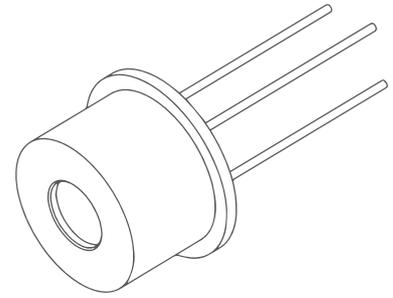


# PVA-1.7-d1-TO39-wAl<sub>2</sub>O<sub>3</sub>-45



## InGaAs room-temperature photovoltaic infrared detector

### FEATURES

- Cut-off wavelength: 1.7 μm
- RoHS-compliant III-V material
- High ambient operating and storage temperature
- Long-term stability and reliability
- Front-side illuminated
- No minimum order quantity required

### APPLICATIONS

- Gas detection, monitoring and analysis: CH<sub>4</sub>
- Telecommunication
- LIDAR
- Laser range finder, laser warning system
- Lasers and diodes life tests
- Food analysis
- Pharmaceutical analysis

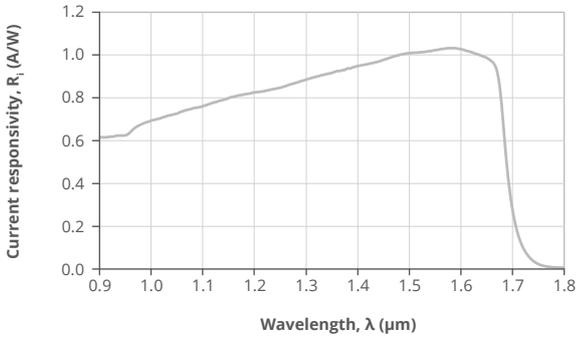
### DETECTOR CONFIGURATION

Detector symbol	Cooling	Temperature sensor	Active area diameter, d <sub>A</sub> , mm	Optical immersion	Package	Acceptance angle, Φ, deg.	Window p. 193
PVA-1.7-d1-TO39-wAl <sub>2</sub> O <sub>3</sub> -45	no	n/a	1	no	TO39 (3 pins)	~45	wAl <sub>2</sub> O <sub>3</sub> (3 deg. wedged sapphire)

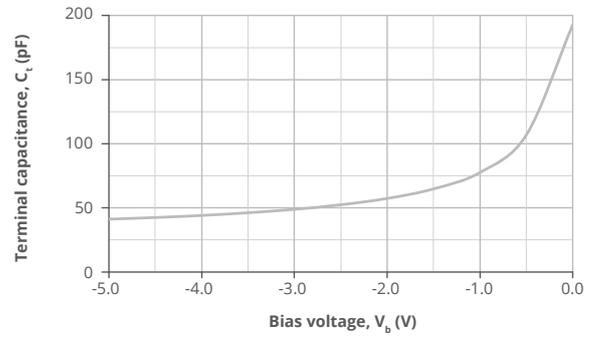
### SPECIFICATION (T<sub>amb</sub> = 293 K, V<sub>b</sub> = -5 V)

Detector symbol	Peak wavelength		Cut-off wavelength (10%)		Detectivity		Current responsivity		Dark current	Dark current density		Terminal capacitance			3db bandwidth	Dynamic resistance	Bias voltage
	λ <sub>peak</sub>		λ <sub>cut-off</sub>		D*(λ=1.55μm, 20kHz)		R <sub>i</sub> (λ=1.55μm)		I <sub>dark</sub>	J <sub>dark</sub>		C <sub>t</sub>			R	V <sub>b</sub>	
	μm		μm		cm·Hz <sup>1/2</sup> /W		A/W		nA	A/cm <sup>2</sup>		pF			MHz	MΩ	V
	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Typ.	Max.	Min.	Typ.	Max.	Typ.	Min.
PVA-1.7-d1-TO39-wAl <sub>2</sub> O <sub>3</sub> -45	1.59±0.03	1.69	1.71	2.0×10 <sup>11</sup>	6.0×10 <sup>11</sup>	1.00	1.02	100	4.0×10 <sup>6</sup>	1.0×10 <sup>5</sup>	27	30	33	250	3	-5	

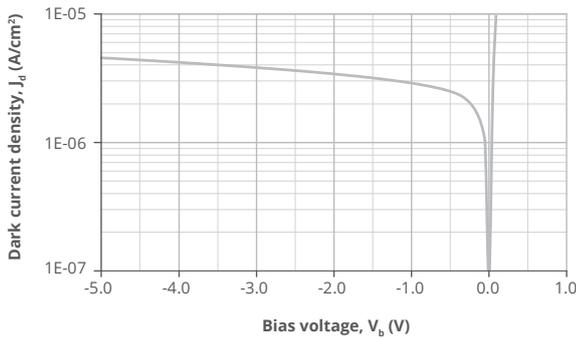
### SPECTRAL RESPONSE (Typ., T<sub>amb</sub> = 293 K)



### C<sub>t</sub>-V<sub>b</sub> CHARACTERISTICS (Typ., T<sub>amb</sub> = 293 K)



### J<sub>dark</sub>-V<sub>b</sub> CHARACTERISTICS (Typ., T<sub>amb</sub> = 293 K)



### MECHANICAL LAYOUT AND PINOUT

- TO39 (3 pins) package (with window)  
– Technical drawing (p. 199)

### RECOMMENDED AMPLIFIER

- SIP-TO39 series (p. 138)

### 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	≤260	°C
Storage humidity	No dew condensation	10 to 90	%
Maximum bias voltage, V <sub>b max</sub>		-10	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.