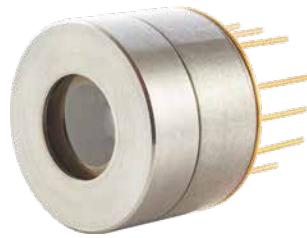
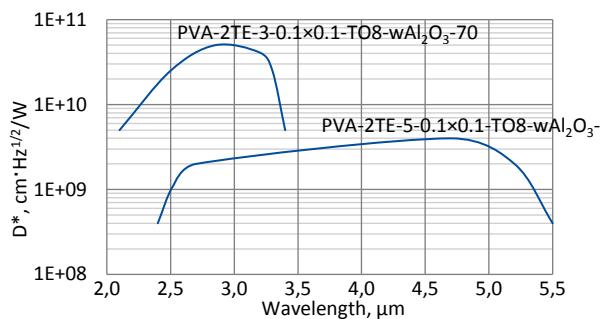


2.26 PVA-2TE series

2.26.1 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 $\text{InAs}_{1-x}\text{Sb}_x$ alloys. They do not contain mercury or cadmium and are complying with the RoHS Directive. 3° wedged sapphire (wAl_2O_3) window prevents unwanted interference effects.

Spectral response ($T_a = 20^\circ\text{C}$, $V_b = 0 \text{ mV}$)



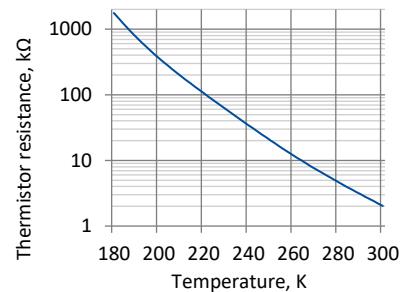
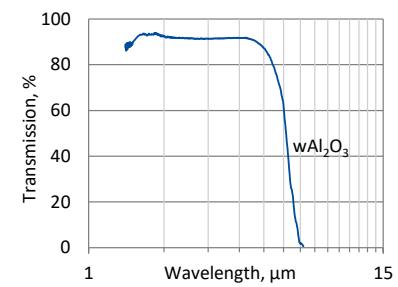
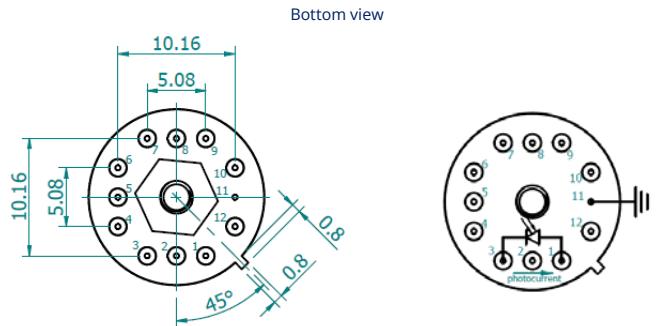
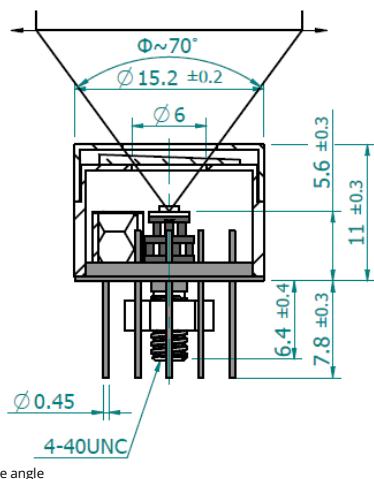
Exemplary spectral detectivity, the spectral response of delivered devices may differ.

Specification ($T_a = 20^\circ\text{C}$, $V_b = 0 \text{ mV}$)

Parameter	Detector type	
	PVA-2TE-3-0.1x0.1-T08-wAl ₂ O ₃ -70	PVA-2TE-5-0.1x0.1-T08-wAl ₂ O ₃ -70
Active element material	epitaxial InAs heterostructure	epitaxial InAsSb heterostructure
Cut-on wavelength $\lambda_{\text{cut-on}}$ (10%), µm	≤ 2.4	≤ 2.6
Peak wavelength λ_{peak} , µm	2.9 ± 0.3	4.5 ± 0.6
Cut-off wavelength $\lambda_{\text{cut-off}}$ (10%), µm	≥ 3.2	≥ 5.3
Detectivity D^* (λ_{peak}), $\text{cm} \cdot \text{Hz}^{1/2} / \text{W}$	$\geq 5.0 \times 10^{10}$	$\geq 4.0 \times 10^9$
Current responsivity $R_i(\lambda_{\text{peak}})$, A/W	≥ 1.1	≥ 1.2
Time constant τ , ns	≤ 15	≤ 20
Resistance R , Ω	$\geq 200k$	$\geq 1.0k$
Active element temperature T_{det} , K	~ 230	
Active area A, mm×mm	0.1×0.1	
Package	TO8	
Acceptance angle Φ	$\sim 70^\circ$	
Window	wAl_2O_3	

Two-stage thermoelectric cooler parameters

Parameter	Value
T _{dev} , 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 preamplifier


„all-in-one“ AIP



programmable PIP



standard MIP



small SIP-T08