

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		

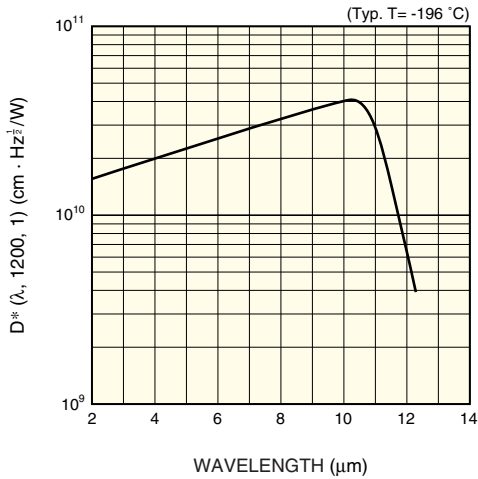
*1: 8 elements array

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

Type No.	Measurement condition Element temperature T (°C)	Peak sensitivity wavelength λ _p (μm)	Cut-off wavelength λ _c (μm)	Photo sensitivity *2 S λ=λ _p (V/W)	D* (500, 1200, 1)		D* (λ _p , 1200, 1) (cm·Hz ^{1/2} /W)	Rise time t _r 0 to 63 % (μs)	Dark resistance R _d (Ω)
					Min. (cm·Hz ^{1/2} /W)	Typ. (cm·Hz ^{1/2} /W)			
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.

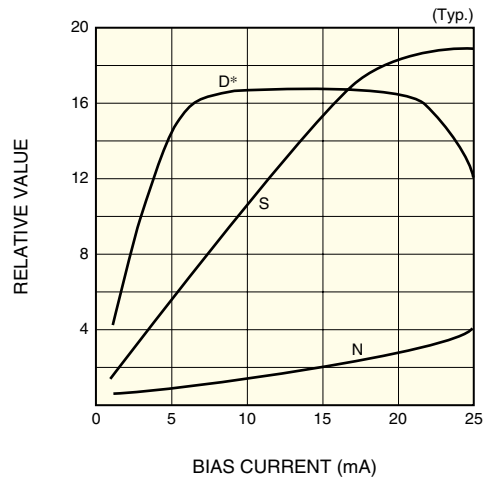
■ Spectral response



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Spectral response can be shifted upon request.

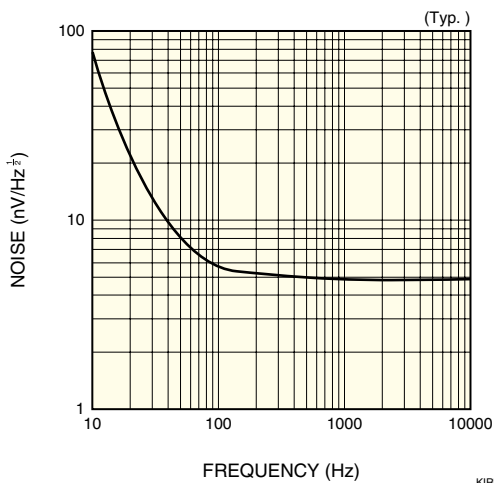
■ S/N vs. bias current (P3257-10)



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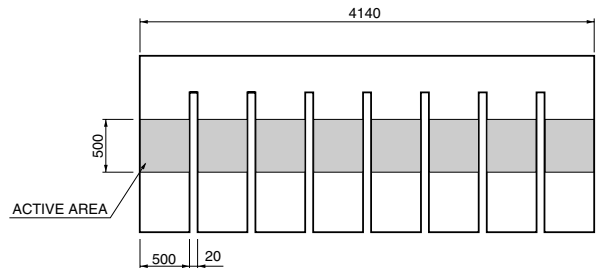
The detector must be operated in a range where the D^* becomes Max.

■ Noise frequency characteristic



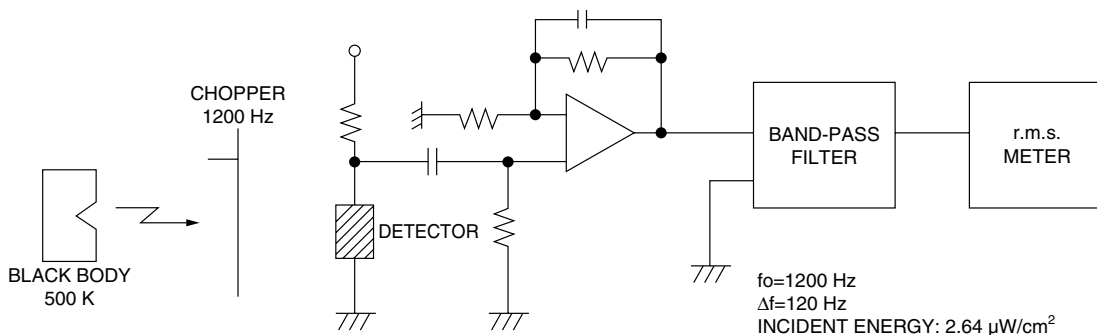
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■ Multielement active area (P4249-08, unit: μm)
MCT detectors of custom-designed multielement arrays are also available on request. For the number of elements, element size and packaging, please consult us with your specific needs.



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■ Measurement circuit

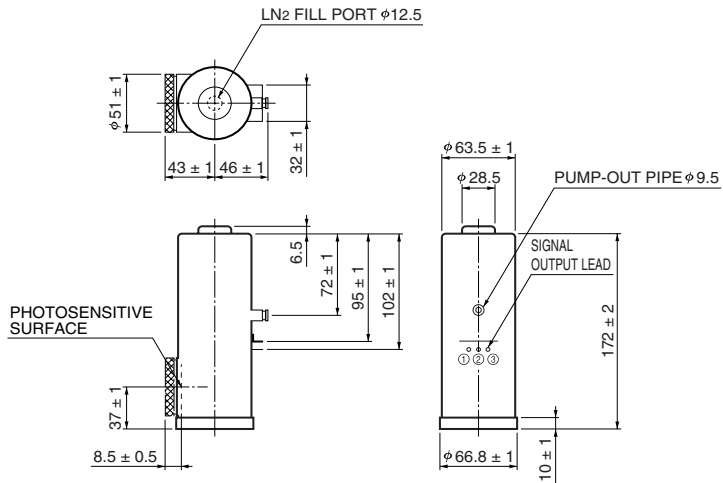


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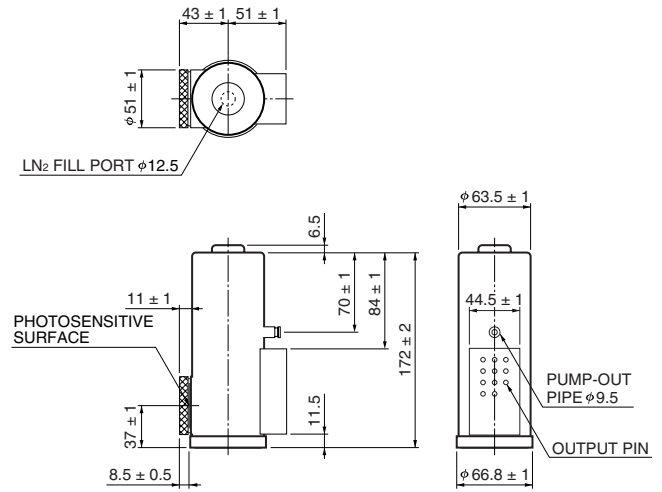
■ Dimensional outlines (unit: mm)

① P3257-25/01/10

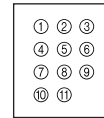


- ① DETECTOR
- ② NC
- ③ DETECTOR

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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HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Hamamatsu City, 435-8558 Japan, Telephone: (81) 053-434-3311, Fax: (81) 053-434-5184, <http://www.hamamatsu.com>

U.S.A.: Hamamatsu Corporation, 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 8, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741