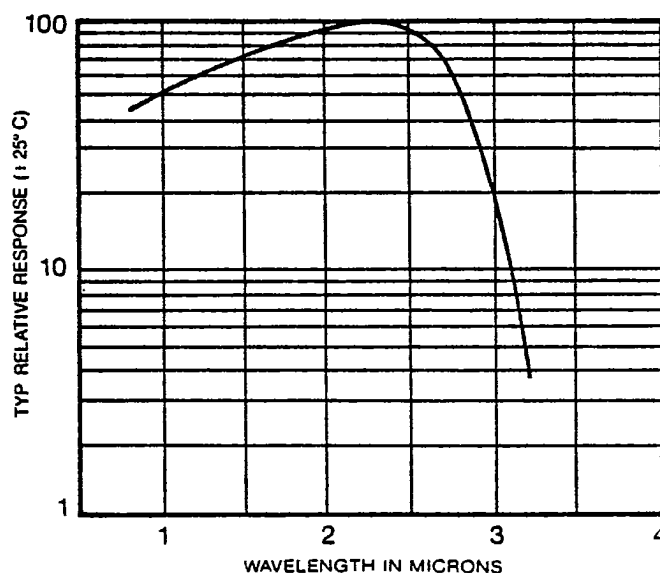


T-41-47

AF SERIES PbS Flat Plate Detectors

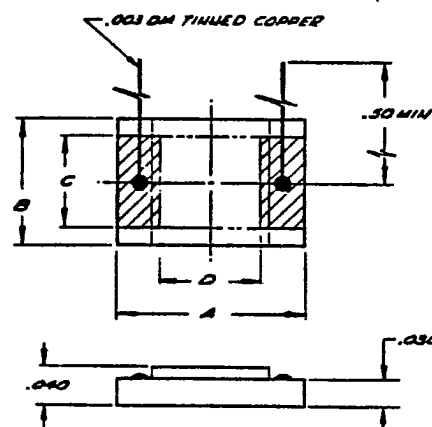


DESCRIPTION:

AF series Lead Sulfide (PbS) detectors are unpackaged, flat plate units.

These detectors offer an economical choice with good sensitivity in the 1 to 3 micron spectral region. The AF series detectors are manufactured under stringent controls to assure stability and long operation. A cover glass and proprietary bonding cement provide superior humidity resistance and stability.

Cal-Sensors' PbS process provides the ability to produce detectors matching system demands, yet maintaining low cost and high reliability.



AF SERIES PbS DETECTORS FEATURE:

High sensitivity over 1 to 3 μ m spectral region
 Room temperature operation
 Excellent stability and reliability
 Low cost - fast delivery

SPECIFICATIONS

Characteristic	Operating Conditions	Performance			Units
		Minimum	Typical	Maximum	
Ambient temperature			+25	+65	°C
Element temperature	All specifications apply at		+25		°C
D* (detectivity)	500°K, 650Hz, 1Hz	7.5×10^8	9.4×10^8		cmHz ^{1/2} W ⁻¹
D* (detectivity)	λ_{pk} , 650Hz, 1Hz	8.0×10^{10}	1.0×10^{11}		cmHz ^{1/2} W ⁻¹
Wavelength of max. response		2.2	2.4		μ m
Element resistance (dark)		0.2	0.4	2.0	Meg ohms/□
Time constant (see Note 4)	(not measured)		250	400	μ sec
Responsivity	λ_{pk} , 650Hz				VW ⁻¹
Element size 1mm x 1mm		2.0×10^5	3.0×10^5		
Element size 2mm x 2mm		1.0×10^5	1.5×10^5		
Element size 3mm x 3mm		6.0×10^4	1.0×10^5		
Optimum detector bias	With 1M Ω load resistor				Volts
Element size 1mm x 1mm			50	100	
Element size 2mm x 2mm			100	200	
Element size 3mm x 3mm			150	300	

When ordering standard detectors, specify:

Type	Element		Substrate dimensions			
	C	D	A	B	Thickness	
AF-1	1mm	1mm	3.0mm	1.5mm	9mm	
AF-2	2mm	2mm	4.5mm	2.5mm	9mm	
AF-3	3mm	3mm	5.0mm	3.8mm	9mm	
AF-4	4mm	4mm	6.5mm	4.5mm	9mm	
AF-5	5mm	5mm	7.0mm	5.5mm	9mm	See Note 2
AF-6	6mm	6mm	8.0mm	6.5mm	9mm	See Note 2
AF-10	10mm	10mm	13mm	13mm	9mm	See Note 3

- Other standard element sizes including rectangular elements of reasonable aspect ratio are also available.
- Minimum D* (λ_{pk} , 650, 1) $\geq 7.0 \times 10^{10}$.
- Minimum D* (λ_{pk} , 650, 1) $\geq 6.0 \times 10^{10}$.
- Refer to other data sheets for cooled detectors.
- Detectors on special order may be purchased with faster time constants (e.g., less than 100 μ sec).