HAMAMATSU
PHOTON IS OUR BUSINESS

MCT photoconductive detectors

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, photosensitive area sizes and number of elements.
- **Non-cooled type and thermoelectrically cooled type not requiring liquid nitrogen are also provided.**
  Also available are easy-to-handle infrared detector modules with preamp.

Applications

- **Thermal imaging**
- **Remote sensing**
- **FTIR**
- **CO_2 laser detection**
- **Infrared spectrophotometer**

Options

- **Valve operator** **A3515**
- **Amplifiers for dewar type MCT photoconductive detector** **C5185-02**
  (The amplifie for P3257-25 is a custom-made product.)

Specification / Absolute maximum ratings

Type no.	Dimensional outline/ Window material	Package	Cooling	Nitrogen hold time (h)	Photosensitive area (mm)	Absolute maximum ratings		
						Allowable current (mA)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
P3257-25	(1)/ZnS	Metal dewar	Liquid nitrogen	10*1	0.025 × 0.025	3	-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*2	30		

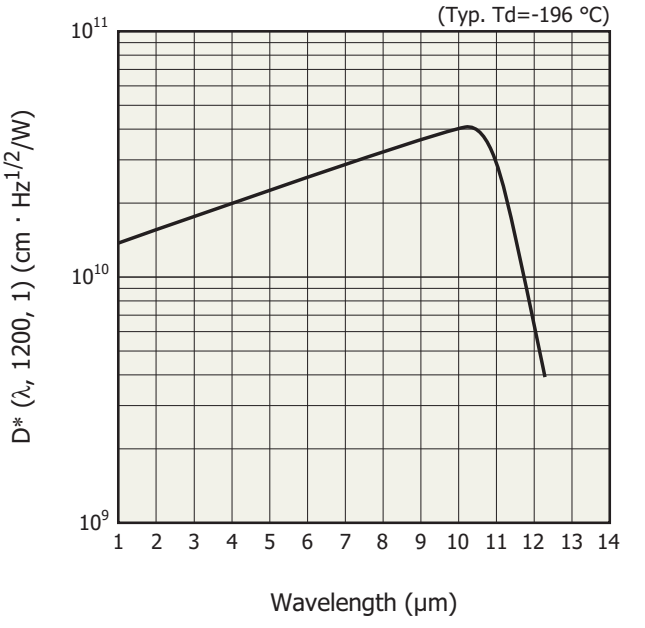
*1: Value specified at the time of shipment. This will shorten over time. Re-evacuation every 1.5 or 2 years is recommended.
*2: Per one element of 8 elements array
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Typ. unless otherwise noted)

Type no.	Measurement condition Element temperature Td (°C)	Peak sensitivity wavelength λp (µm)	Cutoff wavlength λc (µm)	Photo-sensitivity*3 S λ=λp (V/W)	D* (500, 1200, 1)		D* (λp, 1200, 1) (cm · $Hz^{1/2}$/W)	Noise equivalent power NEP λ=λp		Rise time tr 0 to 63% (µs)	Dark resistance Rd (Ω)
					Min. (cm · $Hz^{1/2}$/W)	Typ. (cm · $Hz^{1/2}$/W)		Typ. (W/$Hz^{1/2}$)	Max. (W/$Hz^{1/2}$)		
P3257-25	-196	10.0	12.0	1×10^5	1×10^{10}	2×10^{10}	4.0×10^{10}	6.3×10^{-14}	1.3×10^{-13}	0.6	40
P3257-01				3×10^4				2.5×10^{-12}	5.0×10^{-12}		80
P3257-10				1×10^3				2.5×10^{-12}	5.0×10^{-12}		40
P4249-08				2×10^3				1.3×10^{-12}	2.5×10^{-12}		

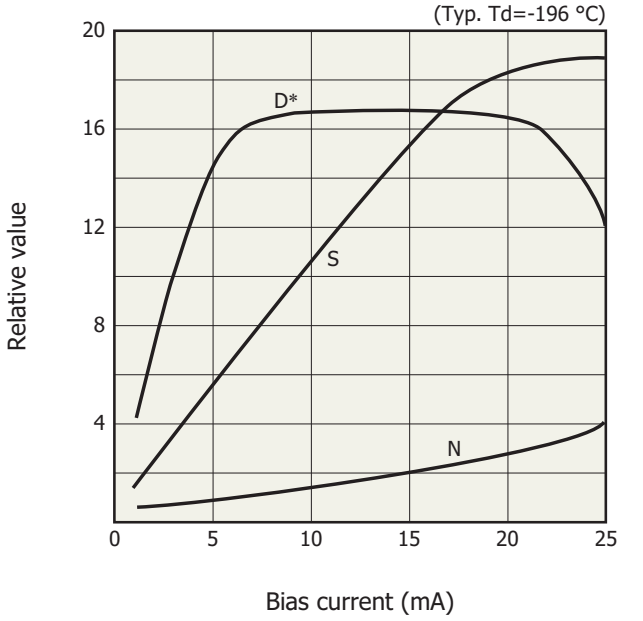
*3: Photosensitivity changes with the bias current. The values in the above table are measured with the optimum bias current.

Spectral response



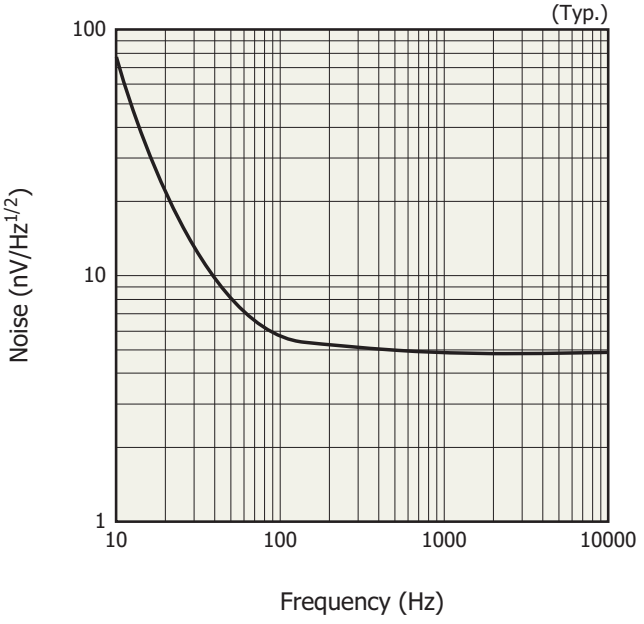
Spectral response can be shifted upon request.

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

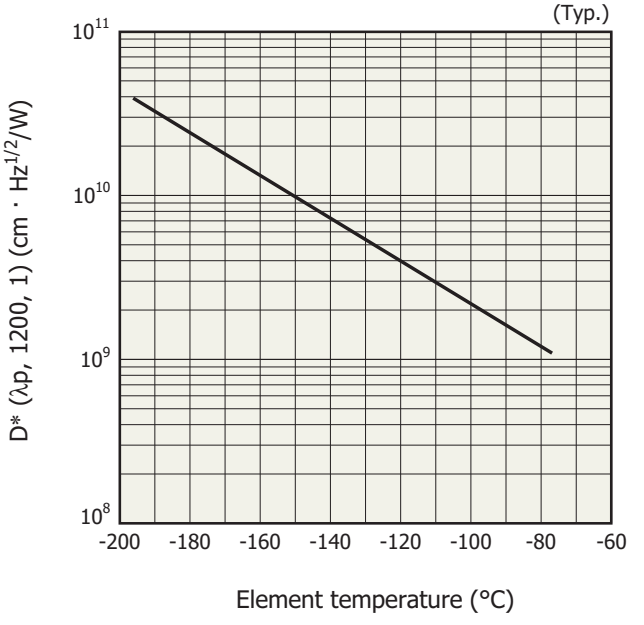


The detector must be operated in a range where the D* becomes max.

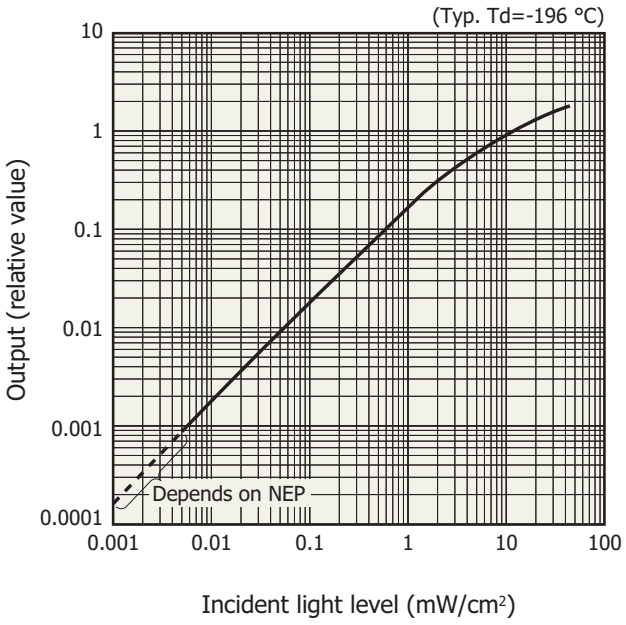
Noise vs. frequency



D* vs. element temperature

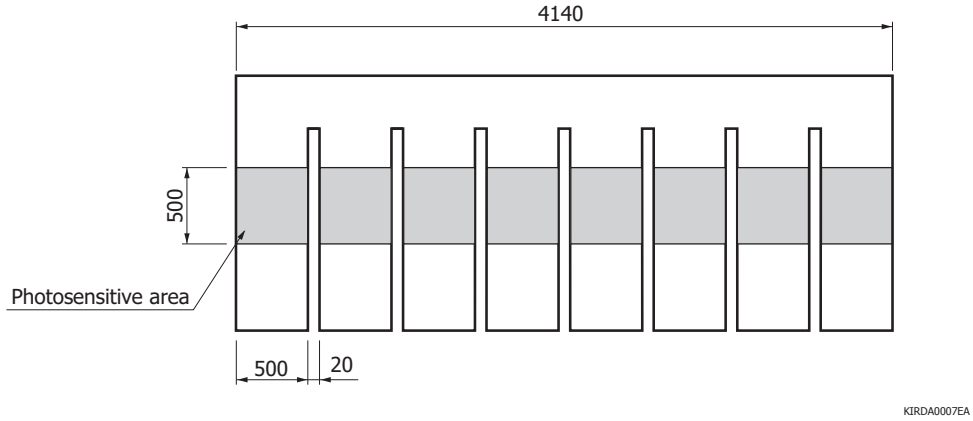


Linearity

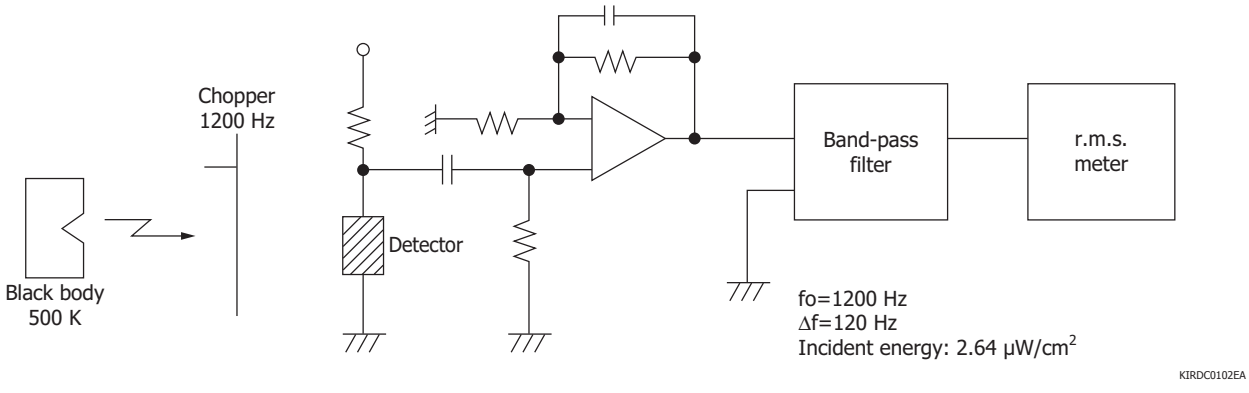


Multielement photosensitive area (P4249-08, unit: µm)

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.

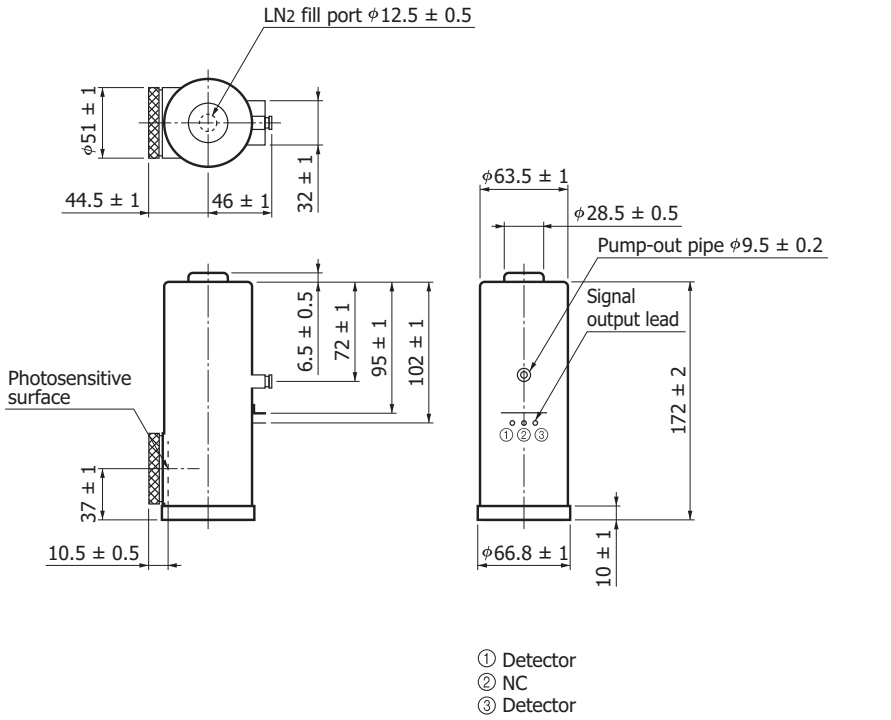


Measurement circuit

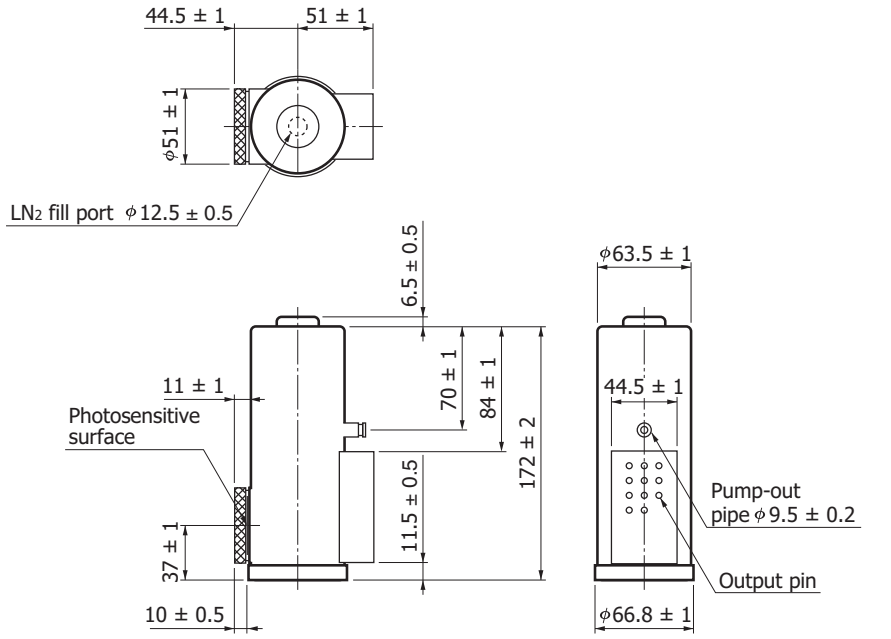


Dimensional outlines (unit: mm)

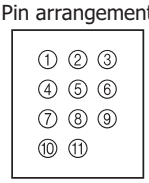
(1) P3257-25/-01/-10



(2) P4249-08



Pin arrangement



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

KIRDA0135EC

HAMAMATSU www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division
1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81) 53-434-3311, Fax: (81) 53-434-5184
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) 8152-375-0, Fax: (49) 8152-265-8
France: Hamamatsu Photonics France S.A.R.L.: 19, 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: Thorshamnsgatan 35 16440 Kista, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01
Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1 int. 6, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741
China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, No.27 Dongsanhuan Beilu, Chaoyang District, Beijing 100020, China, Telephone: (86) 10-6586-6006, Fax: (86) 10-6586-2866

Cat. No. KIRD1023E07 Oct. 2012 DN