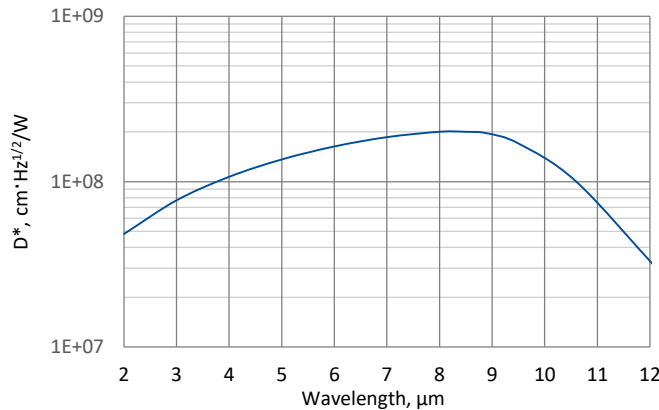


PVM-2TE-10.6-1x1-TO8-wZnSeAR-70

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

PVM-2TE-10.6-1x1-TO8-wZnSeAR-70 is two-stage thermoelectrically cooled IR photovoltaic multiple junction detector based on sophisticated HgCdTe heterostructure for the best performance and stability. The device is designed for the maximum performance at 10.6 μm and especially useful as a large active area detector to detect CW and low frequency modulated radiation. 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-10.6-1x1-TO8-wZnSeAR-70
Active element material	epitaxial HgCdTe heterostructure
Cut-on wavelength $\lambda_{\text{cut-on}}$ (10%), μm	≤ 2.0
Peak wavelength λ_{peak} , μm	8.5 ± 2.0
Optimum wavelength λ_{opt} , μm	10.6
Cut-off wavelength $\lambda_{\text{cut-off}}$ (10%), μm	≥ 12.0
Detectivity $D^*(\lambda_{\text{peak}})$, $\text{cm}^2 \cdot \text{Hz}^{1/2} / \text{W}$	$\geq 2.0 \times 10^8$
Detectivity $D^*(\lambda_{\text{opt}})$, $\text{cm}^2 \cdot \text{Hz}^{1/2} / \text{W}$	$\geq 1.0 \times 10^8$
Current responsivity $R_i(\lambda_{\text{peak}})$, A/W	≥ 0.015
Current responsivity $R_i(\lambda_{\text{opt}})$, A/W	≥ 0.01
Time constant τ , ns	≤ 4
Resistance R, Ω	≥ 90
Active element temperature T_{det} , K	~ 230
Active area A, mm×mm	1×1
Package	TO8
Acceptance angle Φ	$\sim 70^\circ$
Window	wZnSeAR

Features

- Wide spectral range from 2.0 to 12.0 μm
- Large active area 1×1 mm²
- No bias required
- No flicker noise
- Operation from DC to high frequency
- Sensitive to IR radiation polarisation
- Versatility
- Quantity discounted price
- Fast delivery

Applications

- CO₂ laser (10.6 μm) measurements
- Laser power monitoring and control
- Laser beam profiling and positioning
- Laser calibration
- Dentistry

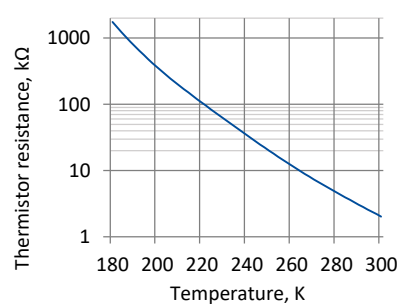
Related product

- UM-10.6 detection module

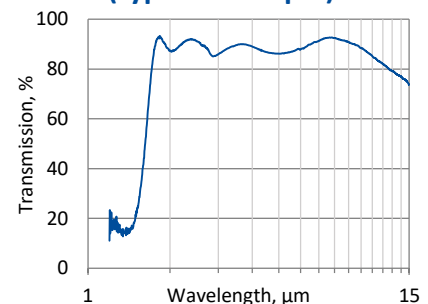
Two-stage thermoelectric cooler parameters

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

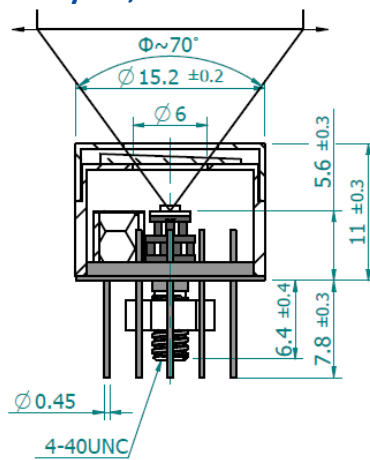
Thermistor characteristics



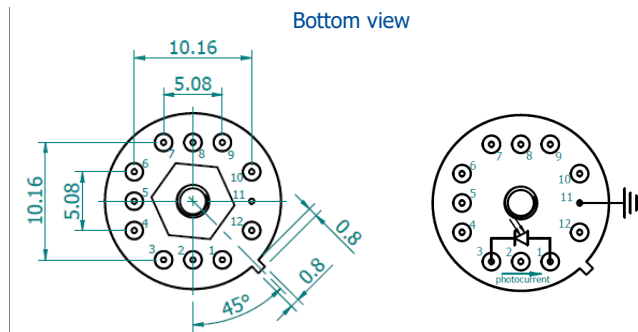
Spectral transmission of wZnSeAR window (typical example)



Mechanical layout, mm



Φ – acceptance angle



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

Precautions for use and storage

- Heatsink with thermal resistance of ~ 2 K/W is necessary to dissipate heat generated by 2TE cooler.
- Operation in 10% to 80% humidity and -20°C to 30°C ambient temperature.
- Beam power limitations:
 - irradiance with CW or single pulse longer than $1\ \mu\text{s}$ irradiance on the apparent optical active area must not exceed $100\ \text{W}/\text{cm}^2$,
 - irradiance of the pulse shorter than $1\ \mu\text{s}$ must not exceed $1\ \text{MW}/\text{cm}^2$.
- Storage in dark place with 10% to 90% humidity and -20°C to 50°C ambient temperature.