

MCT photoconductive detector P3257 series, P4249-08

10 μm band infrared detector with high sensitivity and high-speed response



Features

- High-speed response, high sensitivity in the 10 μm band detection
- Photoconductive element that decreases its resistance by input of infrared light
- Custom devices available
Custom devices not listed in this catalog are also available with different spectral response, active area sizes and number of element.
- Wide product lineups including non-cooled type, thermoelectrically cooled type and micro-cooled type
Easy-to-use infrared detector modules with preamp available.

Applications

- Thermal imaging
- Remote sensing
- FTIR
- CO₂ laser detection
- Infrared spectrophotometer

Accessories (Optional)

- Valve operator A3515
- Amplifiers for dewar type MCT photoconductive detector C5185
- Infrared detector module with preamp P7752-10 (with P3257-10)

■ Specification / Absolute maximum ratings

Type No.	Dimensional outline/ Window material	Package	Cooling	Active area (mm)	Absolute maximum ratings		
					Allowable current (mA)	Operating temperature T _{opr} (°C)	Storage temperature T _{stg} (°C)
P3257-25	①/ZnS	Metal dewar	Liquid nitrogen	0.025 × 0.025	10	-40 to +60	-55 to +60
P3257-01				0.1 × 0.1	20		
P3257-10				1 × 1	40		
P4249-08	②/ZnS			0.5 × 0.5 *1	30		

*1: 8 elements array

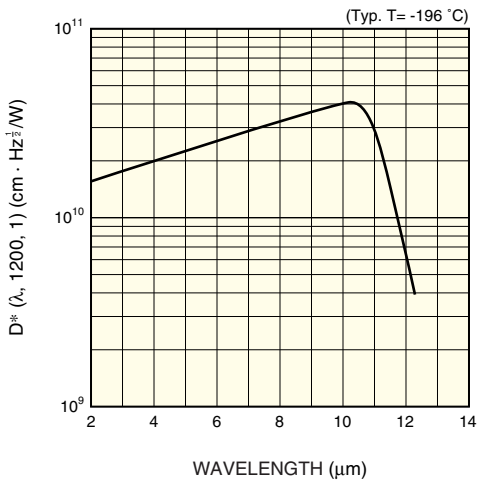
■ Electrical and optical characteristics (Typ. unless otherwise noted)

Type No.	Measurement condition	Peak sensitivity wavelength λ _p	Cut-off wavelength λ _c	Photo sensitivity *2 S λ=λ _p	D* (500, 1200, 1)		D* (λ _p , 1200, 1)	Rise time t _r 0 to 63 %	Dark resistance R _d
	Element temperature T				Min.	Typ.			
	(°C)	(μm)	(μm)	(V/W)	(cm·Hz ^{1/2} /W)	(cm·Hz ^{1/2} /W)	(cm·Hz ^{1/2} /W)	(μs)	(Ω)
P3257-25	-196	10.0	12.0	1 × 10 ⁵	1 × 10 ¹⁰	2 × 10 ¹⁰	4.0 × 10 ¹⁰	0.6	40
P3257-01				3 × 10 ⁴					80
P3257-10				1 × 10 ³					40
P4249-08				2 × 10 ³					

*2: Photo sensitivity changes with the bias current. The values in the above table are measured with the optimum bias current.

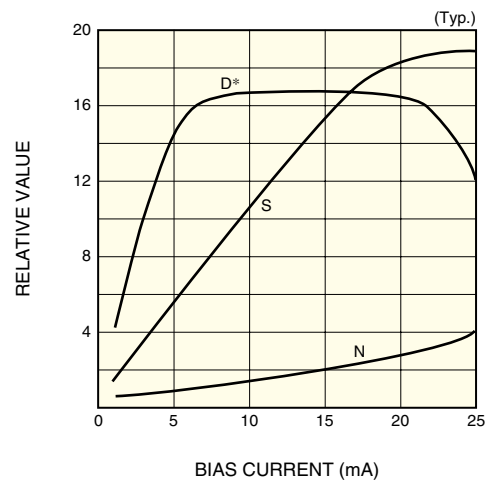
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Spectral response



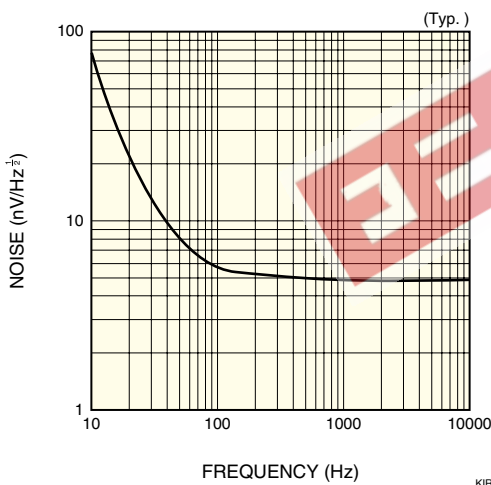
Spectral response can be shifted upon request.

S/N vs. bias current (P3257-10)

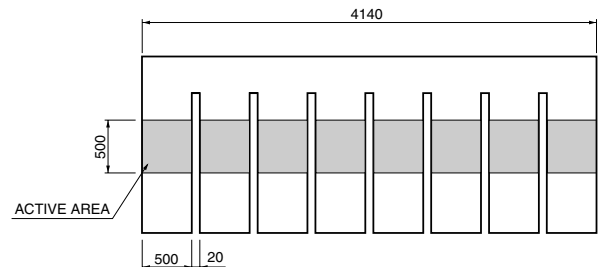


The detector must be operated in a range where the D* becomes Max.

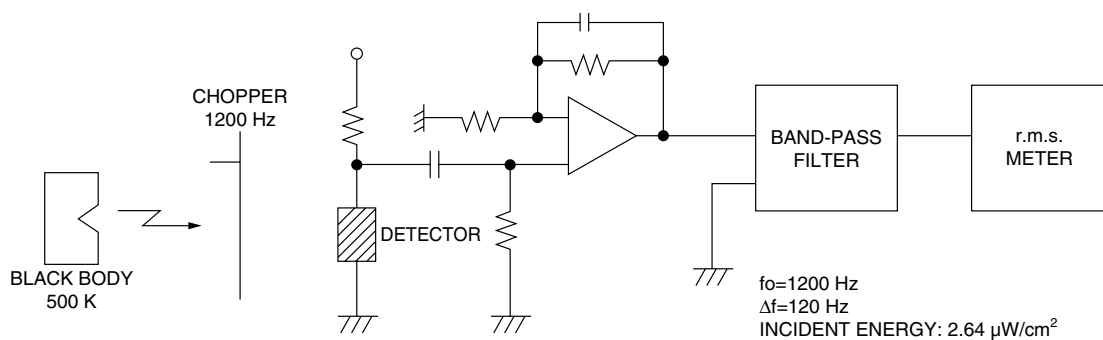
Noise frequency characteristic



■ **Multi-element active area (P4249-08, unit: μm)**
MCT detectors of custom-designed multi-element arrays are also available on request. For the number of elements, element size and packaging, please consult us with your specific needs.



Measurement circuit

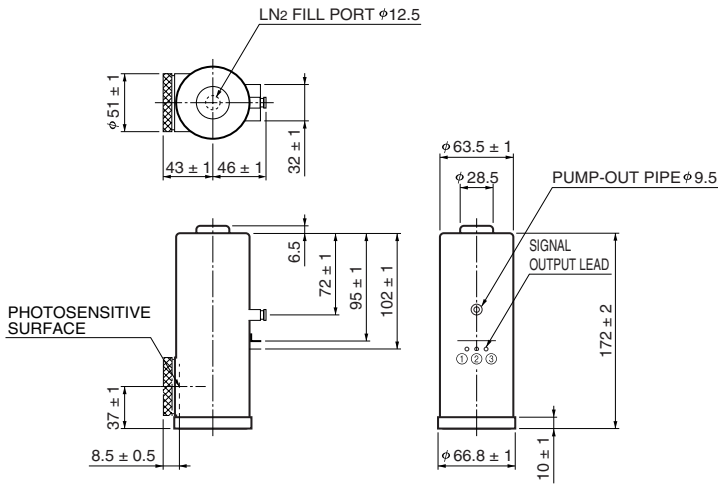


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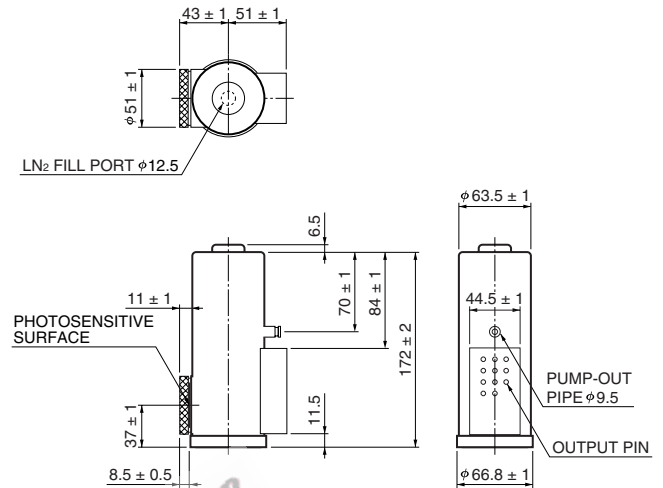
Dimensional outlines (unit: mm)

① P3257-25/-01/-10



- ① DETECTOR
- ② NC
- ③ DETECTOR

② P4249-08



PIN ARRANGEMENT



- ① NC
- ② CH8
- ③ CH7
- ④ CH6
- ⑤ CH5
- ⑥ CH4
- ⑦ CH3
- ⑧ CH2
- ⑨ CH1
- ⑩ NC
- ⑪ COM

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