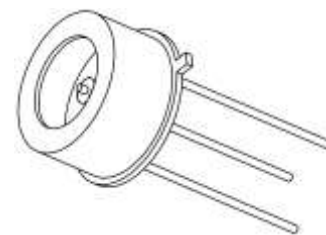


# PVA-3-1x1-TO39-NW-90

**PRELIMINARY  
DATASHEET**

## InAs room-temperature photovoltaic infrared detector



### FEATURES

- Spectral range: 2.3 to 3.5  $\mu\text{m}$
- RoHS-compliant III-V material
- Large active area
- High ambient operating and storage temperature
- Back-side illuminated
- No minimum order quantity required

### APPLICATIONS

- Gas detection, monitoring and analysis:  $\text{H}_2\text{O}$ , HF,  $\text{CH}_4$ ,  $\text{C}_2\text{H}_2$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_2\text{H}_6$ ,  $\text{NH}_3$
- Combustion process control
- Green energy
- Medical laser control

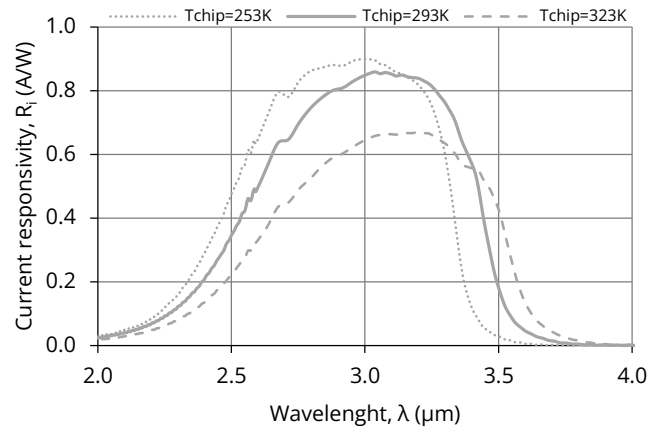
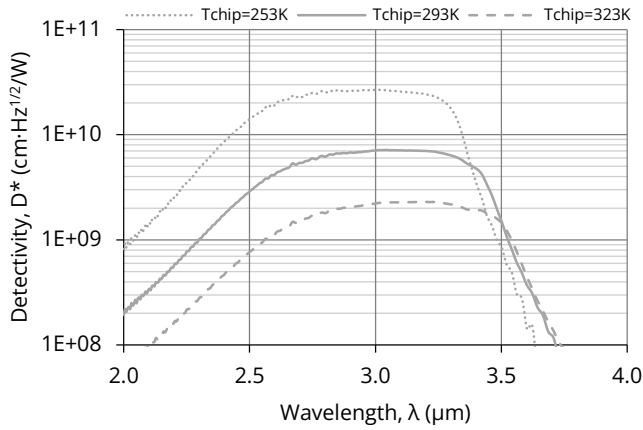
### DETECTOR CONFIGURATION

Detector symbol	Cooling	Temperature sensor	Active area, A, mm $\times$ mm	Optical immersion	Package	Acceptance angle, $\Phi$ , deg.	Window
PVA-3-1x1-TO39-NW-90	no	n/a	1 $\times$ 1	no	TO39 (3 pin)	$\sim$ 90	no

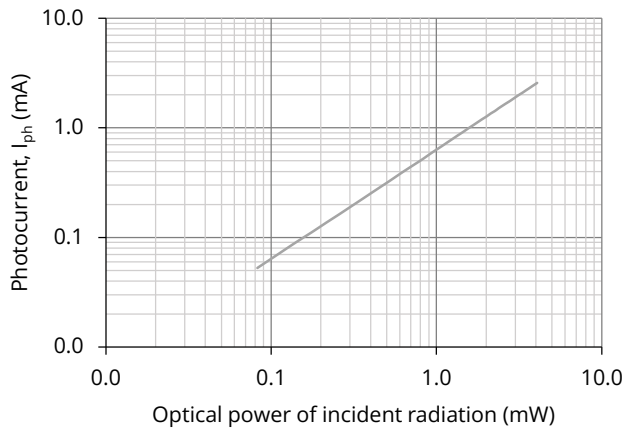
### SPECIFICATION ( $T_{\text{amb}} = T_{\text{chip}} = 293 \text{ K}$ , $V_b = 0 \text{ V}$ )

Detector symbol	Cut-on wavelength (10%)			Peak wavelength	Cut-off wavelength (10%)	Detectivity		Current responsivity		Time constant		Dynamic resistance	
	$\lambda_{\text{cut-on}}$	$\lambda_{\text{peak}}$	$\lambda_{\text{cut-off}}$	$D^*(\lambda_{\text{peak}}, 20\text{kHz})$		$R_i(\lambda_{\text{peak}})$		$\tau$		$R_d$			
	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$			A/W		ns		$\Omega$			
	Typ.	Typ.	Typ.			Min.	Typ.	Min.	Typ.	Typ.	Max.	Min.	Typ.
PVA-3-1x1-TO39-NW-90	2.3	3.1	3.5		$5.0 \times 10^9$	$7.0 \times 10^9$	0.85	1.1	35	40	50	65	

### SPECTRAL RESPONSE (Typ.)



### LINEARITY (Typ., T<sub>amb</sub> = 293 K, λ = 3.06 μm)



### MECHANICAL LAYOUT AND PINOUT

- [TO39\(3p\)-NW, PV detector technical drawing](#)

### RECOMMENDED AMPLIFIER

Detector symbol	Preampifier type
PVA-3-1x1-TO39-NW-90	SIP-TO39 series

### ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions, remarks	Value	Unit
Ambient operating temperature, T <sub>amb</sub>	Detector parameters depend on T <sub>amb</sub>	-20 to 70	°C
Storage temperature, T <sub>stg</sub>		-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	100	W/cm <sup>2</sup>
	Single pulses <1 μs duration	1	MW/cm <sup>2</sup>
Maximum bias voltage, V <sub>b,max</sub>		-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.