

InSb photovoltaic detector P5968/P4247 series

High-speed response, low-noise photovoltaic detector



P5968/P4247 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 request.

Features

- Cooling hold time: 8 hours
Repumpable metal dewars (liquid nitrogen cooling) allow 8-hour hold time. Starling cooling type without pour-filled liquid nitrogen is also provided.
- 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)
- Thermal imaging
- Remote sensing
- Gas analysis
- FTIR
- Spectrophotometry

Accessories (Optional)

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

■ Specification / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package	Cooling	Active area (mm)	Number of element	Absolute maximum ratings		
						Reverse voltage V_R (V)	Operating temperature T_{opr} (°C)	Storage temperature T_{stg} (°C)
P5968-060	①/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			
P5968-105	②/Si	Metal	Stirling	$\phi 1$	1			
P4247-16	③/Si	Metal dewar	Liquid nitrogen	0.25×1.4 *2	1×16			
P4247-44				0.45×0.45 *3	4×4			

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

*2: Size per 1 element (16 element array)

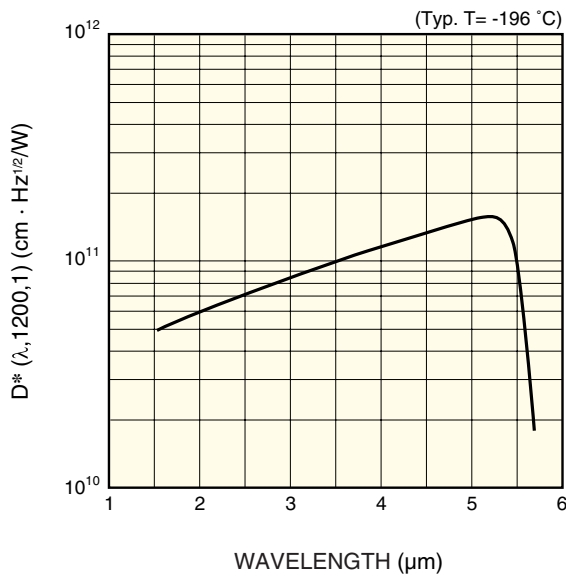
*3: Size per 1 element (4×4 element array)

■ Electrical and optical characteristics (Typ. unless otherwise noted)

Type No.	Measurement condition Element temperature T	Peak sensitivity wavelength λ_p	Cut-off wavelength λ_c	Photo sensitivity S $\lambda = \lambda_p$	Shunt resistance R_{sh}	D^* (500 K, 1200, 1)		D^* (λ_p , 1200, 1)	NEP $\lambda = \lambda_p$	Rise time t_r $V_R = 0\text{ V}$ $R_L = 50\ \Omega$ 0 to 63 %	Terminal capacitance C_t $V_R = 0\text{ V}$ $f = 1\text{ MHz}$
	(°C)	(μm)	(μm)	(A/W)	(Ω)	Min. ($\text{cm Hz}^{1/2}/\text{W}$)	Typ. ($\text{cm Hz}^{1/2}/\text{W}$)	($\text{cm Hz}^{1/2}/\text{W}$)	($\text{W}/\text{Hz}^{1/2}$)	(ns)	(pF)
P5968-060	-196	5.3	5.5	2.5	1×10^7	2×10^{10}	3×10^{10}	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
P5968-105					1×10^6				5.5×10^{-13}	70	100
P4247-16					1×10^7				6.5×10^{-13}	70	100
P4247-44					1×10^7				5.0×10^{-13}	60	60

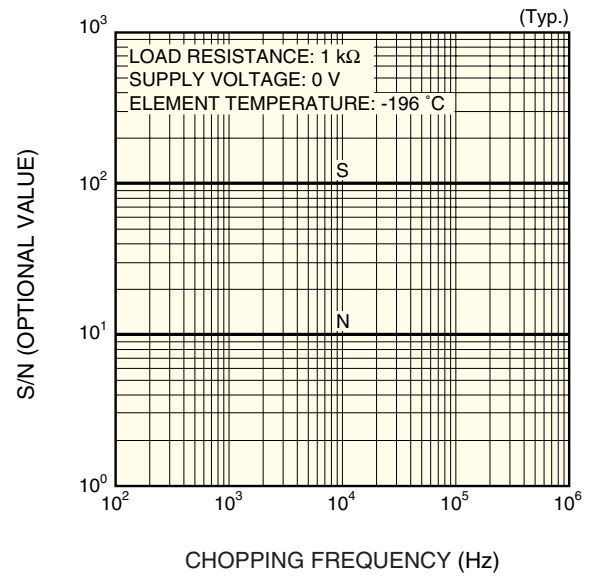
SOLID STATE DIVISION

Spectral response



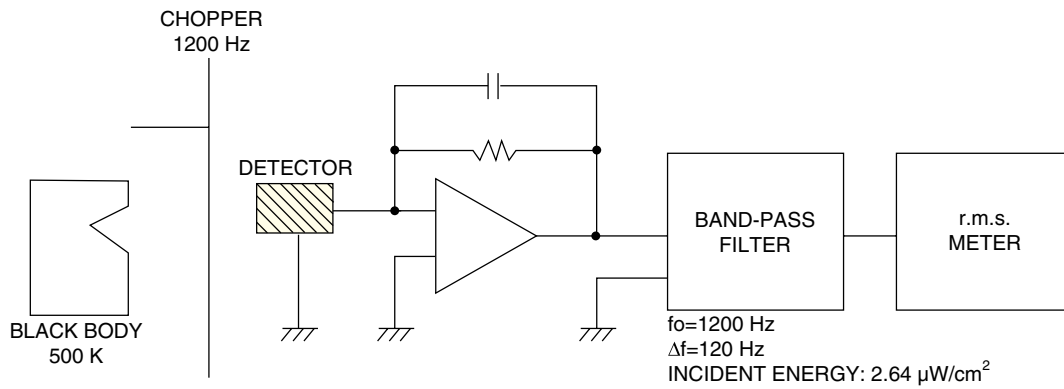
KIRDB0063EC

S, N vs. chopping frequency



KIRDB0065ED

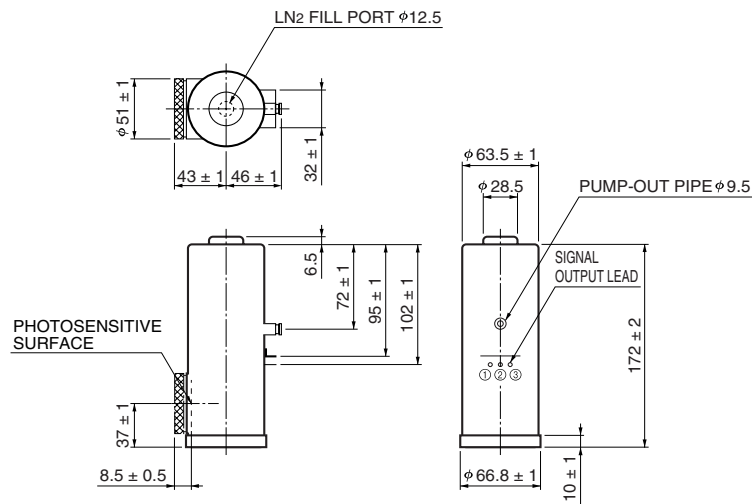
Measurement circuit



KIRDC0004EA

■ Dimensional outlines (unit: mm)

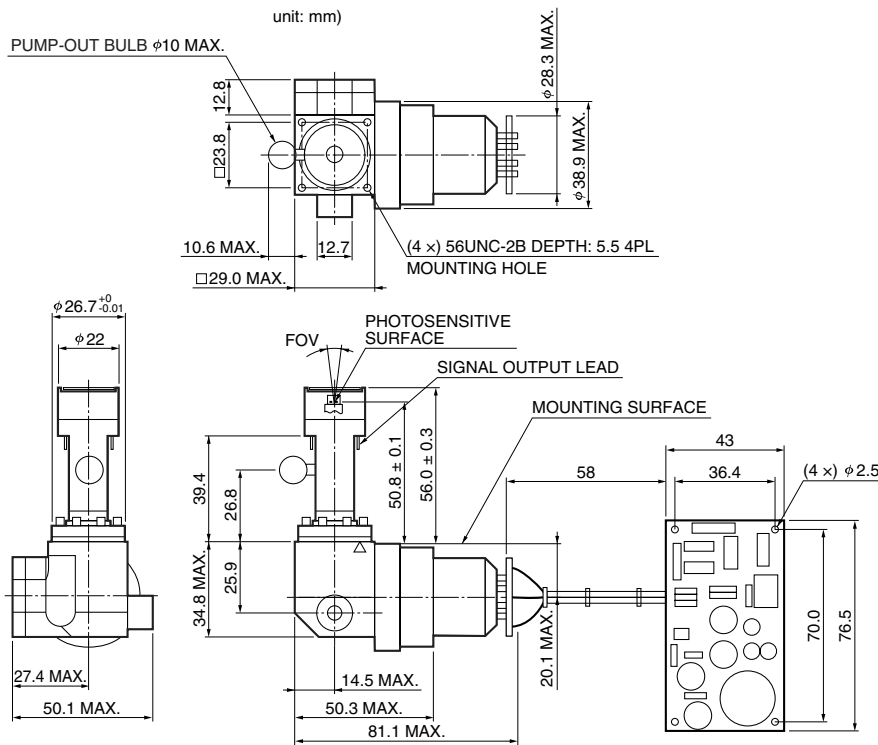
① P5968-060/-100/-200/-300



- ① DETECTOR (ANODE)
- ② NC
- ③ DETECTOR (CATHODE)

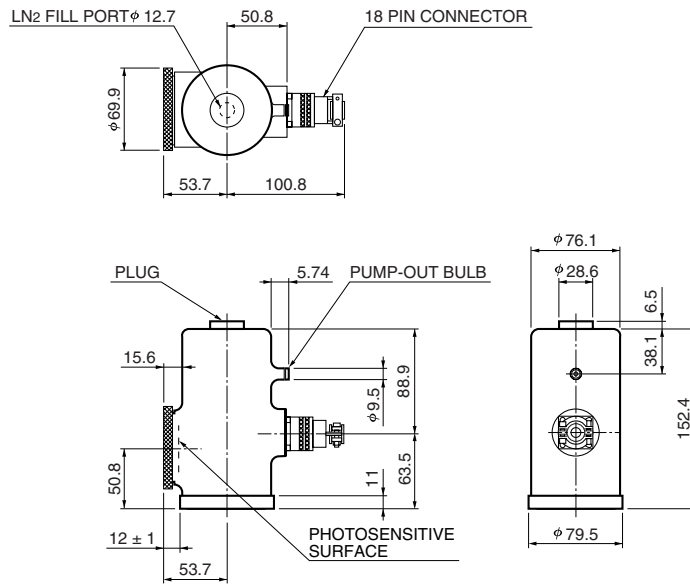
KIRDA0131EC

② P5968-105



KIRDA0130EA

③ P4247 series

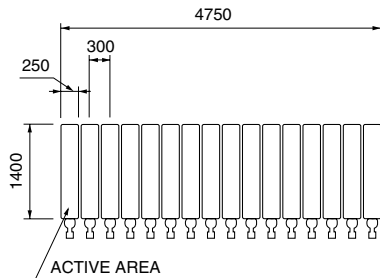


KIRDA0132EA

■ Details of multi-element detectors (unit: μm)

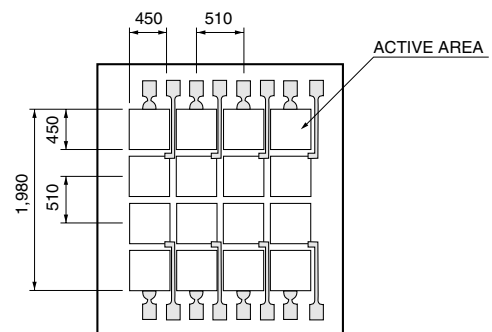
For custom devices with different number of elements, size and package, please consult our sales office.

P4247-16



KIRDA0006EA

P4247-44



KIRDA0146EA

HAMAMATSU

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