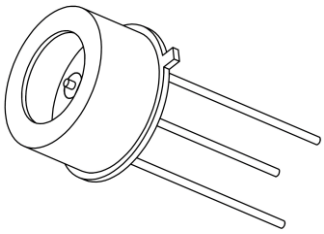
PVIA-5-1x1-TO39-NW-36

PRELIMINARY DATASHEET

InAsSb room-temperature optically immersed photovoltaic infrared detector



FEATURES

- Spectral range: 2.0 to 5.6 µm
- RoHS-compliant III-V material
- High ambient operating and storage temperature
- Unique optical immersion technology applied
- Back-side illuminated
- No minimum order quantity required

APPLICATIONS

- Contactless temperature measurement: railway transport, industrial and laboratory processes monitoring
- Flame and explosion detection
- Threat warning systems
- Heat-seeking, thermal signature detection
- Dentistry
- Gas detection, monitoring and analysis: CH_4, C_2H_2, CH_2O, HCl, NH_3, SO_2, C_2H_6, CO, CO_2, NO_x
- Breath analysis: C_2H_6, CH_2O, NH_3, NO, OCS
- Gas leak detection
- Combustion process control
- Non-destructive material testing

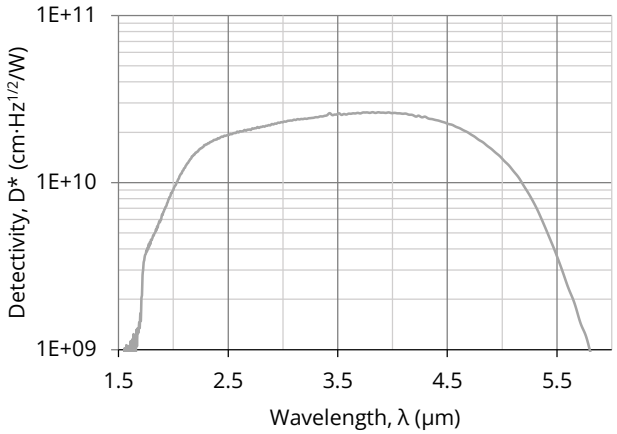
DETECTOR CONFIGURATION

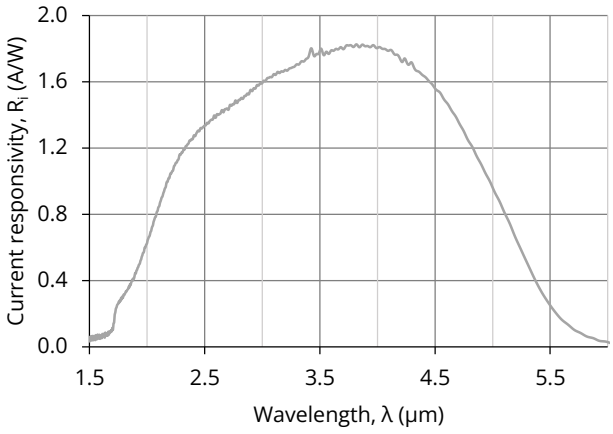
Detector symbol	Cooling	Temperature sensor	Optical area, A_o, mm×mm	Optical immersion	Package	Acceptance angle, Φ, deg.	Window
PVIA-5-1x1-TO39-NW-36	no	n/a	1×1	hyperhemisphere	TO39 (3 pin)	~36	no

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

Detector symbol	Cut-on wavelength (10%)	Peak wavelength	Cut-off wavelength (10%)	Detectivity		Current responsivity		Time constant	Dynamic resistance	
	$\lambda_{cut\text{-}on}$	λ_{peak}	$\lambda_{cut\text{-}off}$	D*(λ_{peak}, 20kHz)		$R_i(\lambda_{peak})$		τ	R_d	
	µm	µm	µm	cm·Hz$^{1/2}$/W		A/W		ns	Ω	
	Typ.	Typ.	Typ.	Min.	Typ.	Min.	Typ.	Typ.	Min.	Typ.
PVIA-5-1x1-TO39-NW-36	≤2.0	3.9	5.6	1.6×10^{10}	2.8×10^{10}	1.2	1.8	30	300	400

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





MECHANICAL LAYOUT AND PINOUT

- TO39(3p)-NW, PVI detector technical drawing

RECOMMENDED AMPLIFIER

Detector symbol	Amplifier type
PVIA-5-1x1-TO39-NW-36	SIP-TO39 series

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, $V_{b\,max}$		-1.0	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.