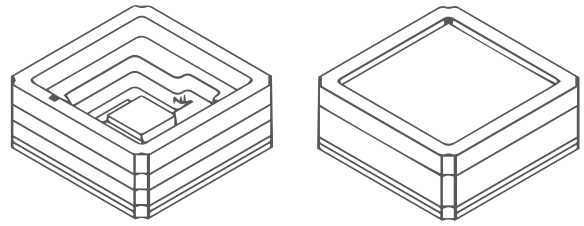


PVA-3-d1.2-SMD series

InAs room temperature photovoltaic infrared detectors



FEATURES

- Spectral range: 1.3 to 3.6 μm (without filter)
- Front-side illuminated
- III-V material compliant with the RoHS Directive
- High ambient operating and storage temperature
- Compact, surface mount type ceramic package (size 4x4 mm²)
- Compatible with lead-free solder reflow
- No minimum order quantity required

APPLICATIONS

- Gas detection, monitoring and analysis: H₂O, HF, CH₄, C₂H₂, C₂H₄, C₂H₆, NH₃
- Combustion process control
- Green energy
- Medical laser control

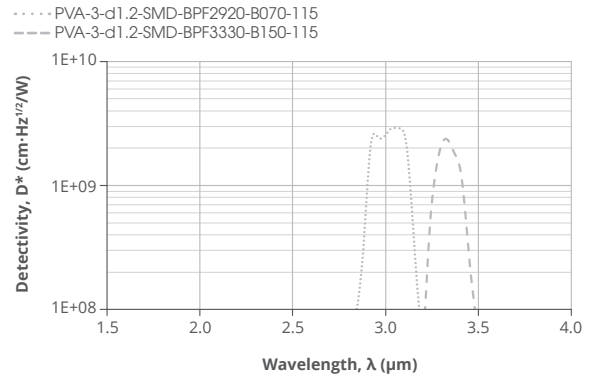
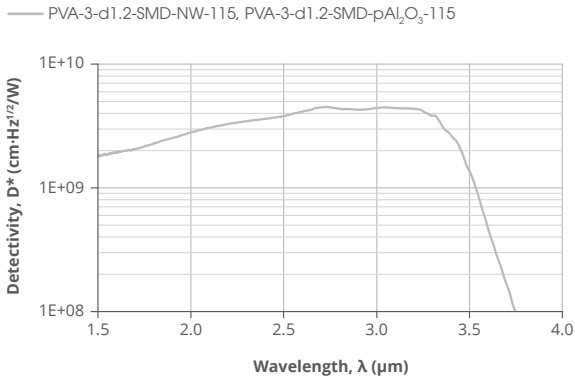
SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Active area diameter, d _A , mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window (p. 193)
PVA-3-d1.2-SMD-NW-115	no	n/a	1.2	no	SMD	≥ 115 deg.	no
PVA-3-d1.2-SMD-pAl ₂ O ₃ -115							pAl ₂ O ₃ (planar sapphire)
PVA-3-d1.2-SMD-BPF2920-B070-115							planar with filter ($\lambda_{\text{cwl}} = 2920$ nm, bandwidth = 70 nm)
PVA-3-d1.2-SMD-BPF3330-B150-115							planar with filter ($\lambda_{\text{cwl}} = 3330$ nm, bandwidth = 150 nm)

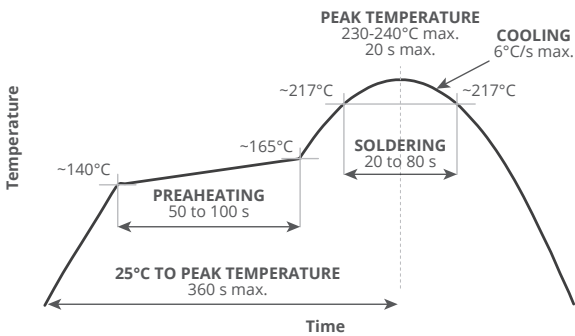
SPECIFICATION ($T_{\text{amb}} = 293$ K, $V_b = 0$ V)

Detector symbol	Wavelength			Detectivity		Current responsivity		Time constant		Dynamic resistance	
	Cut-on wavelength (10%)	Peak wavelength	Cut-off wavelength (10%)	$D^*(\lambda_{\text{peak}})$ 20 kHz		$R_i(\lambda_{\text{peak}})$		τ		R_d	
	$\lambda_{\text{cut-on}}$ μm	λ_{peak} μm	$\lambda_{\text{cut-off}}$ μm	Min.	Typ.	Min.	Typ.	Typ.	Max.	Min.	Typ.
PVA-3-d1.2-SMD-NW-115	1.30	2.90	3.60	3.0×10^9	5.0×10^9	0.45	0.55	35	45	55	75
PVA-3-d1.2-SMD-pAl ₂ O ₃ -115											
PVA-3-d1.2-SMD-BPF2920-B070-115	-	2.92	-	2.5×10^9	3.5×10^9	0.40	0.48				
PVA-3-d1.2-SMD-BPF3330-B150-115	-	3.33	-	1.6×10^9	2.4×10^9	0.28	0.36				

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



RECOMMENDED REFLOW SOLDERING CONDITIONS



Desoldering and re-soldering the component may cause degradation of the detector.

MECHANICAL LAYOUT AND SIGNAL OUTPUT

- SMD package (without window)
 - Technical drawing (p. 195)
- SMD package (with window)
 - Technical drawing (p. 196)

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 70	°C
Soldering temperature	See "Recommended reflow soldering conditions"	-	-
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 ²
	Single pulses <1 μs duration	1	MW/cm ²
Maximum bias voltage, $V_{b,max}$		-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