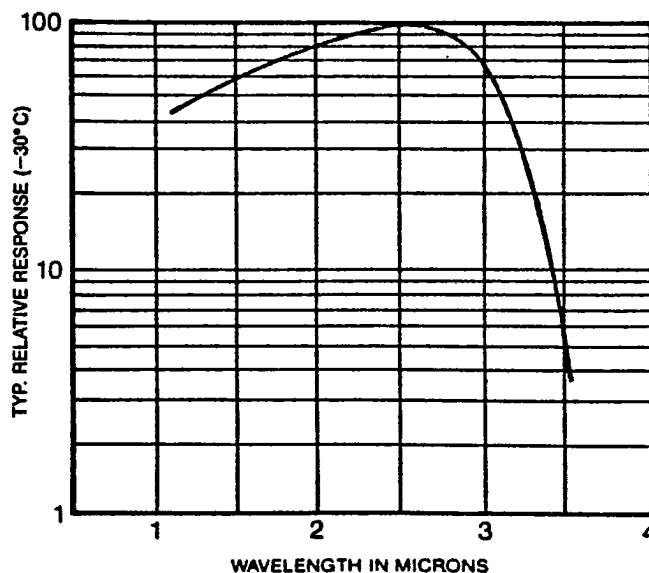


AT2 SERIES PbS Two Stage Thermoelectrically cooled



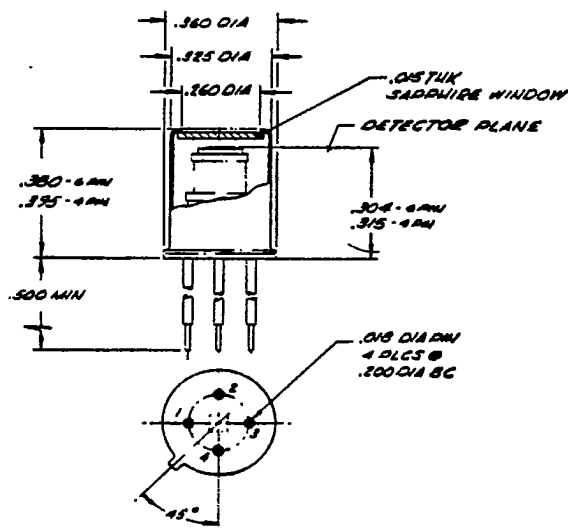
DESCRIPTION:

AT2 series Lead Sulfide (PbS) detectors are mounted on a two stage thermoelectric cooler and packaged in a TO-5 or TO-8 can. P/N AT2-25-TC Example PbS, Two Stage Cooled, 2mm sq., TO-5, Calibrated Thermistor (see order data).

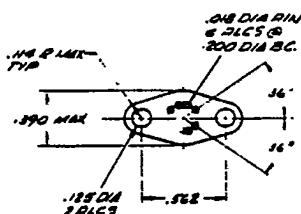
These detectors offer an economical choice with extremely high sensitivity in the 1 to 3.5 micron spectral region and compares with devices operating at 77 degrees K without the inconvenience of liquid cooling techniques.

AT2 series detectors are hermetically sealed using the latest packaging techniques to assure a long productive operation.

Improved heat sinking and mounting is provided with an optional integral T0-37 header. These units will have an overall height of .425 and a detector plane height of .334.



UNITS WITH THERMISTORS (OPTIONAL)



PIN FUNCTIONS

PIN NO.	COLOR	FUNCTION
1	WH	DETECTOR
2	RED	COOLER (+)
3	BLK	COOLER (-)
4	BLK	COOLER (-)
5	RED	COOLER (+)
6	WH	DETECTOR
7	WH	DETECTOR
8	BLK	COOLER (-)
9	RED	COOLER (+)

AT2 SERIES PbS DETECTORS FEATURE:

Extremely high sensitivity over 1 to 3.5 μm spectral region
 Thermoelectrically cooled - Two Stage -30°C operation
 Hermetically sealed - excellent stability and reliability
 Moderate cost - fast delivery

SPECIFICATIONS

Characteristic	Operating Conditions	Performance			Units
		Minimum	Typical	Maximum	
Ambient temperature			+25	+65	°C
Element temperature	Package base at 25° C		-30		°C
D* (detectivity)	500° K, 650Hz, 1Hz	1.6×10^9	2.7×10^9		$\text{cmHz}^{1/2} \text{W}^{-1}$
D* (detectivity)	λ_{pk} , 650Hz, 1Hz	1.5×10^{11}	2.5×10^{11}		$\text{cmHz}^{1/2} \text{W}^{-1}$
Wavelength of max. response		2.4	2.6		μm
Element resistance (dark)		1.0	2.0 to 3.0	10.0	Meg ohms/ \square
Time constant	(not measured)		1,000	2,000	μsec
Cooler power required			1.25	1.5	Volts
			1.6	1.6	Amps
Power dissipation required			2		Watts
Responsivity	λ_{pk} , 650Hz				VW^{-1}
Element size 1mm x 1mm		6.0×10^5	9.0×10^5		
Element size 2mm x 2mm		3.0×10^5	4.5×10^5		
Element size 3mm x 3mm		2.0×10^5	3.5×10^5		
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	
Field of view		TO-5	TO-37		Degrees
Element size 1mm x 1mm		95	98		
Element size 2mm x 2mm		85	79		
Element size 3mm x 3mm		70	54		

When ordering standard detectors, specify:

Type	Element Size
AT2-15	1mm x 1mm
AT2-25	2mm x 2mm
AT2-35	3mm x 3mm

1. Other element sizes available on special orders.
2. Refer to other data sheets for packages which will accommodate larger elements.
3. Optional: At a slight increase in cost, calibrated or uncalibrated thermistors may be installed at the detector for controlling detector temperature during operation. To specify units with thermistors, add the suffix -T to the basic part number for uncalibrated sensing; add the suffix -TC for calibrated thermistors.