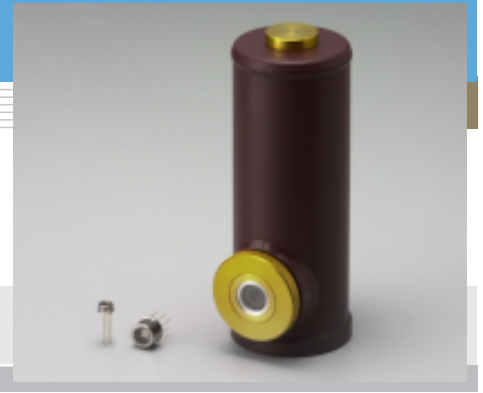


InAs photovoltaic detector P8079 series, P7163

High-speed, low noise photovoltaic IR detectors



InAs photovoltaic detectors cover a spectral response range equivalent to that of PbS detectors, but provide higher response speed and lower noise.

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 (P8079-21)
- Custom amplifiers for InAs photovoltaic detector

■ Specifications / Absolute maximum ratings

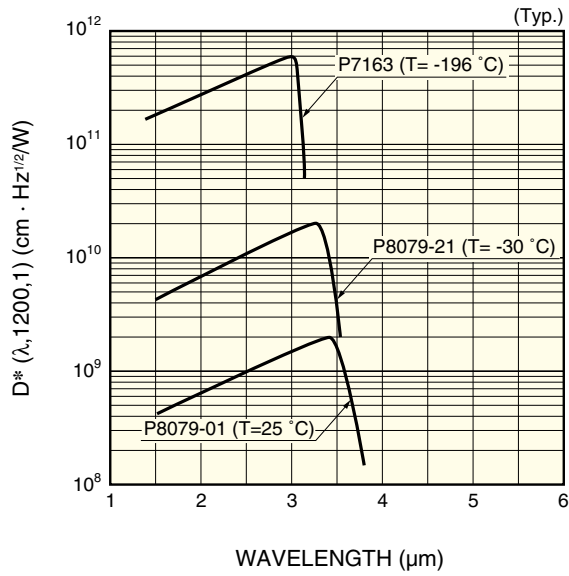
Type No.	Dimensional outline/ Window material *	Package	Cooling	Active area (mm)	Absolute maximum ratings			
					Thermistor power dissipation (mW)	Reverse voltage V_R (V)	Operating temperature T_{opr} ($^{\circ}\text{C}$)	Storage temperature T_{stg} ($^{\circ}\text{C}$)
P8079-01	①/S	TO-5	Non-cooled	$\phi 1$	-	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	LN ₂		-			

* Window material S: sapphire glass

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

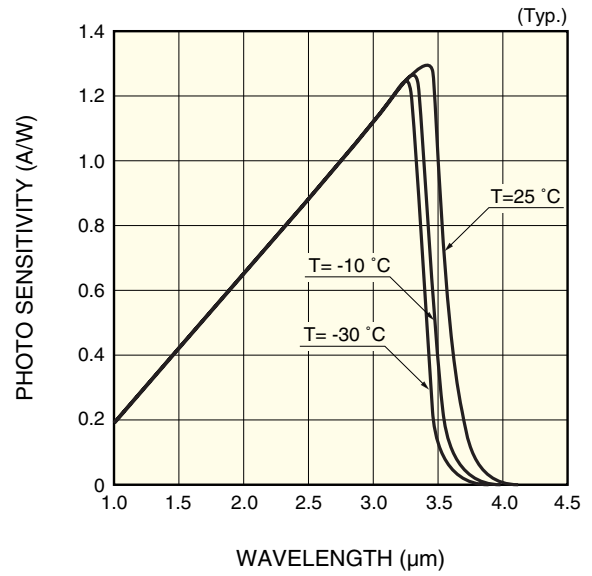
Type No.	Measurement condition Element temperature T ($^{\circ}\text{C}$)	Peak sensitivity wavelength λ_p (μm)	Cut-off wavelength λ_c (μm)	Photo sensitivity S $\lambda = \lambda_p$ (A/W)	Shunt resistance R_{sh} (Ω)	D^* ($\lambda_p, 1200, 1$)		NEP $\lambda = \lambda_p$ ($\text{W}/\text{Hz}^{1/2}$)	Rise 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^*)



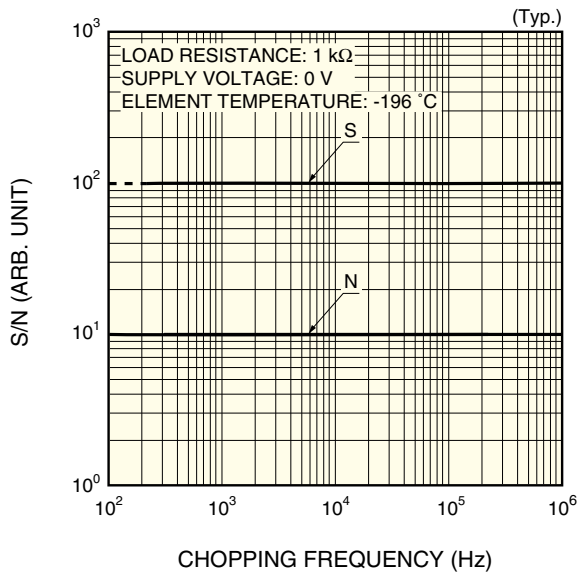
KIRDB0165EA

■ Spectral response



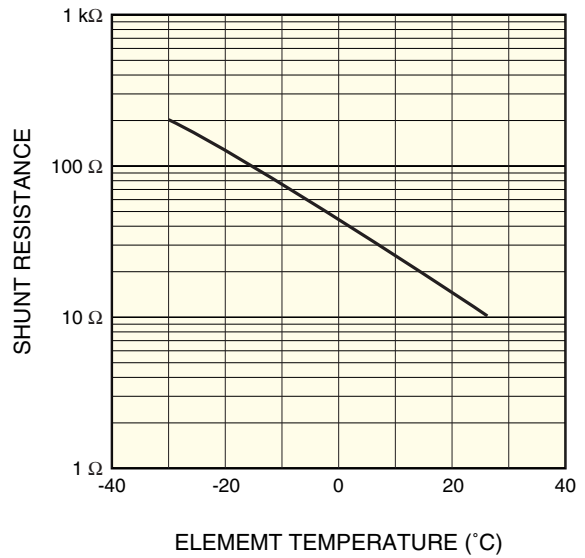
KIRDB0183EA

■ S/N vs. chopping frequency (P7163)



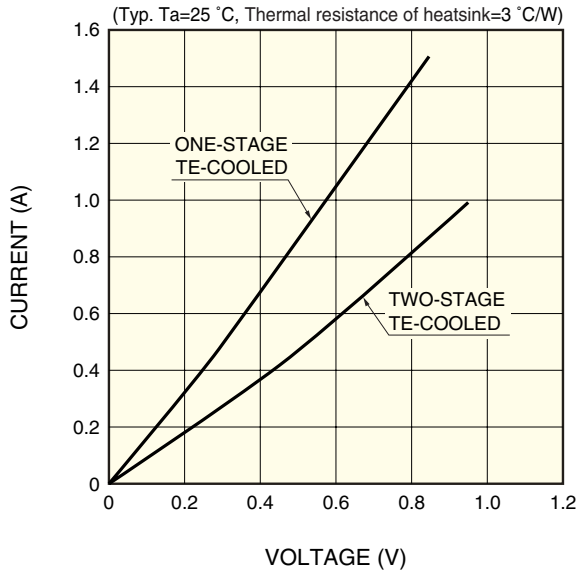
KIRDB0064ED

■ Shunt resistance vs. element temperature



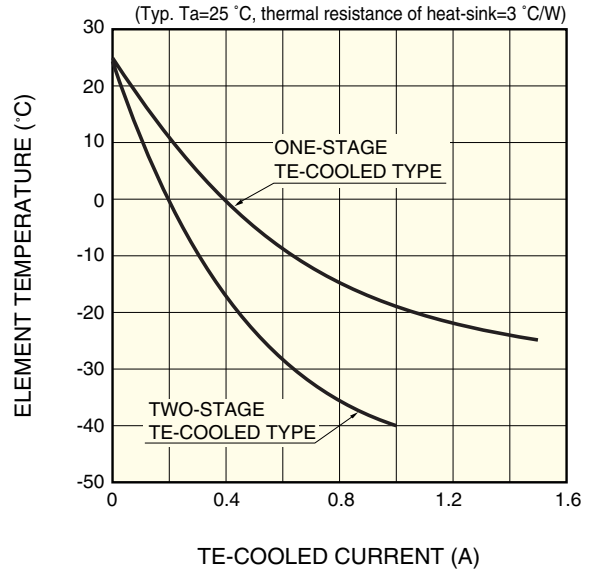
KIRDB0182EA

■ Current vs. voltage of TE-cooled type



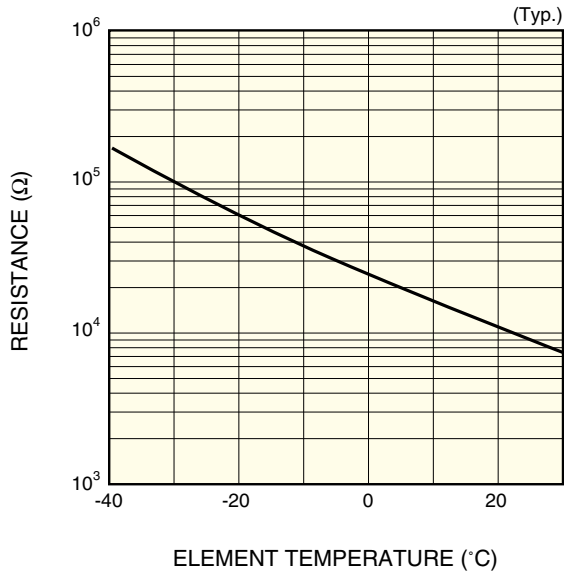
KIRDB0115EB

■ Cooling characteristics of TE-cooled type



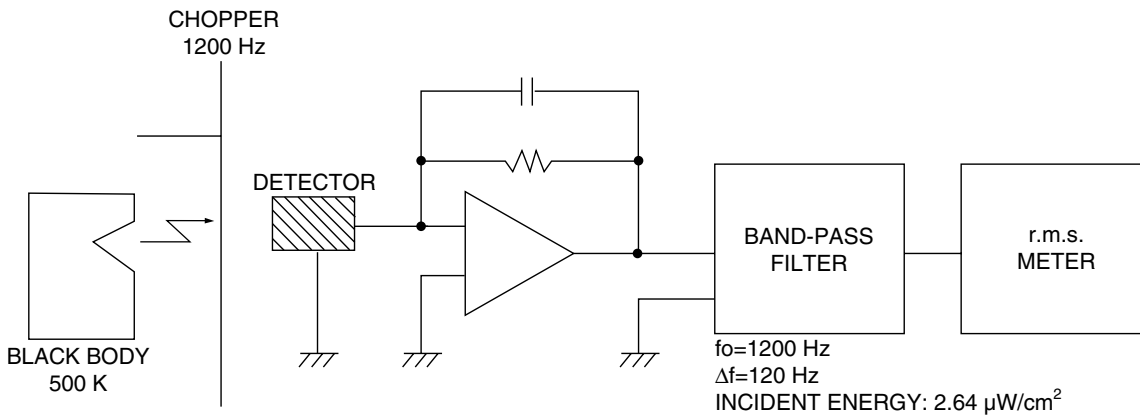
KIRDB0181EA

■ Thermistor temperature characteristic



KIRDB0116EA

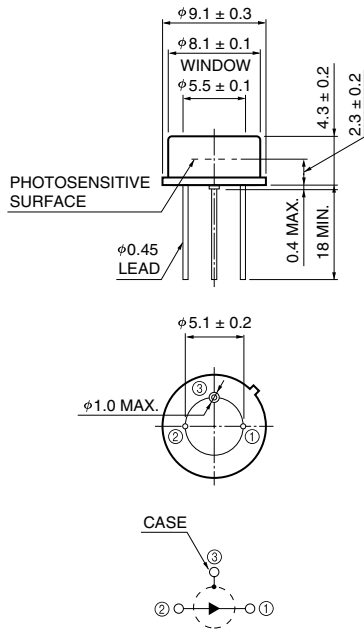
■ Measurement circuit



KIRDC0004EA

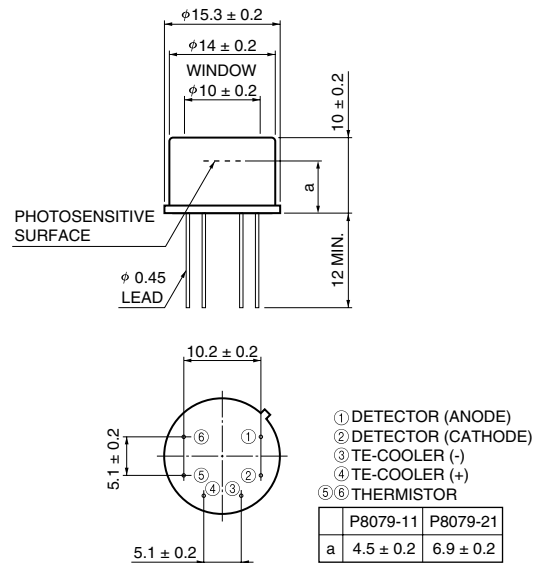
Dimensional outlines (unit: mm)

① P8079-01



KIRDA0119EA

② P8079-11/-21

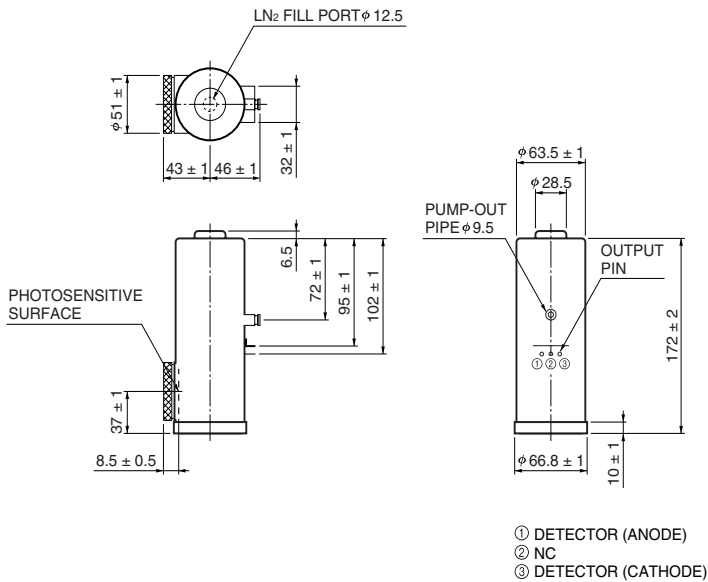


- ① DETECTOR (ANODE)
- ② DETECTOR (CATHODE)
- ③ TE-COOLER (-)
- ④ TE-COOLER (+)
- ⑤⑥ THERMISTOR

	P8079-11	P8079-21
a	4.5 ± 0.2	6.9 ± 0.2

KIRDA0120EA

③ P7163



- ① DETECTOR (ANODE)
- ② NC
- ③ DETECTOR (CATHODE)

KIRDA0033EC

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