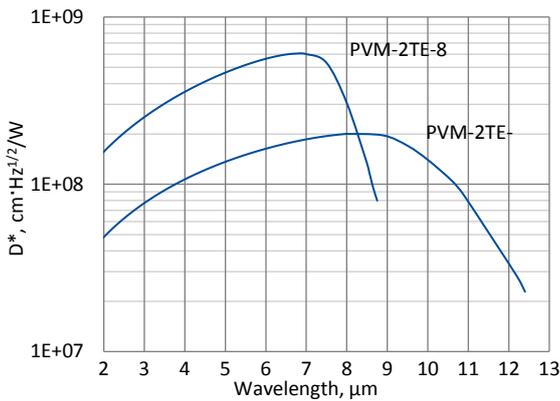


## 2.18 PVM-2TE series

### 2.18.1 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  $\lambda_{opt}$ . 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.

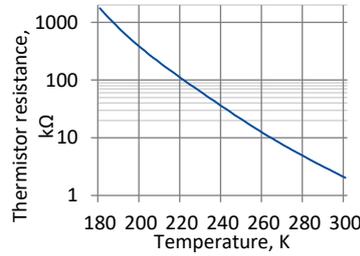
#### Specification ( $T_a = 20^\circ\text{C}$ )

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

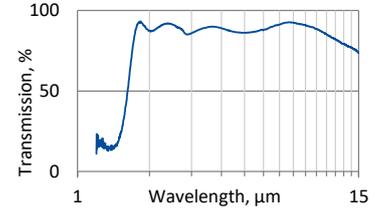
**Two-stage thermoelectric cooler parameters**

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

**Thermistor characteristics**

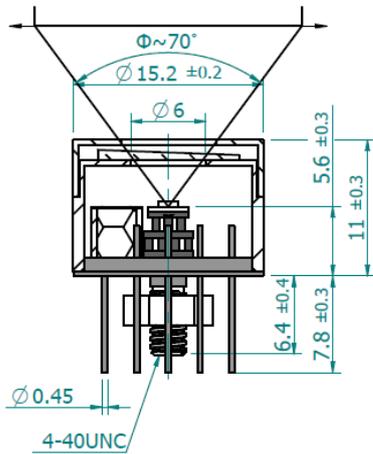


**Spectral transmission of wZnSeAR window (typical example)**



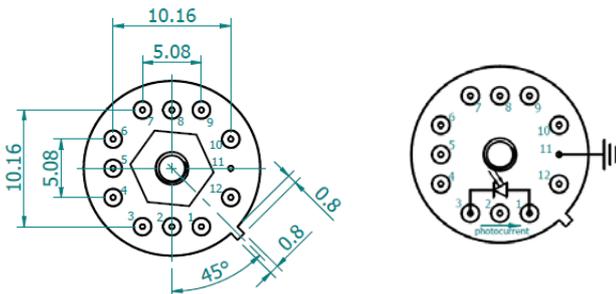
**Mechanical layout, mm**

2TE-TO8 package

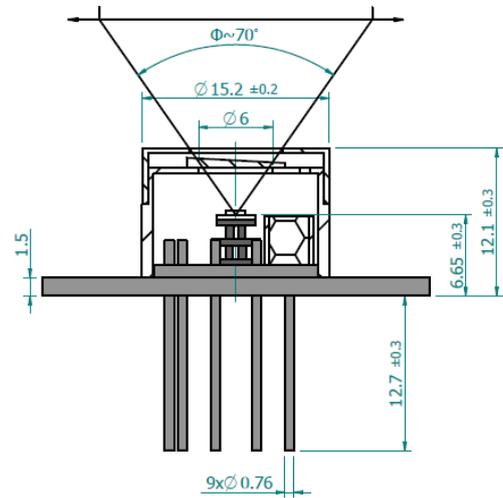


$\Phi$  - acceptance angle

Bottom view

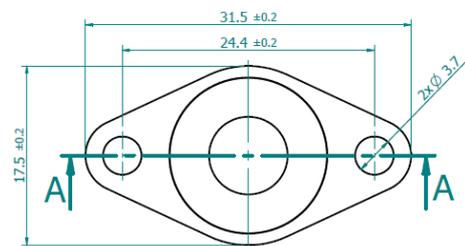


2TE-TO66 package

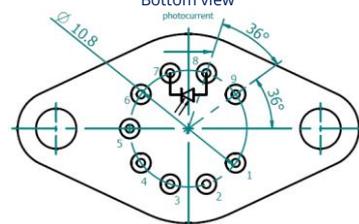


$\Phi$  - acceptance angle

Top view



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

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

**Dedicated preamplifier**



„all-in-one“ AIP



programmable PIP



standard MIP



small SIP-T08