100				$\phi 1$	1			
P5968-200				$\phi 2$	1			
P5968-300				$\phi 3$	1			

*1: Window material Si=silicon (with AR coated)

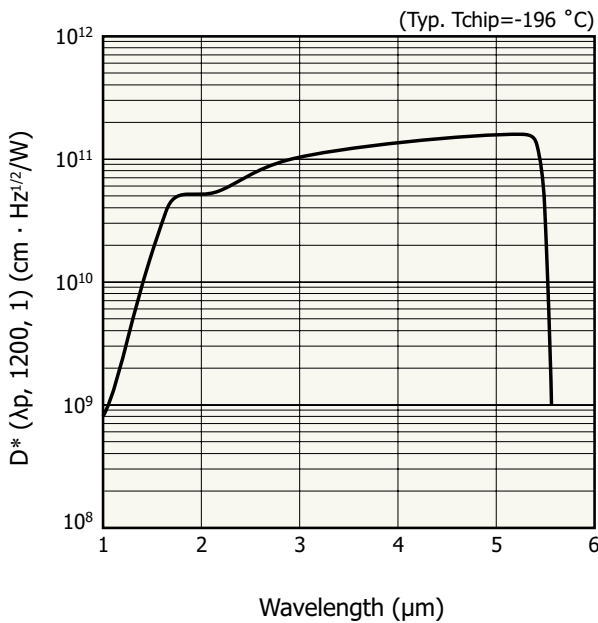
*2: No dew condensation

When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristic and reliability
Note: Absolute maximum ratings are the values that must not be exceeded at any time. If even one of the absolute maximum ratings is exceeded even for a moment, the product quality may be impaired. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Typ. unless otherwise noted)

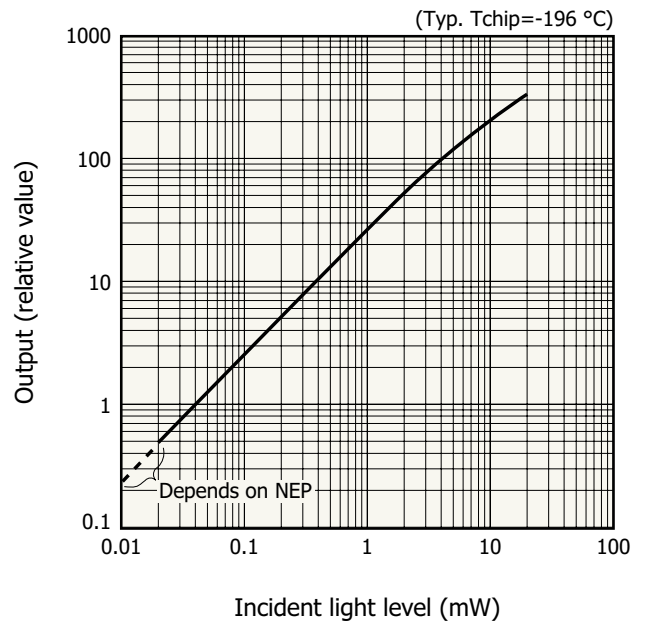
Type no.	Measurement condition	Peak sensitivity wavelength λ_p (μm)	Cutoff wavelength λ_c (μm)	Photo sensitivity $S_{\lambda=\lambda_p}$ (A/W)	Shunt resistance R_{sh} (Ω)	D^* ($\lambda_p, 1200, 1$)		NEP $\lambda=\lambda_p$ ($\text{W}/\text{Hz}^{1/2}$)	Rise time t_r $V_R=0\text{ V}$ $R_L=50\ \Omega$ 0 to 63 % (ns)	Terminal capacitance C_t $V_R=0\text{ V}$ $f=1\text{ MHz}$ (pF)
	Element temperature T_{chip} ($^{\circ}\text{C}$)					Min. ($\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$)	Typ. ($\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$)			
P5968-060	-196	5.3	5.5	2.5	1×10^7	1.1×10^{11}	1.6×10^{11}	3.3×10^{-13}	30	30
P5968-100					1×10^6			5.5×10^{-13}	70	100
P5968-200					1×10^5			1.1×10^{-12}	150	200
P5968-300					5×10^4			1.6×10^{-12}	600	900

Spectral response



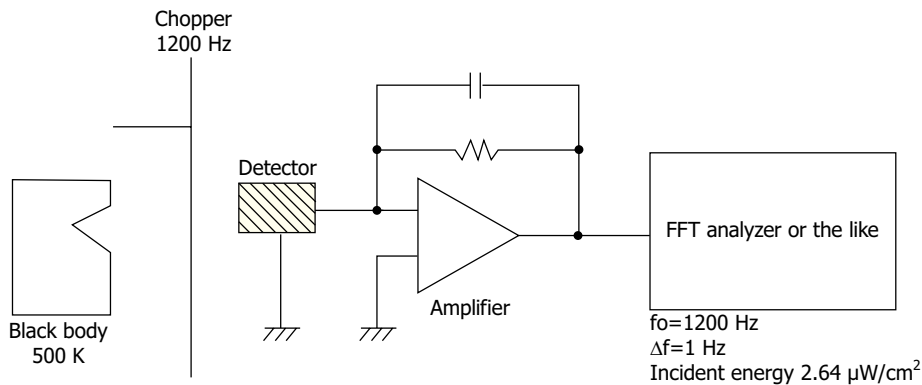
KIRDB0063EG

Linearity (P5968-100)



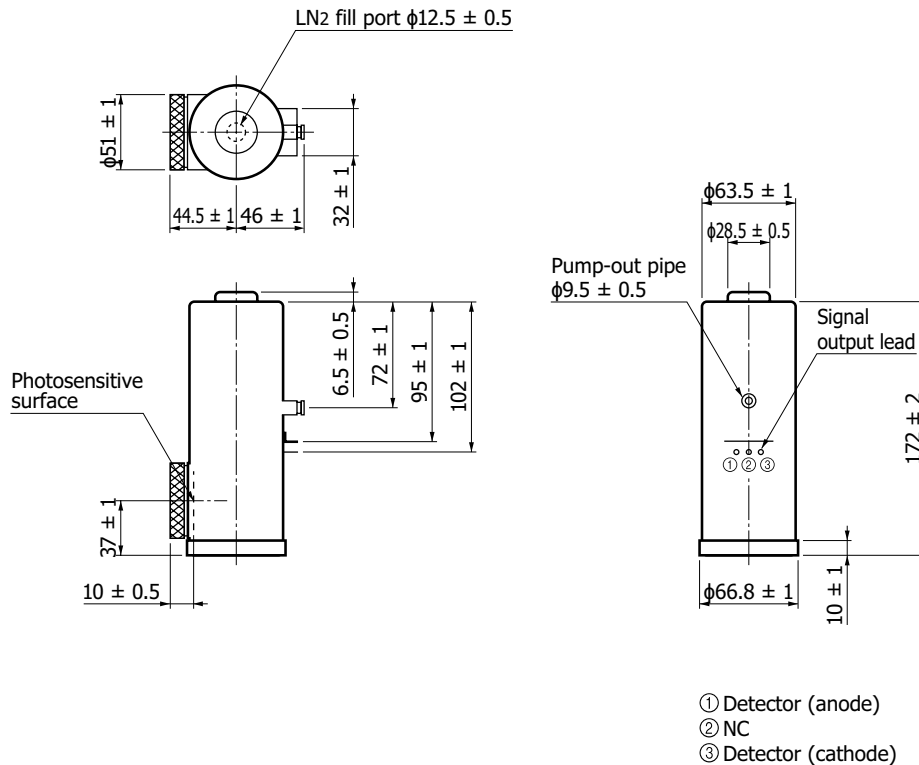
KIRDB0466EB

Block diagram for characteristic measurement



KIRDC0004EB

Dimensional outline (unit: mm)



KIRDA0190ED

Related information

www.hamamatsu.com/sp/ssd/doc_en.html

Precautions

- Disclaimer
- Compound opto-semiconductors (photosensors, light emitters)

Technical note

- Compound semiconductor photosensors

Information described in this material is current as of July 2024.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use. Copying or reprinting the contents described in this material in whole or in part is prohibited without our prior permission.

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