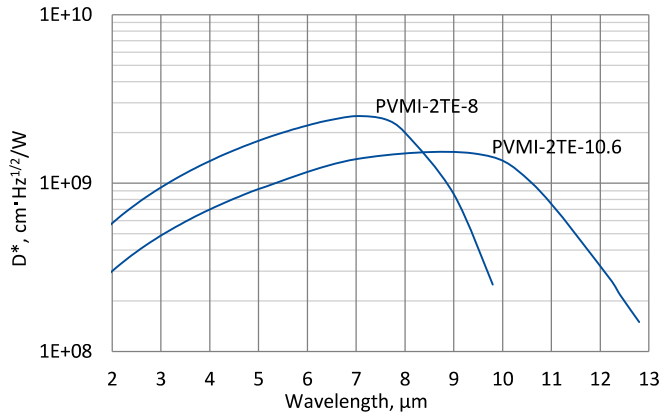


## PVMI-2TE series

### 2 – 13 μm HgCdTe two-stage thermoelectrically cooled, optically immersed photovoltaic multiple junction detectors

**PVMI-2TE series** features two-stage thermoelectrically cooled IR photovoltaic multiple junction detectors based on sophisticated HgCdTe heterostructures for the best performance and stability, optically immersed in order to improve parameters of the devices. The detectors are optimized for the maximum performance at  $\lambda_{opt}$ . They are especially useful as large optical 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.

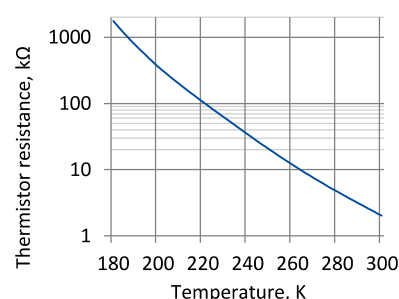
#### Specification ( $T_a = 20^\circ\text{C}$ )

Parameter	Detector type	
	PVMI-2TE-8	PVMI-2TE-10.6
Active element material	epitaxial HgCdTe heterostructure	
Optimal wavelength $\lambda_{opt}$ , μm	8.0	10.6
Detectivity $D^*(\lambda_{peak})$ , $\text{cm}^2 \cdot \text{Hz}^{1/2} / \text{W}$	$\geq 2.5 \times 10^9$	$\geq 1.5 \times 10^9$
Detectivity $D^*(\lambda_{opt})$ , $\text{cm}^2 \cdot \text{Hz}^{1/2} / \text{W}$	$\geq 2.0 \times 10^9$	$\geq 1.0 \times 10^9$
Current responsivity $R_i(\lambda_{opt})$ , A/W	$\geq 0.1$	
Time constant $\tau$ , ns	$\leq 4$	$\leq 3$
Resistance $R$ , $\Omega$	150 to 1000	90 to 350
Active element temperature $T_{det}$ , K	$\sim 230$	
Optical area $A_o$ , mm×mm	1×1	
Package	TO8, TO66	
Acceptance angle $\Phi$	$\sim 36^\circ$	
Window	wZnSeAR	

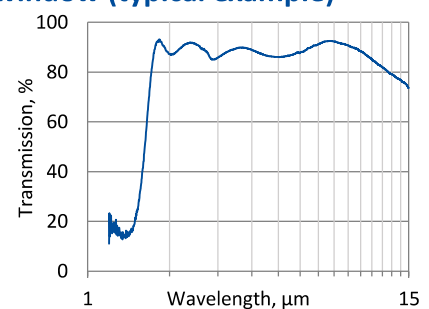
#### Two-stage thermoelectric cooler parameters

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

#### Thermistor characteristics

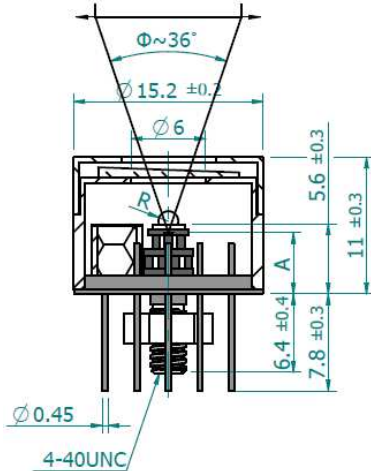


#### Spectral transmission of wZnSeAR window (typical example)



### Mechanical layout, mm

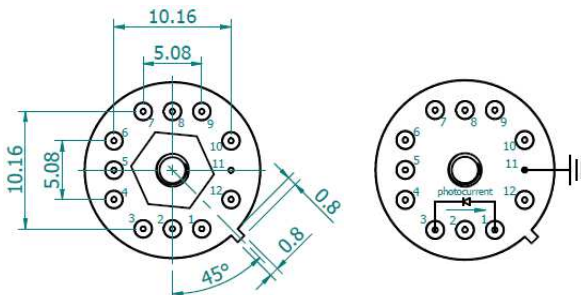
#### 2TE-T08 package



Parameter	Value
Immersion microlens shape	hyperhemisphere
Optical area $A_0$ , mm×mm	1×1
R, mm	0.8
A, mm	3.2±0.3

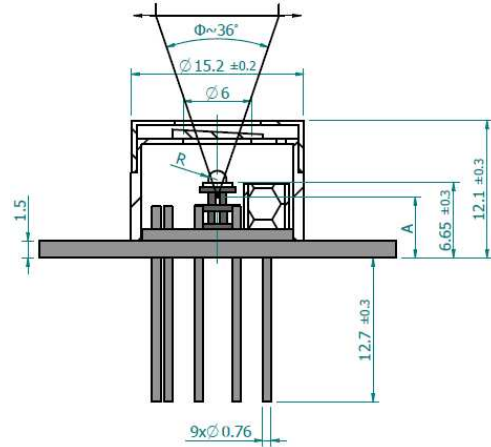
Φ – acceptance angle  
 R – hyperhemisphere microlens radius  
 A – distance from the bottom of 2TE-T08 header to the focal plane

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

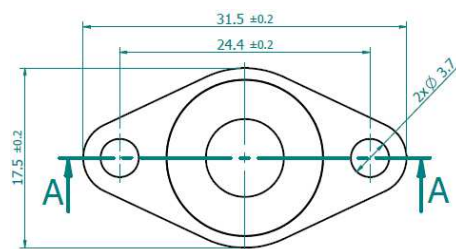
#### 2TE-T066 package



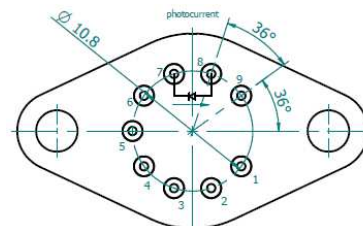
Parameter	Value
Immersion microlens shape	hyperhemisphere
Optical area $A_0$ , mm×mm	1×1
R, mm	0.8
A, mm	3.2±0.3

Φ – acceptance angle  
 R – hyperhemisphere microlens radius  
 A – distance from the bottom of 2TE-T066 header to the focal plane

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-T08