

# 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  $\mu\text{m}$ . 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

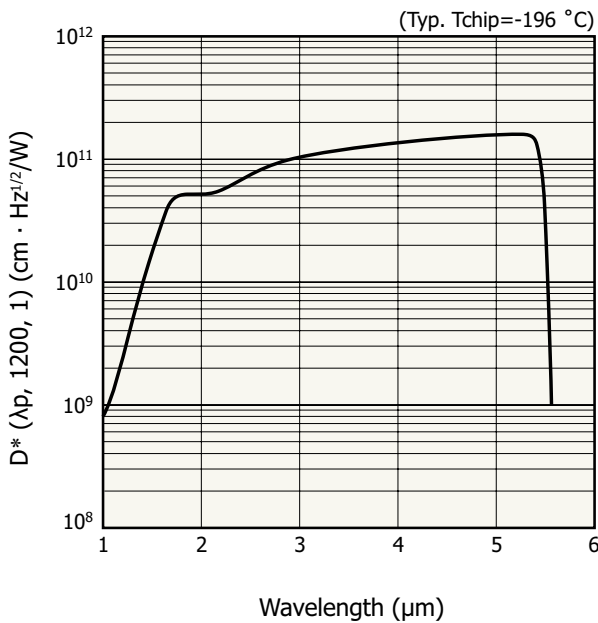
When there is a temperature difference between a product and the surrounding area in high humidity environments, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristic and reliability

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)**

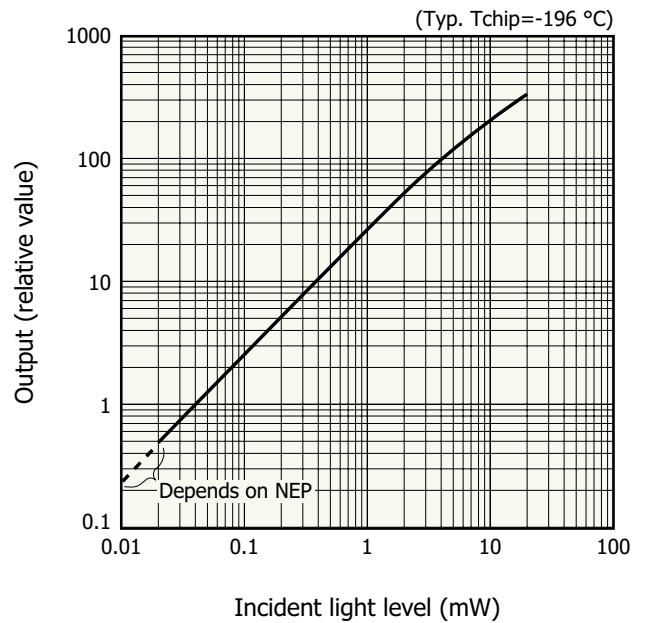
Type no.	Measurement condition	Peak sensitivity wavelength $\lambda_p$ ( $\mu\text{m}$ )	Cutoff wavelength $\lambda_c$ ( $\mu\text{m}$ )	Photo sensitivity $S_{\lambda=\lambda_p}$ (A/W)	Shunt resistance $R_{sh}$ ( $\Omega$ )	$D^*$ ( $\lambda_p, 1200, 1$ )		NEP $\lambda=\lambda_p$ ( $\text{W}/\text{Hz}^{1/2}$ )	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	$1 \times 10^7$	$1.1 \times 10^{11}$	$1.6 \times 10^{11}$	$3.3 \times 10^{-13}$	30	30
P5968-100					$1 \times 10^6$			$5.5 \times 10^{-13}$	70	100
P5968-200					$1 \times 10^5$			$1.1 \times 10^{-12}$	150	200
P5968-300					$5 \times 10^4$			$1.6 \times 10^{-12}$	600	900

**Spectral response**



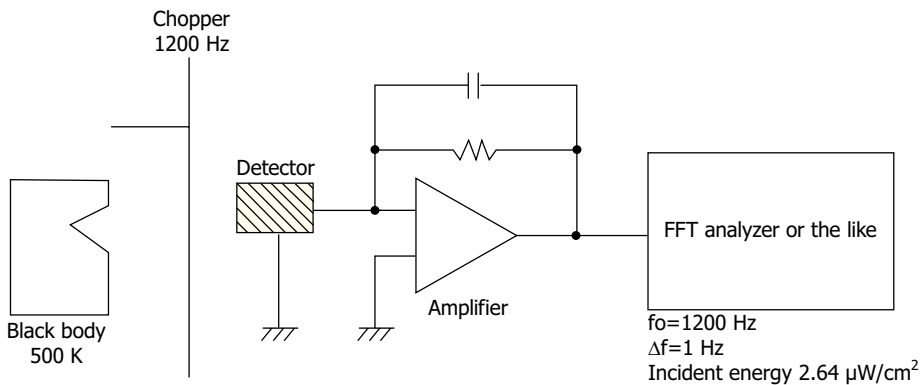
KIRDB0063EG

**Linearity (P5968-100)**



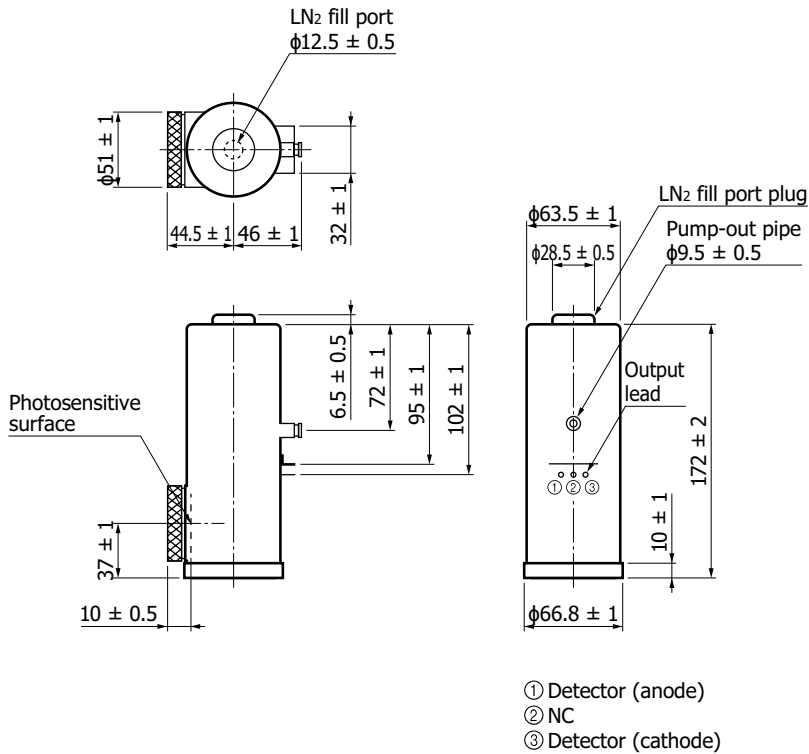
KIRDB0466EB

**Block diagram for characteristic measurement**



KIRDC0004EB

### Dimensional outline (unit: mm)



KIRD0190EE

### Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

- Precautions
  - Disclaimer
  - Safety consideration
  - Precautions / Compound opto-semiconductors (photosensors, light emitters)
- Catalogs
  - Selection guide / Infrared detectors
  - Technical note / Compound semiconductor photosensors

Information described in this material is current as of March 2025.

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