InSb photoconductive detector
P6606 series

Thermoelectrically cooled detectors capable of long-term measurements

Features

- Thermoelectric cooling ensures high speed and high sensitivity up to 6.5 µm.
- Photoconductive element that changes electrical resistance by input of IR radiation
- Easy-to-use detector/preamp modules are also available.

Applications

- Environment measurements (gas analysis, etc.)
- Radiation thermometers (5 µm band)
- FTIR
- IR laser detection

Accessories (optional)

- Heatsink for one-stage TE-cooled type A3179
- Heatsink for two-stage TE-cooled type A3179-01
- Heatsink for three-stage TE-cooled type A3179-04
- Temperature controller C1103-05 (-75 to -25 ˚C)
  C1103-07 (-30 to +20 ˚C)
- Preamp C5185
- Infrared detector module with preamp
  P4631-03 (P6606-310)

■ Specifications / Absolute maximum ratings

Type No.	Dimensional outline/ Window material *1	Package	Cooling	Active area (mm)	Absolute maximum ratings				
					Thermistor power dissipation (mW)	TE-cooler power dissipation (A)	Allowable current (mA)	Operating temperature Topr (°C)	Storage temperature Tstg (°C)
P6606-110	①/S	TO-8	One-stage TE-cooled	1 × 1	0.2	1.5	40	-40 to +60	-55 to +60
P6606-210			Two-stage TE-cooled			1.0			
P6606-305	②/S	TO-3	Three-stage TE-cooled	0.5 × 0.5		1.0	20		
P6606-310				1 × 1			40		
P6606-320				2 × 2			60		

*1: Window material S: Sapphire glass

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

Type No.	Measurement condition Element temperature T (°C)	Peak sensitivity wavelength λp (µm)	Cut-off wavelength λc (µm)	Photo *2 sensitivity S λ=λp (V/W)	D* (500, 1200, 1) Min. (cm·Hz$^{1/2}$/W)	D* (500, 1200, 1) Typ. (cm·Hz$^{1/2}$/W)	D* (λp, 1200, 1) (cm·Hz$^{1/2}$/W)	Rise time tr 0 to 63 % (µs)	Dark resistance Rd (Ω)
P6606-110	-10	5.5	6.7	10	7 × 10^7	2 × 10^8	1 × 10^9	0.4	20
P6606-210	-30		6.5	50	1.5 × 10^8	5 × 10^8	2.5 × 10^9		25
P6606-305	-60		6.3	2500	1 × 10^9	2 × 10^9	1 × 10^{10}		150
P6606-310				650	1 × 10^9	2 × 10^9	1 × 10^{10}		80
P6606-320				150	5 × 10^8	1 × 10^9	5 × 10^9		80

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

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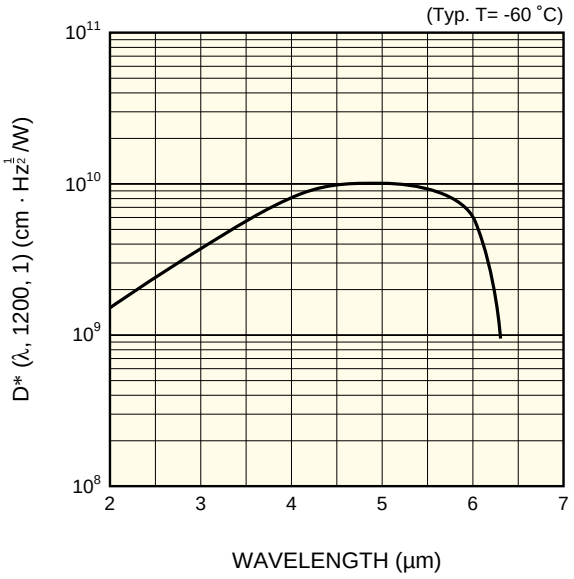
■ Spectral response



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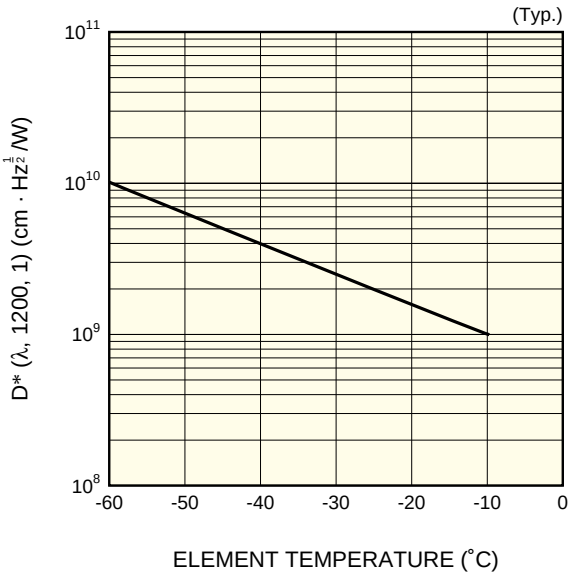
■ D* vs. element temperature



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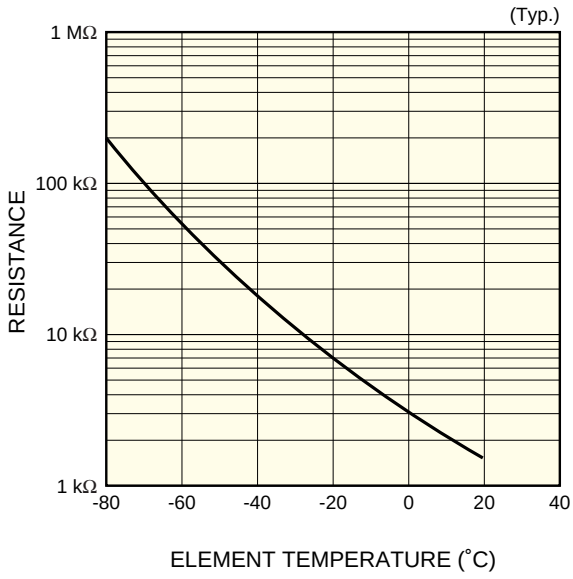
■ Thermistor temperature characteristic



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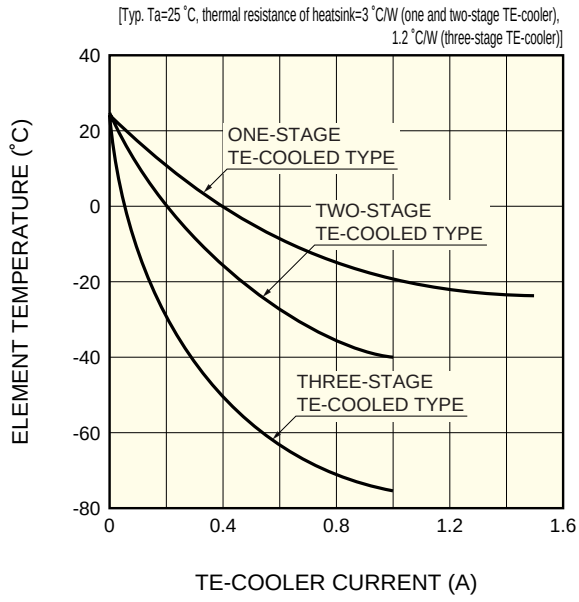
■ Cooling characteristics of TE-cooler



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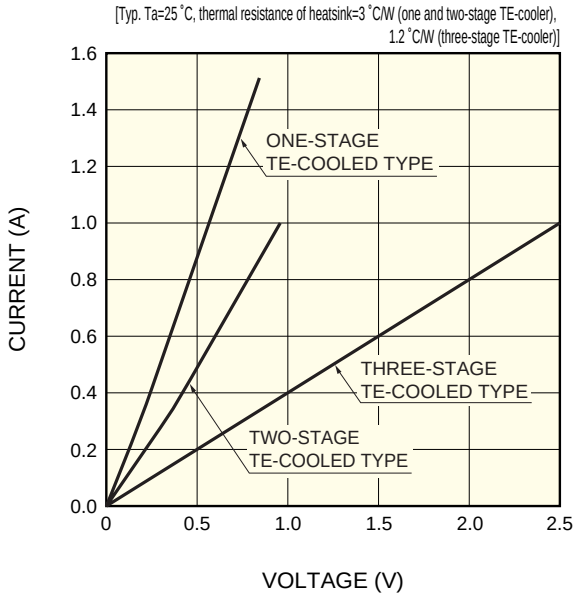
■ Current vs. voltage of TE-cooler



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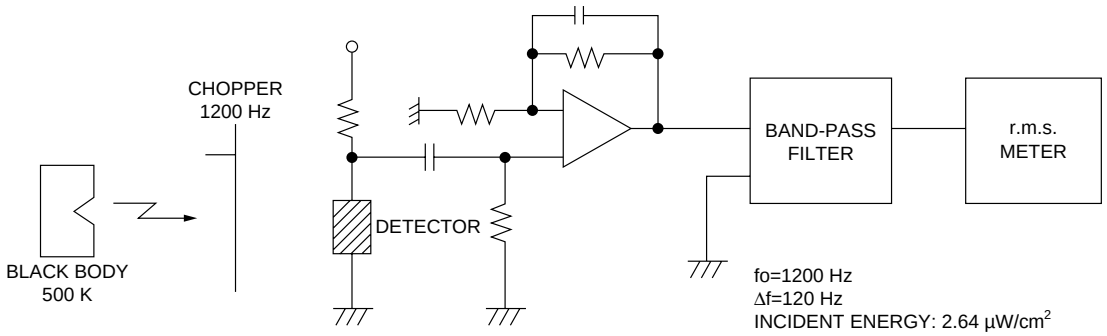
■ Measurement circuit



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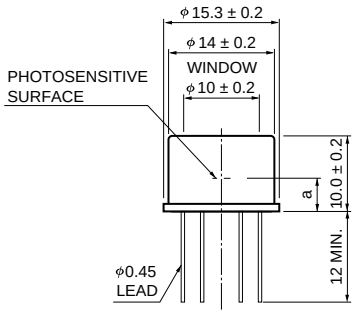
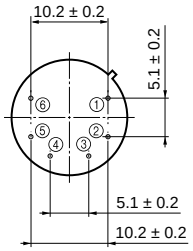
■ Dimensional outlines (unit: mm)

① P6606-110/-210





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

	P6606-110	P6606-210
a	4.2 ± 0.2	6.6 ± 0.2

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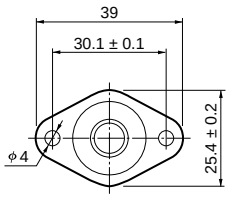
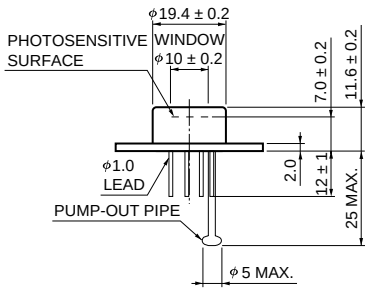
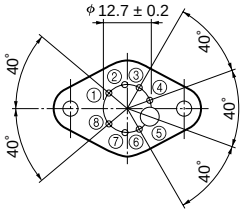
② P6606-305/-310/-320







① TE-COOLER (+)
②⑦ DETECTOR
③④ THERMISTOR
⑤ PUMP-OUT PIPE
⑥ NC
⑧ TE-COOLER (-)

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