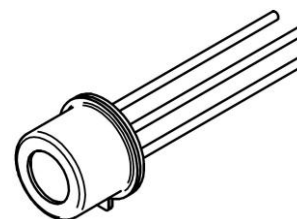


PVIA-5-0.3x0.3-TO46-pAl₂O₃-40

PRELIMINARY DATASHEET

InAsSb room-temperature optically immersed photovoltaic infrared detector



FEATURES

- Spectral range: 1.7 to 5.4 μm
- RoHS-compliant III-V material
- High ambient operating and storage temperature
- Innovative chemically processed microlens technology applied
- Back-side illuminated
- No minimum order quantity required

APPLICATIONS

- Gas detection, monitoring and analysis: CH₄, C₂H₂, CH₂O, HCl, NH₃, SO₂, C₂H₆, CO, CO₂, NO_x
- Breath analysis: C₂H₆, CH₂O, NH₃, NO, OCS
- Gas leak detection
- Contactless temperature measurement: railway transport, industrial and laboratory processes monitoring
- Flame and explosion detection
- Threat warning systems
- Heat-seeking, thermal signature detection
- Dentistry
- Combustion process control
- Non-destructive material testing

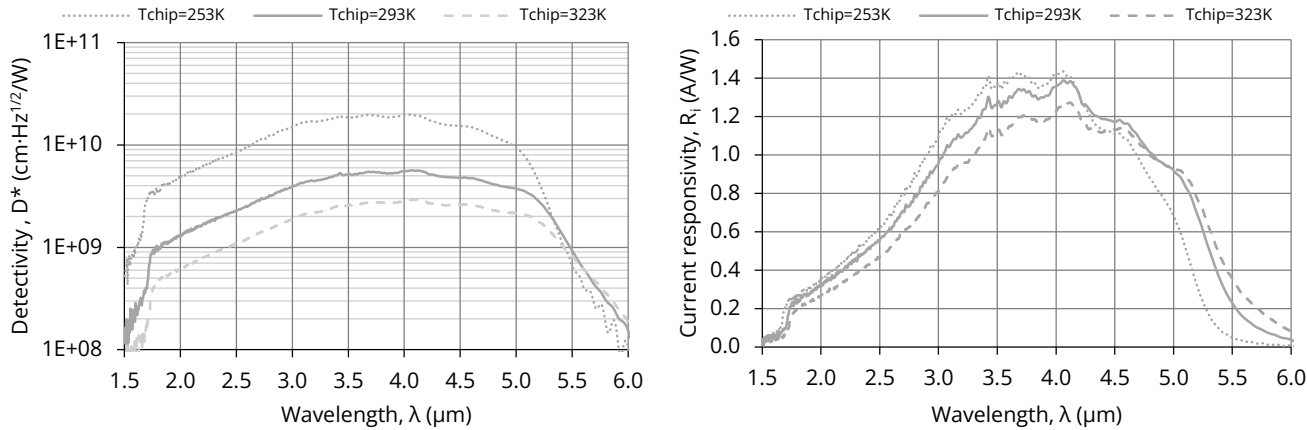
DETECTOR CONFIGURATION

Detector symbol	Cooling	Temperature sensor	Optical area, A _o , mm×mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window
PVIA-5-0.3x0.3-TO46-pAl ₂ O ₃ -40	no	n/a	0.3×0.3	hemisphere (chemical processing)	TO46 (3 pin)	~40	pAl ₂ O ₃ (planar sapphire)

SPECIFICATION ($T_{\text{amb}} = T_{\text{chip}} = 293 \text{ K}$, $V_b = 0 \text{ V}$)

Detector symbol	Cut-on wavelength (10%)	Peak wavelength	Cut-off wavelength (10%)	Detectivity	Current responsivity	Time constant	Dynamic resistance
	$\lambda_{\text{cut-on}}$	λ_{peak}	$\lambda_{\text{cut-off}}$	$D^*(\lambda_{\text{peak}}, 20\text{kHz})$	$R_i(\lambda_{\text{peak}})$	τ	R_d
	μm	μm	μm	$\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	A/W	ns	Ω
PVIA-5-0.3x0.3-TO46-pAl ₂ O ₃ -40	Typ. 1.7	Typ. 4.0	Typ. 5.4	Typ. 4.0×10^9	Typ. 1.0	Typ. 20	Typ. 300

SPECTRAL RESPONSE (Typ., $T_{\text{amb}} = T_{\text{chip}} = 293 \text{ K}$)



MECHANICAL LAYOUT AND PINOUT

- [TO46\(3p\)-pW, PVI\(r\) detector technical drawing](#)

RECOMMENDED AMPLIFIER

Detector symbol	Amplifier type
PVIA-5-0.3x0.3-TO46-pAl ₂ O ₃ -40	TO46-3.6k-AMP

ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions, remarks	Value	Unit
Ambient operating temperature, T_{amb}	Detector parameters depend on T_{amb}	-20 to 70	°C
Storage temperature, T_{stg}		-20 to 85	°C
Soldering temperature	Within 5 s or less	≤370	°C
Storage humidity	No dew condensation	10 to 90	%
Maximum incident optical power density	Continuous wave (CW) or single pulses >1 μs duration	2.5	W/cm ²
	Single pulses <1 μs duration	10	kW/cm ²
Maximum bias voltage, $V_{\text{b max}}$		-1	V

Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. Constant or repeated exposure to absolute maximum rating conditions may affect the quality and reliability of the device.