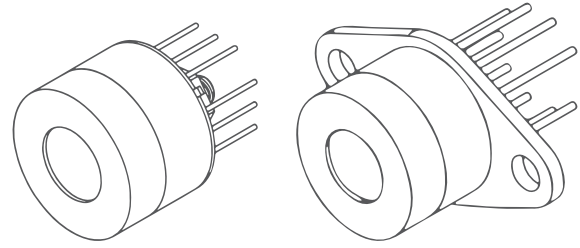


PC-5 SERIES

HgCdTe thermoelectrically cooled photoconductive infrared detectors



2TE-TO8

2TE-TO66

FEATURES

- Spectral range: 2.0 to 5.6 μm
- Back-side illuminated
- No minimum order quantity required

RELATED PRODUCTS

- **LabM-I-5** detection module (p. 101)
- **PVIA-5-1x1-TO39-NW-36** RoHS-compliant detector (p. 105)
- **PVMA-1TE-5-1x1-TO39-pSiAR-70** RoHS-compliant detector (p. 16)
- **AMS3140-01** RoHS-compliant detection module (p. 86)

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

SERIES DESCRIPTION

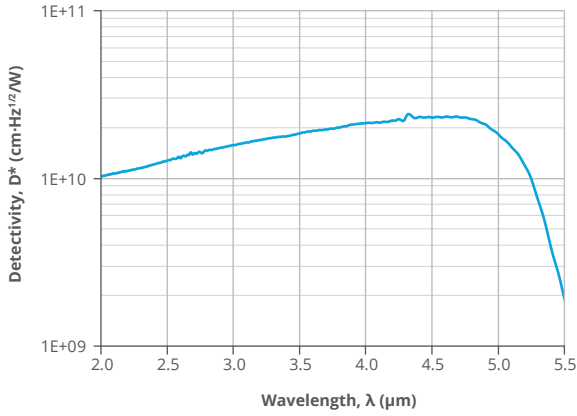
Detector symbol	Cooling (p. 191)	Temperature sensor (p. 192)	Active area, A, mm \times mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window (p. 193)
PC-2TE-5-1x1-TO8-wAl ₂ O ₃ -70	2TE $T_{\text{chip}} \approx 230\text{K}$	thermistor	1x1	no	TO8	-70	wAl ₂ O ₃ (3 deg. wedged sapphire)
PC-2TE-5-1x1-TO66-wAl ₂ O ₃ -70					TO66		

SPECIFICATION ($T_{\text{amb}} = 293\text{ K}$, $V_b = 2.0\text{ V}$)

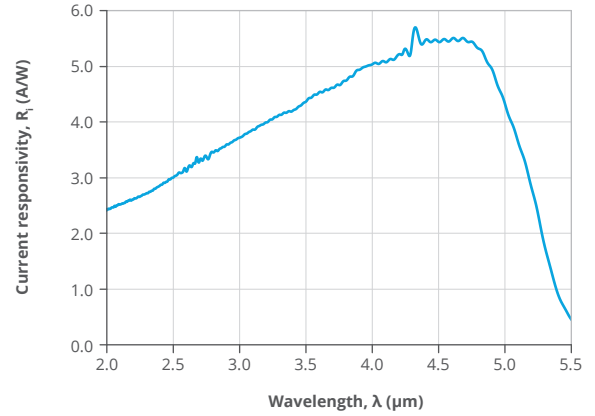
Detector symbol	Peak wavelength	Specific wavelength	Cut-off wavelength (10%)	Detectivity		Current responsivity		Time constant	Resistance	Bias voltage	1/f corner frequency		
	λ_{peak}	λ_{spec}	$\lambda_{\text{cut-off}}$	$D^*(\lambda_{\text{peak}}, 20\text{kHz})$	$D^*(\lambda_{\text{spec}}, 20\text{kHz})$	$R_i(\lambda_{\text{peak}})$	$R_i(\lambda_{\text{spec}})$	τ	R	V_b	f_c		
	μm	μm	μm	$\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	$\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	A/W	A/W	μs	Ω	V	kHz		
PC-2TE-5-1x1-TO8-wAl ₂ O ₃ -70	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Typ.	Min.	Typ.	Typ.	Max.	Typ.	
PC-2TE-5-1x1-TO66-wAl ₂ O ₃ -70	4.5 \pm 0.3	5.0	5.5	2.0 \times 10 ¹⁰	1.0 \times 10 ¹⁰	1.2 \times 10 ¹⁰	4.0	0.5	3.0	20	750	2.0	10

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

— PC-2TE-5-1×1-TO8/TO66-wAl₂O₃-70



— PC-2TE-5-1×1-TO8/TO66-wAl₂O₃-70



MECHANICAL LAYOUT AND PINOUT

- 2TE-TO8 package
– Technical drawing (p. 203)
- 2TE-TO66 package
– Technical drawing (p. 205)

RECOMMENDED AMPLIFIERS

Detector symbol	Amplifier type
PC-2TE-5-1×1-TO8-wAl ₂ O ₃ -70	AIP series (p. 126), PIP series (p. 129), MIP series (p. 132), SIP-TO8 series (p. 135)

ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions/remarks	Value	Unit
Ambient operating temperature, T_{amb}	Operation at $T_{amb} > 30^{\circ}\text{C}$ may increase the active element temperature and reduce the performance of the detector below specified parameters	-20 to 30	$^{\circ}\text{C}$
Storage temperature, T_{stg}		-20 to 50	$^{\circ}\text{C}$
Soldering temperature	Within 5 s or less	≤ 300	$^{\circ}\text{C}$
Storage humidity	No dew condensation	10 to 90	%
Maximum incident optical power density	Continuous wave (CW) or single pulses $> 1\ \mu\text{s}$ duration	100	W/cm^2
	Single pulses $< 1\ \mu\text{s}$ duration	1	MW/cm^2
Maximum bias voltage, $V_{b\ max}$		2.0	V
Maximum TEC voltage, $V_{TEC\ max}$	2TE	1.3	V
Maximum TEC current, $I_{TEC\ max}$	2TE	1.2	A

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.