

# 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
- CO<sub>2</sub> 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 <sub>opr</sub> (°C)	Storage temperature T <sub>stg</sub> (°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		

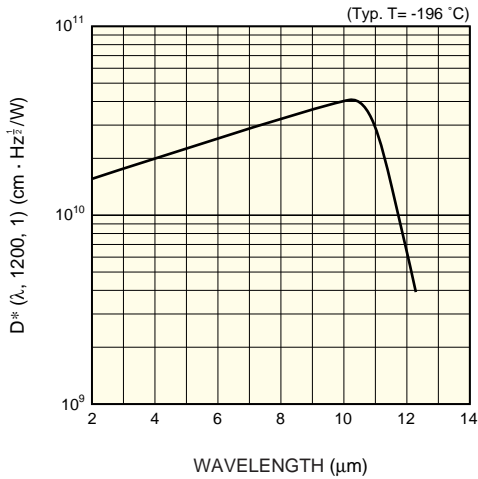
\*1: 8 elements array

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

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

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

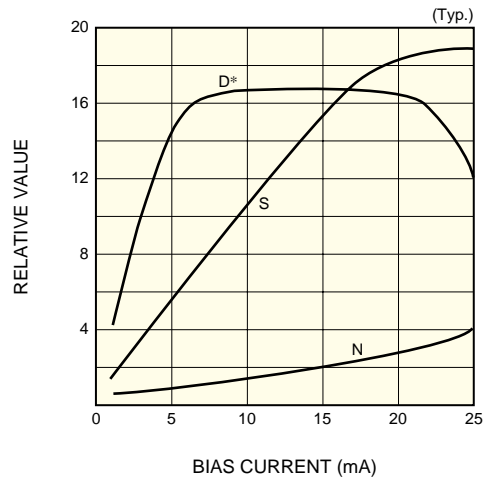
■ Spectral response



KIRDB0169EA

Spectral response can be shifted upon request.

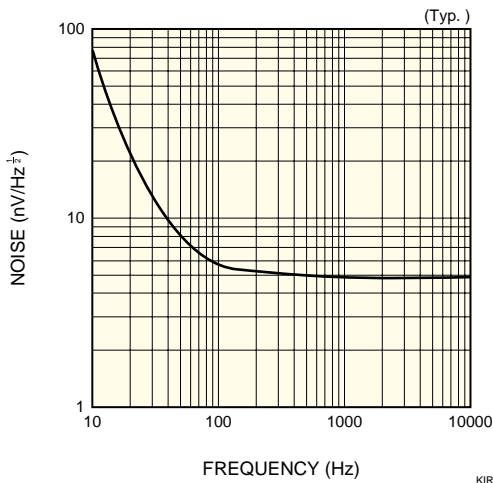
■ S/N vs. bias current (P3257-10)



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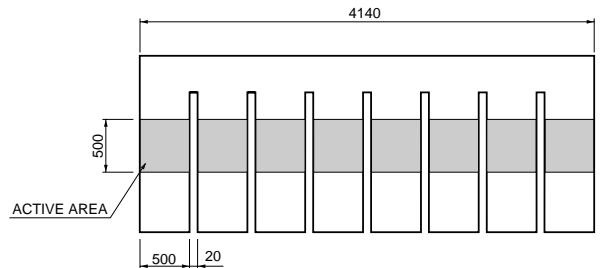
The detector must be operated in a range where the  $D^*$  becomes Max.

■ Noise frequency characteristic



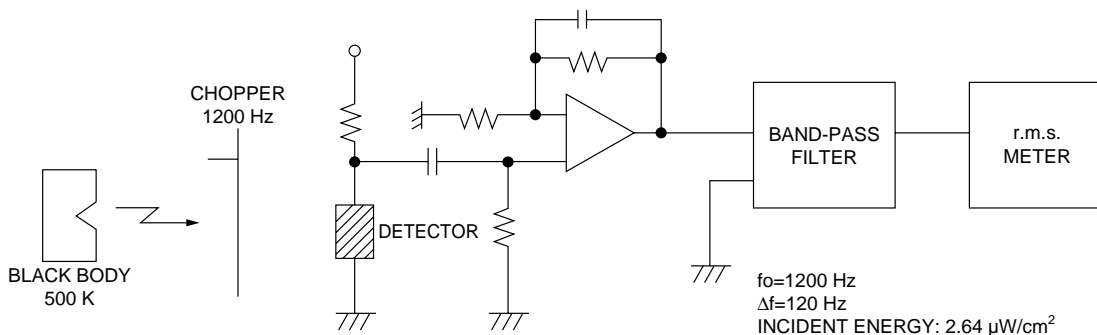
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■ Multielement active area (P4249-08, unit:  $\mu\text{m}$ )  
MCT detectors of custom-designed multielement arrays are also available on request. For the number of elements, element size and packaging, please consult us with your specific needs.



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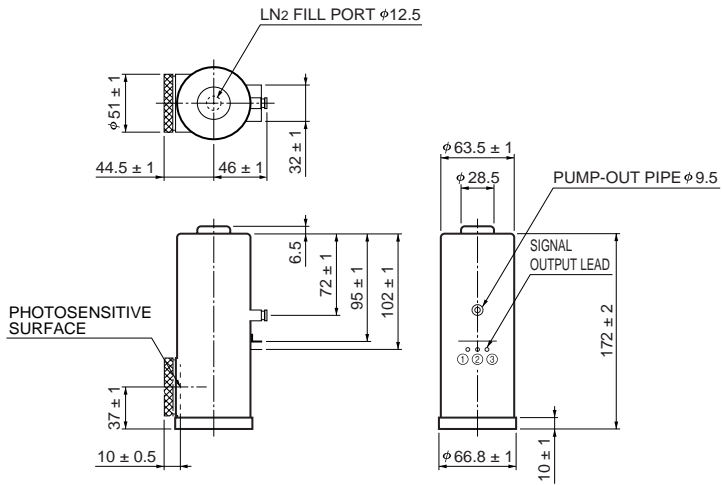
■ Measurement circuit



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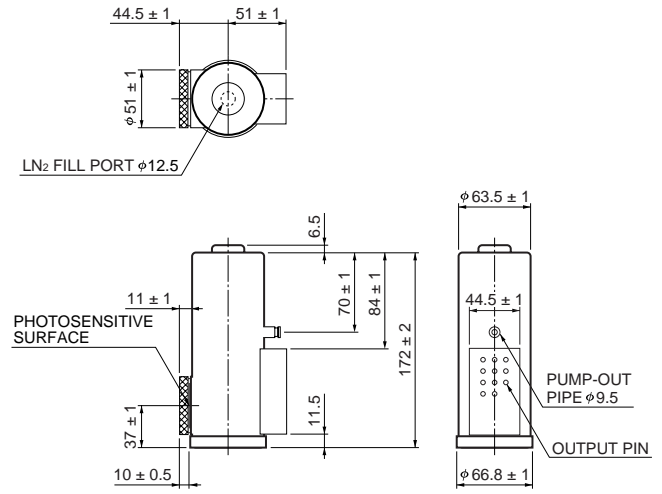
■ Dimensional outlines (unit: mm)

① P3257-25/-01/-10

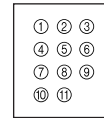


- ① DETECTOR
- ② NC
- ③ DETECTOR

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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