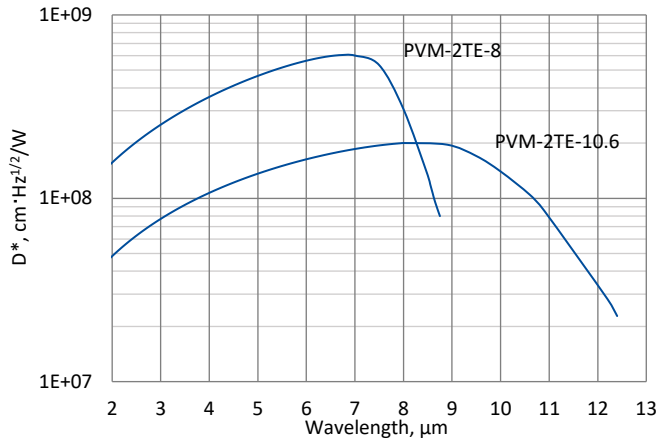


PVM-2TE series

2.0 – 12.0 μm HgCdTe two-stage thermoelectrically cooled photovoltaic multiple junction detectors

PVM-2TE series features two-stage thermoelectrically cooled IR photovoltaic multiple junction detectors based on sophisticated HgCdTe heterostructures for the best performance and stability. The detectors are optimized for the maximum performance at λ_{opt} . They are especially useful as large active area detectors operating within 2 to 12 μm spectral range. 3° wedged zinc selenide anti-reflection coated (wZnSeAR) window prevents unwanted interference effects.

Spectral response ($T_a = 20^\circ\text{C}$)



Exemplary spectral detectivity, the spectral response of delivered devices may differ.

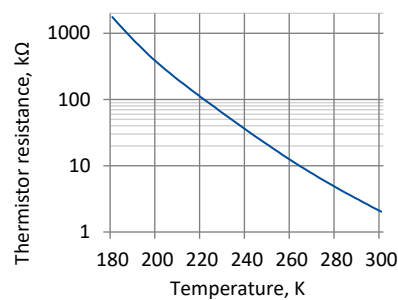
Specification ($T_a = 20^\circ\text{C}$)

Parameter	Detector type	
	PVM-2TE-8	PVM-2TE-10.6
Active element material	epitaxial HgCdTe heterostructure	
Optimal wavelength λ_{opt} , μm	8.0	10.6
Detectivity $D^*(\lambda_{peak})$, $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	$\geq 6.0 \times 10^8$	$\geq 2.0 \times 10^8$
Detectivity $D^*(\lambda_{opt})$, $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	$\geq 3.0 \times 10^8$	$\geq 1.0 \times 10^8$
Current responsivity-active area length product $R_i(\lambda_{opt}) \cdot L$, $\text{A}\cdot\text{mm}/\text{W}$	≥ 0.015	≥ 0.01
Time constant τ , ns	≤ 4	≤ 4
Resistance R , Ω	150 to 1200	90 to 350
Active element temperature T_{det} , K	~ 230	
Active area A , $\text{mm}\times\text{mm}$	1×1, 2×2	
Package	TO8, TO66	
Acceptance angle Φ	$\sim 70^\circ$	
Window	wZnSeAR	

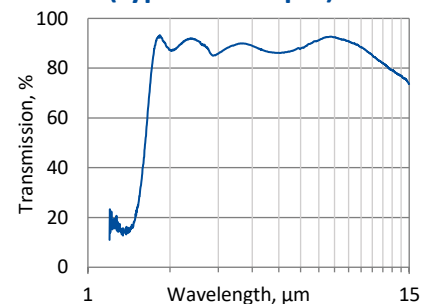
Two-stage thermoelectric cooler parameters

Parameter	Value
T_{det} , K	~ 230
V_{max} , V	1.3
I_{max} , A	1.2
Q_{max} , W	0.36

Thermistor characteristics

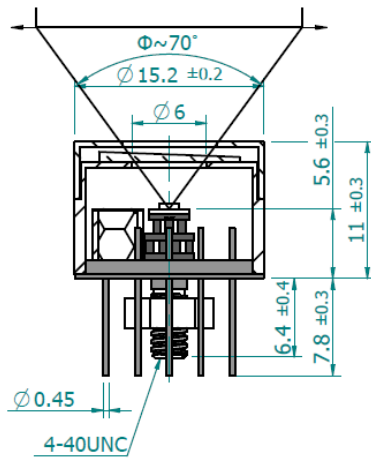


Spectral transmission of wZnSeAR window (typical example)



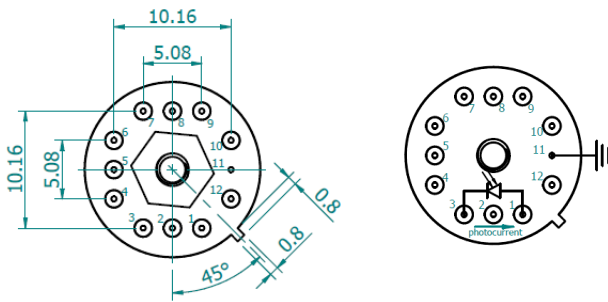
Mechanical layout, mm

2TE-TO8 package



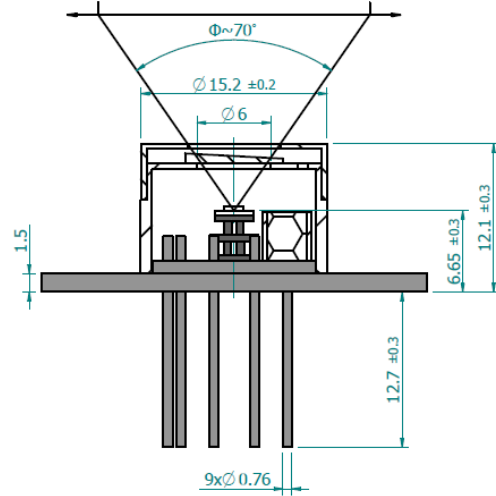
Φ – acceptance angle

Bottom view



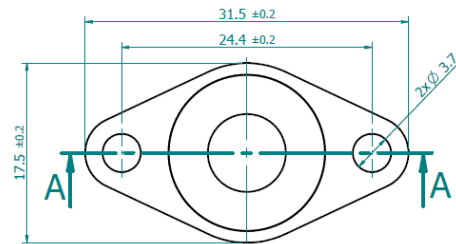
Function	Pin number
Detector	1, 3
Thermistor	7, 9
TE cooler supply	2(+), 8(-)
Chassis ground	11
Not used	4, 5, 6, 10, 12

2TE-TO66 package

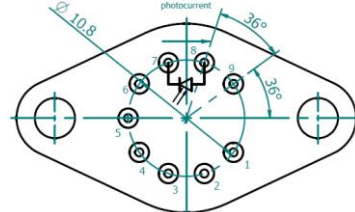


Φ – acceptance angle

Top view



Bottom view



Function	Pin number
Detector	7, 8
Thermistor	5, 6
TE cooler supply	1(+), 9(-)
Not used	2, 3, 4

Dedicated preamplifiers



„all-in-one“ AIP



programmable PIP



standard MIP



small SIP-TO8