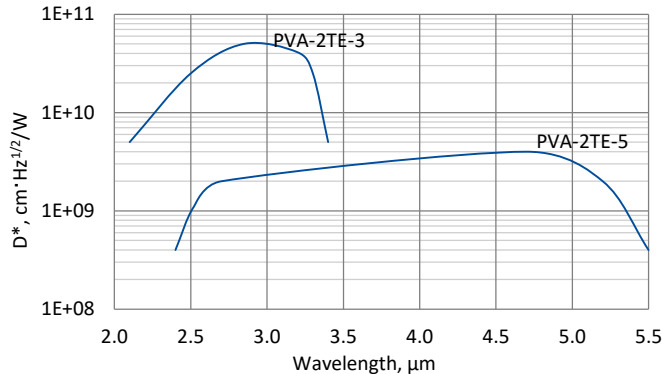


PVA-2TE series

2.0 – 5.5 μm InAs and InAsSb two-stage thermoelectrically cooled photovoltaic detectors

PVA-2TE series features two-stage thermoelectrically cooled IR photovoltaic detectors based on InAs_{1-x}Sb_x alloys. The devices are temperature stable up to 300°C and mechanically durable. They do not contain mercury or cadmium and are complying with the RoHS Directive. 3° wedged sapphire (wAl₂O₃) window prevents unwanted interference effects.

Spectral response (T_a = 20°C, V_b = 0 mV)



Exemplary spectral detectivity, the spectral response of delivered devices may differ.

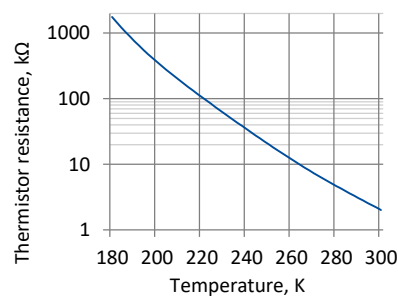
Specification (T_a = 20°C, V_b = 0 mV)

Parameter	Detector type	
	PVA-2TE-3	PVA-2TE-5
Active element material	epitaxial InAs heterostructure	epitaxial InAsSb heterostructure
Cut-on wavelength λ _{cut-on} (10%), μm	2.1±0.2	2.4±0.2
Peak wavelength λ _{peak} , μm	2.9±0.3	4.7±0.3
Cut-off wavelength λ _{cut-off} (10%), μm	3.4±0.2	5.5±0.2
Detectivity D*(λ _{peak}), cm·Hz ^{1/2} /W	≥5.0×10 ¹⁰	≥4.0×10 ⁹
Current responsivity R _i (λ _{peak}), A/W	≥1.3	≥1.5
Time constant τ, ns	≤15	≤20
Resistance R, Ω	≥200k	≥1.0k
Active element temperature T _{det} , K	~230	
Active area A, mm×mm	0.1×0.1	
Package	TO8	
Acceptance angle Φ	~70°	
Window	wAl ₂ O ₃	

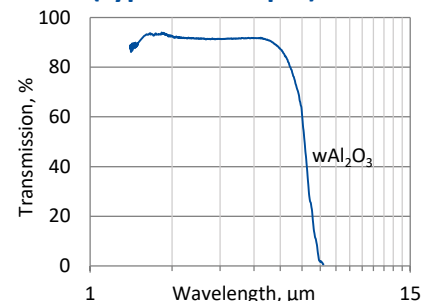
Two-stage thermoelectric cooler parameters

Parameter	Value
T _{det} , K	~230
V _{max} , V	1.3
I _{max} , A	1.2
Q _{max} , W	0.36

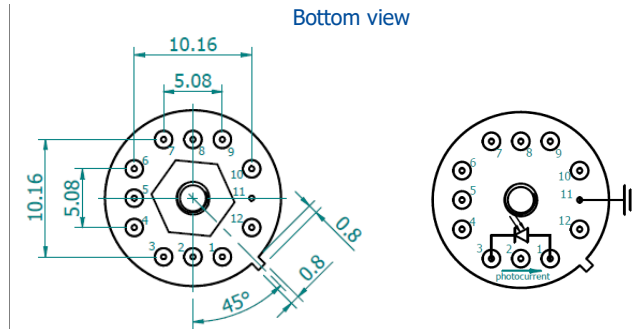
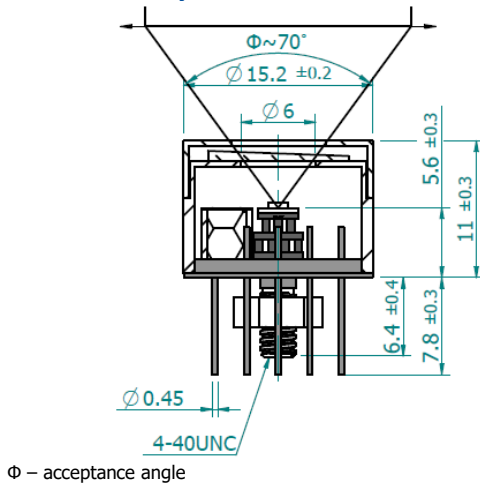
Thermistor characteristics



Spectral transmission of wAl₂O₃ window (typical example)



Mechanical layout, mm



Function	Pin number
Detector	1, 3
Thermistor	7, 9
TE cooler supply	2(+), 8(-)
Chassis ground	11
Not used	4, 5, 6, 10, 12

Dedicated preamplifiers



„all-in-one“ AIP



programmable PIP



standard MIP



small SIP-TO8