

AM03120-01 ENGINEERING SAMPLE

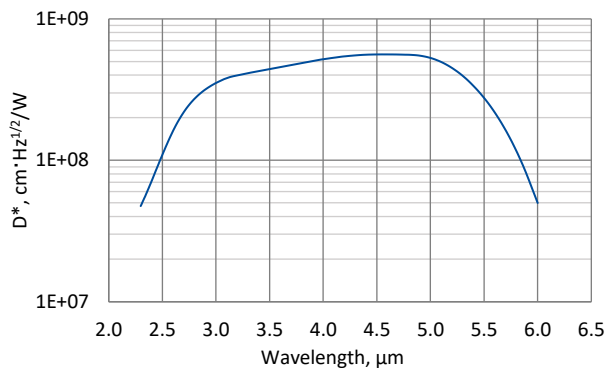
MWIR InAsSb detection module

AM03120-01 is an "all-in-one" uncooled IR detection module in a compact TO8 package. Photovoltaic multiple junction InAsSb detector element is directly integrated with low-noise preamplifier. Amplified analog output may be connected directly to the measurement equipment. Through-hole mounting is possible. The detection module is supplied with 3° wedged zinc selenide anti-reflection coated window (wZnSeAR) which prevents unwanted interference effects.

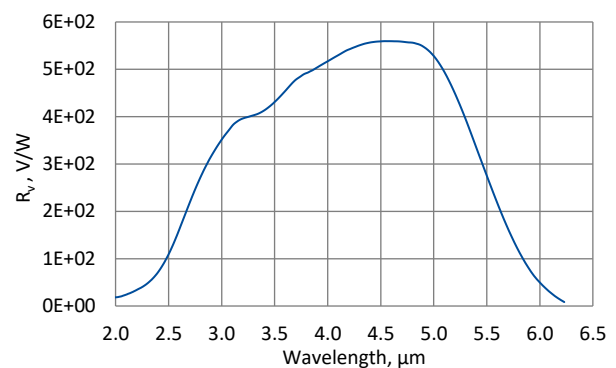
The final product can be offered as an OEM component (only PCB with detector element), mounted on a TO8 submount or mounted and sealed in a TO8 package with a window.



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



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



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

Specification ($T_a = 20^\circ\text{C}$, $R_L = 1\text{ M}\Omega$, $f_0 = 500\text{ kHz}$)*

Parameter	Min	Typ	Max
Cut-on wavelength $\lambda_{\text{cut-on}}$ (10%), μm	-	2.3	-
Peak wavelength λ_{peak} , μm	4.4	4.6	4.7
Cut-off wavelength $\lambda_{\text{cut-off}}$ (10%), μm	-	5.9	-
Detectivity $D^*(\lambda_{\text{peak}})$, $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	3.4×10^8	5.5×10^8	-
Output noise voltage density v_n , $\text{nV}/\text{Hz}^{1/2}$	-	100	130
Noise equivalent power $\text{NEP}(\lambda_{\text{peak}})$, $\text{nW}/\text{Hz}^{1/2}$	-	0.18	0.30
Voltage responsivity $R_v(\lambda_{\text{peak}})$, V/W	-	559	-
Low cut-off frequency f_{lo} , Hz	-	DC	-
High cut-off frequency f_{hi} , Hz	2M	-	-
Transimpedance K_i , V/A	4.65k	4.70k	4.75k
Output impedance R_{out} , Ω	49.5	50.0	50.5
Output voltage V_{out} , V	0	-	2.50 ($R_L = 1\text{ M}\Omega$) 1.25 ($R_L = 50\ \Omega$)
Output voltage offset V_{off} , mV	-10	-	+10
Power supply voltage V_{sup} , V	-	± 3	-
Power supply current I_{sup} , mA	-	-	20
Power consumption, mW	-	-	120
Active element material	epitaxial InAsSb heterostructure		
Active area A , $\text{mm}\times\text{mm}$	1×1		
Package	TO8		
Acceptance angle Φ	$\sim 48^\circ$		
Window	wZnSeAR		

* Unless otherwise stated.

Features

- Compact and miniaturized
- Low power consumption
- Immune to EMI
- OEM version available
- Convenient to use
- Cost effective solution
- Quantity discounted price

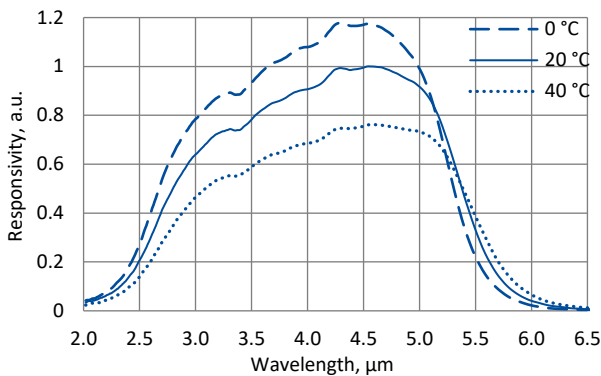
Applications

- MWIR spectroscopy (gas, liquids and solids analysis)
- Temperature measurement
- Laser metrology
- Monitoring of industrial and laboratory processes
- Laser power monitoring and control

Dedicated accessories

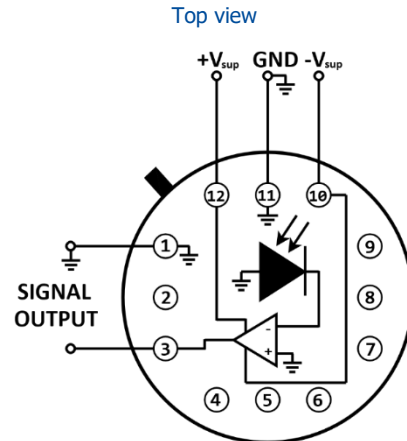
- Evaluation board

Normalized responsivity change vs. ambient temperature

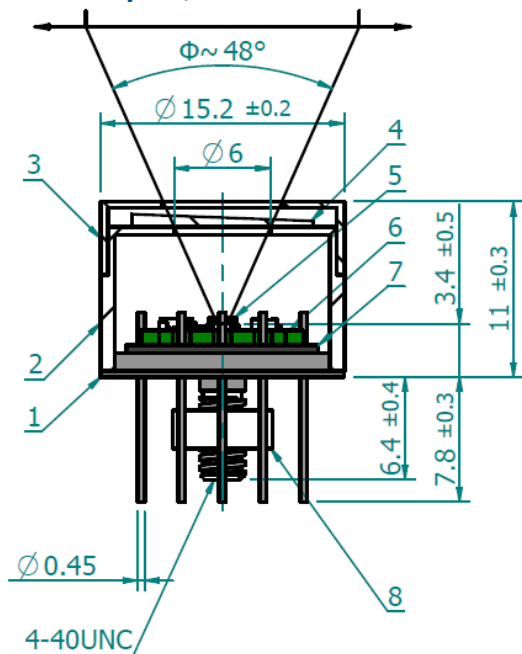


* Normalized at peak responsivity ($T_a = 20^\circ\text{C}$).

Schematic diagram and electrical interface

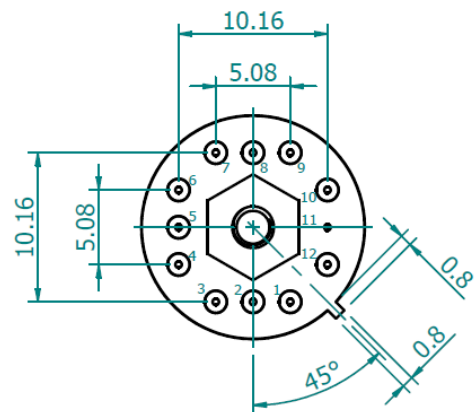


Mechanical layout, mm



1. TO8 header
2. Detector case
3. Detector cap
4. Window
5. Detector active element on sapphire pad
6. Integrated preamplifier
7. Thermopad
8. 4-40 UNC A2 nut

Bottom view



Function	Symbol	Pin number
Signal ground	Signal GND	1
Output signal	Signal	3
Power supply input (-)	$-V_{sup}$	10
Chassis ground	Chassis GND	11
Power supply input (+)	$+V_{sup}$	12
Not used	-	2, 4, 5, 6, 7, 8, 9