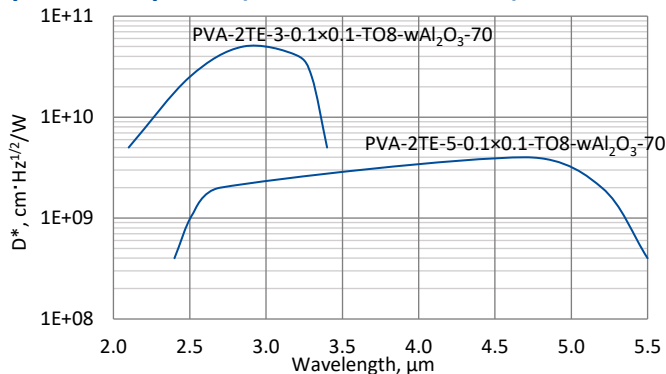


## PVA-2TE series

### 2.4 – 5.3 μm InAs and InAsSb two-stage thermoelectrically cooled photovoltaic detectors

**PVA-2TE series** features two-stage thermoelectrically cooled IR photovoltaic detectors based on InAs<sub>1-x</sub>Sb<sub>x</sub> alloys. They do not contain mercury or cadmium and are complying with the RoHS Directive. 3° wedged sapphire (wAl<sub>2</sub>O<sub>3</sub>) window prevents unwanted interference effects.

#### Spectral response (T<sub>a</sub> = 20°C, V<sub>b</sub> = 0 mV)



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

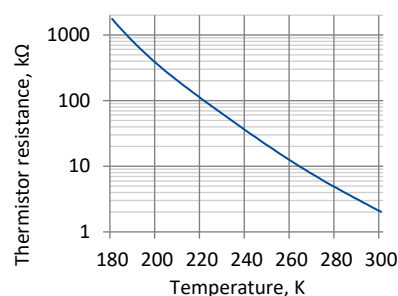
#### Specification (T<sub>a</sub> = 20°C, V<sub>b</sub> = 0 mV)

Parameter	Detector type	
	PVA-2TE-3-0.1×0.1-TO8-wAl <sub>2</sub> O <sub>3</sub> -70	PVA-2TE-5-0.1×0.1-TO8-wAl <sub>2</sub> O <sub>3</sub> -70
Active element material	epitaxial InAs heterostructure	epitaxial InAsSb heterostructure
Cut-on wavelength λ <sub>cut-on</sub> (10%), μm	≤2.4	≤2.6
Peak wavelength λ <sub>peak</sub> , μm	2.9±0.3	4.5±0.6
Cut-off wavelength λ <sub>cut-off</sub> (10%), μm	≥3.2	≥5.3
Detectivity D* (λ <sub>peak</sub> ), cm·Hz <sup>1/2</sup> /W	≥5.0×10 <sup>10</sup>	≥4.0×10 <sup>9</sup>
Current responsivity R <sub>i</sub> (λ <sub>peak</sub> ), A/W	≥1.1	≥1.2
Time constant τ, ns	≤15	≤20
Resistance R, Ω	≥200k	≥1.0k
Active element temperature T <sub>det</sub> , K		~230
Active area A, mm×mm		0.1×0.1
Package		TO8
Acceptance angle Φ		~70°
Window		wAl <sub>2</sub> O <sub>3</sub>

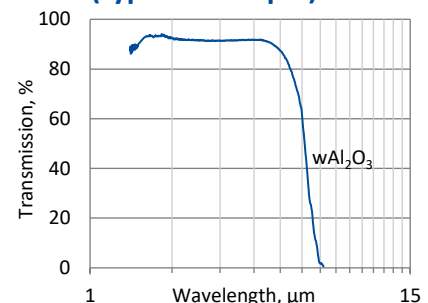
#### Two-stage thermoelectric cooler parameters

Parameter	Value
T <sub>det</sub> , K	~230
V <sub>max</sub> , V	1.3
I <sub>max</sub> , A	1.2
Q <sub>max</sub> , W	0.36

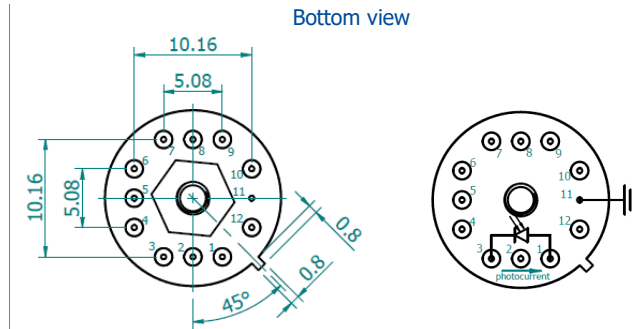
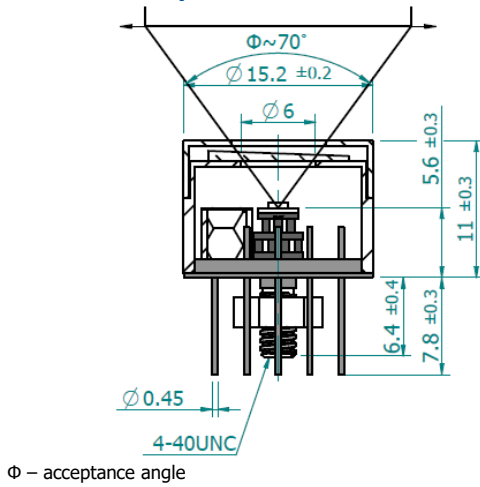
#### Thermistor characteristics



#### Spectral transmission of wAl<sub>2</sub>O<sub>3</sub> 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-T08