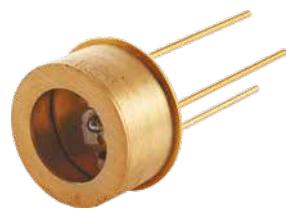
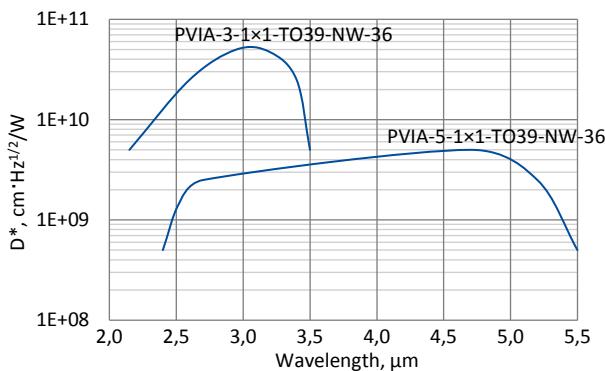


2.27 PVIA series

2.27.1 2.0 – 5.5 μm InAs and InAsSb ambient temperature, optically immersed photovoltaic detectors

PVIA series features uncooled IR photovoltaic detectors based on $\text{InAs}_{1-x}\text{Sb}_x$ alloys, optically immersed in order to improve performance of the devices. They do not contain mercury or cadmium and are complying with the RoHS Directive.

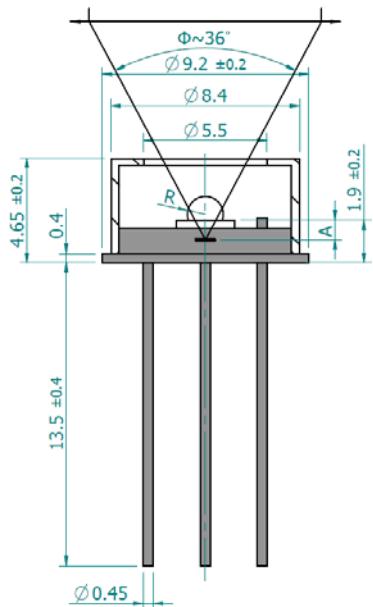
Spectral response ($T_a = 20^\circ\text{C}$, $V_b = 0 \text{ mV}$)



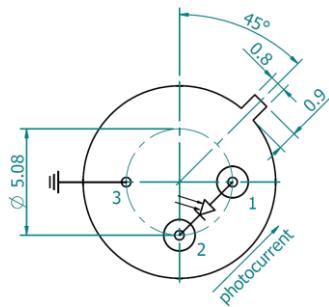
Exemplary spectral detectivity, the spectral response of delivered devices may differ.

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

Parameter	Detector type	
	PVIA-3-1x1-T039-NW-36	PVIA-5-1x1-T039-NW-36
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	≥ 3.3	≥ 5.3
Detectivity D^* (λ_{peak}), $\text{cm} \cdot \text{Hz}^{1/2}/\text{W}$	$\geq 5.0 \times 10^{10}$	$\geq 5.0 \times 10^9$
Current responsivity $R_i(\lambda_{\text{peak}})$, A/W	≥ 1.1	≥ 1.2
Time constant τ , ns	≤ 20	≤ 15
Resistance R , Ω	$\geq 2k$	≥ 70
Optical area A_o , mm×mm	1×1	
Package	TO39	
Acceptance angle Φ	$\sim 36^\circ$	
Window	none	

Mechanical layout, mm

Bottom view



Function	Pin number
Detector	1, 2
Chassis ground	3

Parameter	Value
Immersion microlens shape	hyperhemisphere
Optical area A_o , mm×mm	1×1
R, mm	0.8
A, mm	2.4±0.2

Φ – acceptance angle, R – hyperhemisphere microlens radius, A – distance from the bottom of hyperhemisphere microlens to the focal plane

Dedicated preamplifier

small SIP-T039