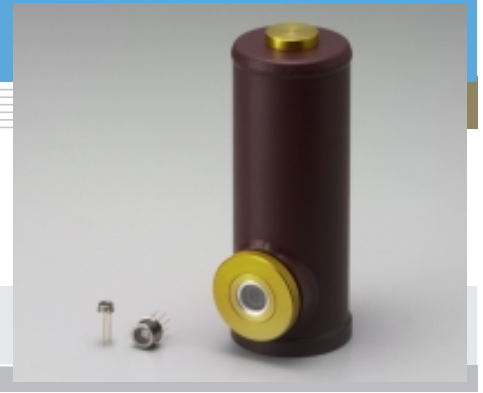


InAs photovoltaic detector P8079 series, P7163

Infrared detectors with high sensitivity and high-speed response



InAs photovoltaic detectors have high sensitivity and high-speed response in the near infrared region from 1.5 to 3.8 μm . These detectors offer better characteristics than PbSe photoconductive detectors.

Features

- Thermoelectrically cooled type: high sensitivity and high-speed response
- Metal dewar type available for low light measurement
- Long-wavelength cut-off of up to 3.8 μm
- Easy-to-use detector/preamp modules available

Applications

- Gas analysis
- Infrared radiation measurement
- Infrared spectrophotometry
- FTIR

Accessories (Optional)

- Heatsink for one-stage TE-cooled type A3179
- Heatsink for two-stage TE-cooled type A3179-01
- Temperature controller C1103-04
- Infrared detector module with preamp P4631-01 (Integrated with P8079-21)
- Amplifiers for InAs photovoltaic detector C4159-05 (only for P7163)

■ Specifications / Absolute maximum ratings

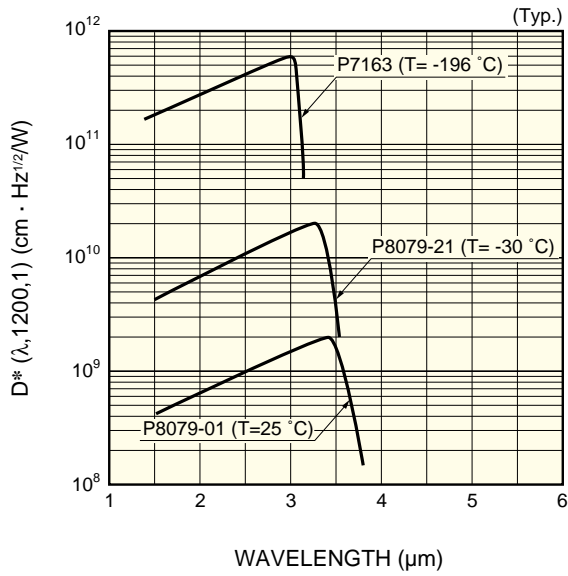
Type No.	Dimensional outline/ Window material *	Package	Cooling	Active area (mm)	Absolute maximum ratings			
					Thermistor power dissipation (mW)	Reverse voltage V_R (V)	Operating temperature T_{opr} ($^{\circ}\text{C}$)	Storage temperature T_{stg} ($^{\circ}\text{C}$)
P8079-01	①/S	TO-5	Non-cooled	$\phi 1$	-	0.5	-40 to +60	-55 to +60
P8079-11	②/S	TO-8	One-stage TE-cooled		0.2			
P8079-21			Two-stage TE-cooled		-			
P7163	③/S	Metal dewar	LN2					

* Window material S: sapphire glass

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

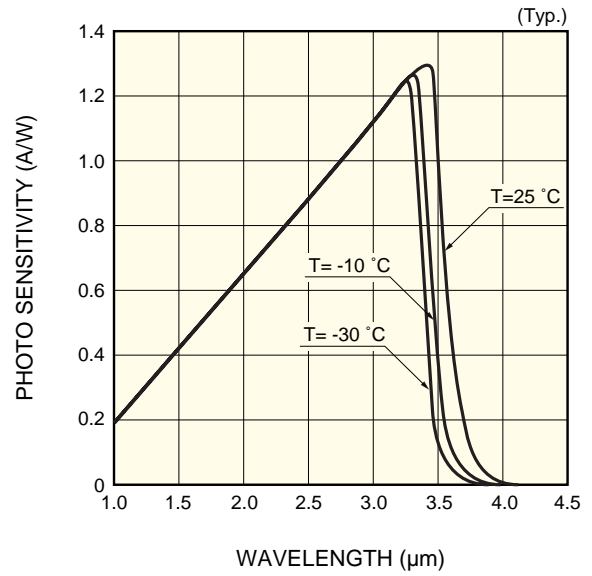
Type No.	Measurement condition Element temperature T ($^{\circ}\text{C}$)	Peak sensitivity wavelength λ_p (μm)	Cut-off wavelength λ_c (μm)	Photo sensitivity S $\lambda = \lambda_p$ (A/W)	Shunt resistance R_{sh} (Ω)	D^* ($\lambda_p, 1200, 1$)		NEP $\lambda = \lambda_p$ ($\text{W}/\text{Hz}^{1/2}$)	Rise time t_r $V_R=0\text{ V}$ $R_L=50\ \Omega$ 0 to 63 % (μs)	Terminal capacitance C_t $V_R=0\text{ V}$ $f=1\text{ MHz}$ (pF)
						Min. ($\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$)	Typ. ($\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$)			
	P8079-01	25	3.45	3.8	1.1	10	1.5×10^9	2×10^9	4.4×10^{-11}	0.1
P8079-11	-10	3.30	3.6	1.3	80	7.5×10^9	1×10^{10}	8.9×10^{-12}	0.1	10
P8079-21	-30	3.25	3.5		200	1.5×10^{10}	2×10^{10}	4.4×10^{-12}		5
P7163	-196	3.00	3.1		1×10^5	3.5×10^{11}	6×10^{11}	1.5×10^{-13}		150

■ Spectral response (D^*)



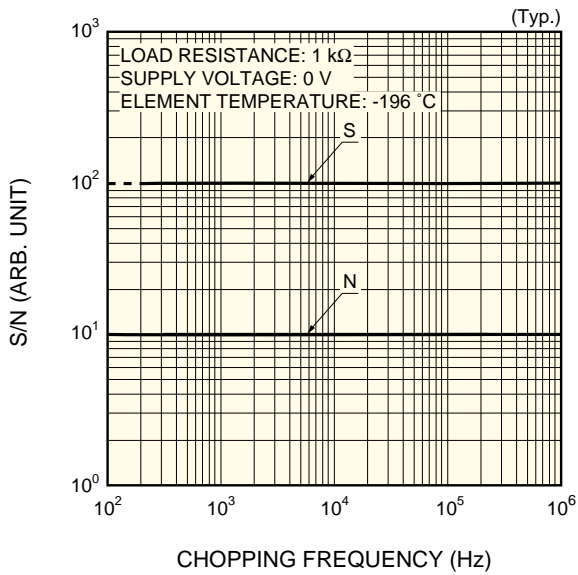
KIRDB0165EA

■ Spectral response



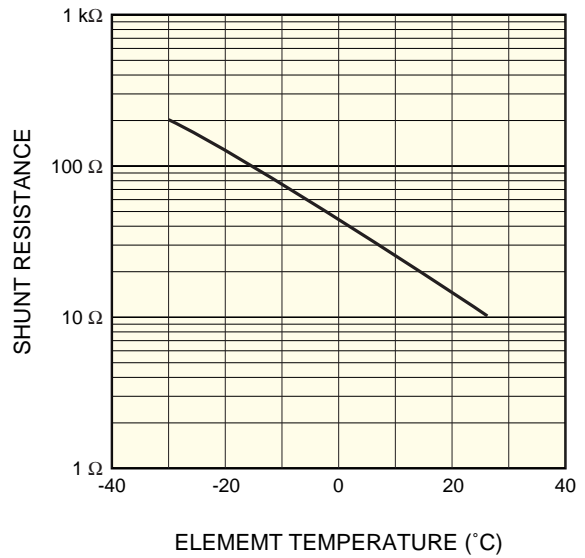
KIRDB0183EA

■ S/N vs. chopping frequency (P7163)



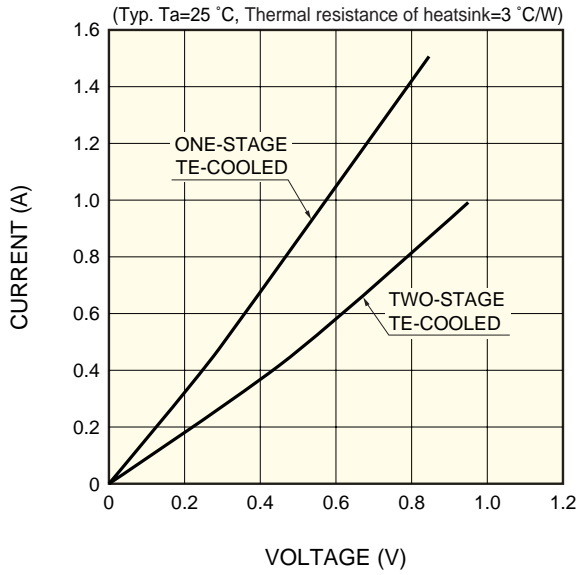
KIRDB0064ED

■ Shunt resistance vs. element temperature



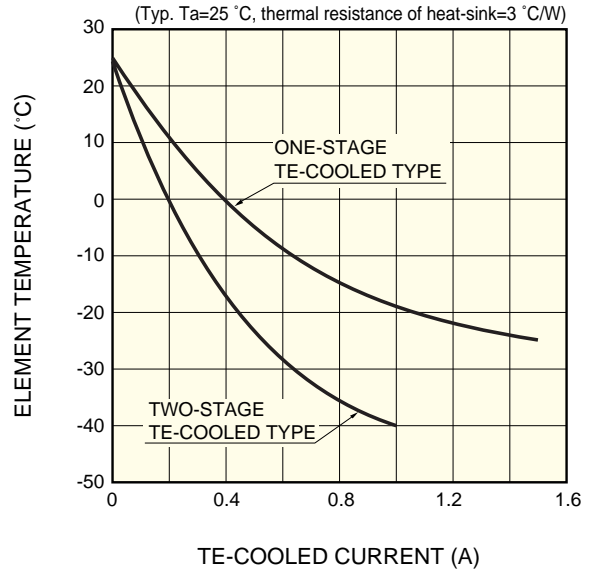
KIRDB0182EA

■ Current vs. voltage of TE-cooled type



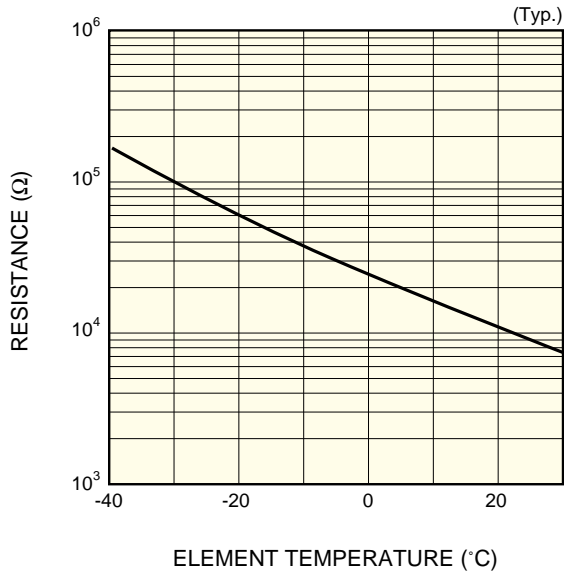
KIRDB0115EB

■ Cooling characteristics of TE-cooled type



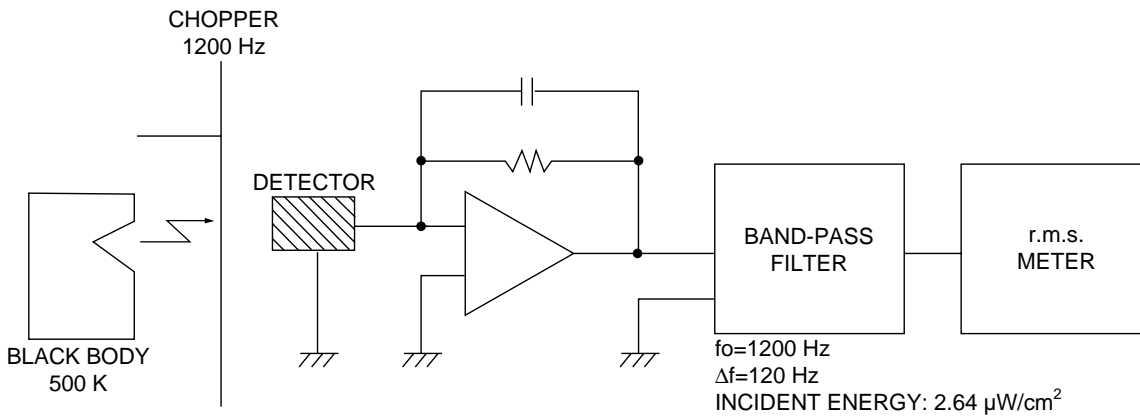
KIRDB0181EA

■ Thermistor temperature characteristic



KIRDB0116EA

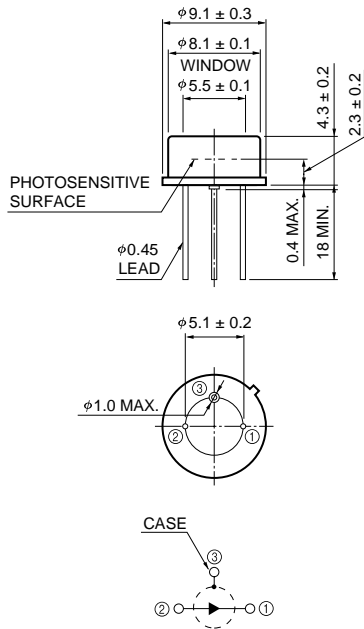
■ Measurement circuit



KIRDC0004EA

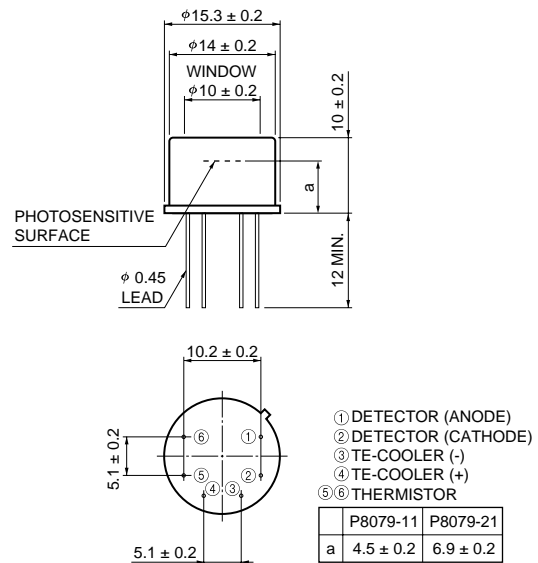
Dimensional outlines (unit: mm)

① P8079-01



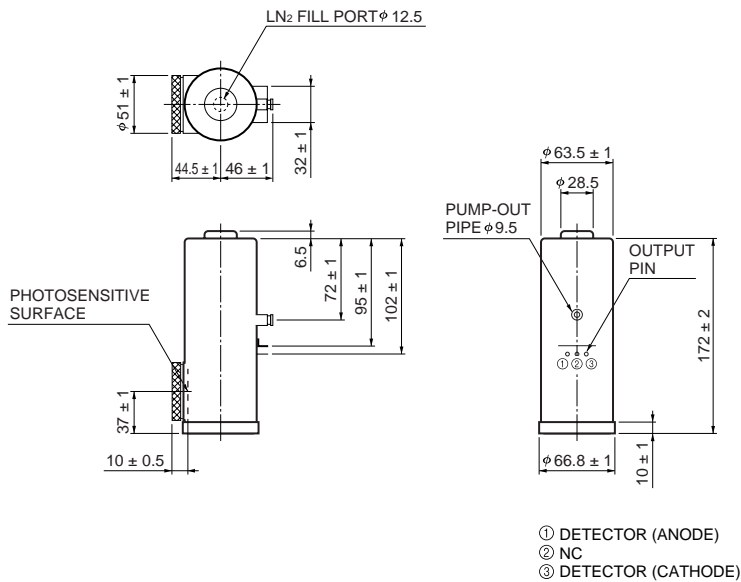
KIRDA0119EA

② P8079-11/-21



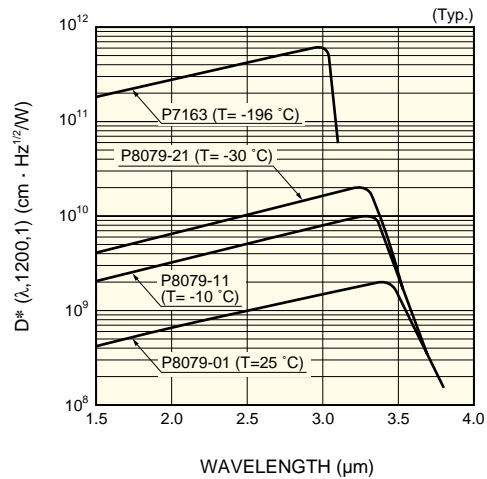
KIRDA0120EA

③ P7163



KIRDA0033ED

Spectral response



KIRDB0358EA

HAMAMATSU

Information furnished by HAMAMATSU is believed to be reliable. However, no responsibility is assumed for possible inaccuracies or omissions. Specifications are subject to change without notice. No patent rights are granted to any of the circuits described herein. ©2007 Hamamatsu Photonics K.K.

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, 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.: 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: 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