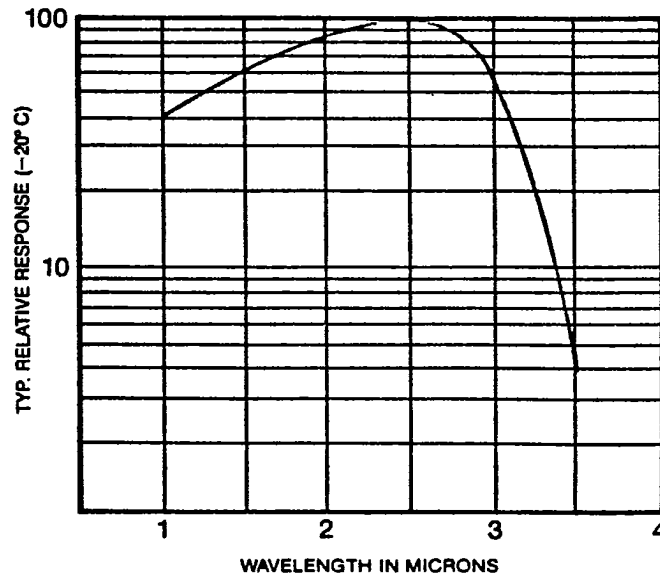


AT1 SERIES **PbS Single Stage** **Thermoelectrically cooled**



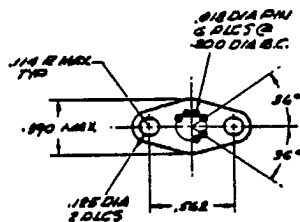
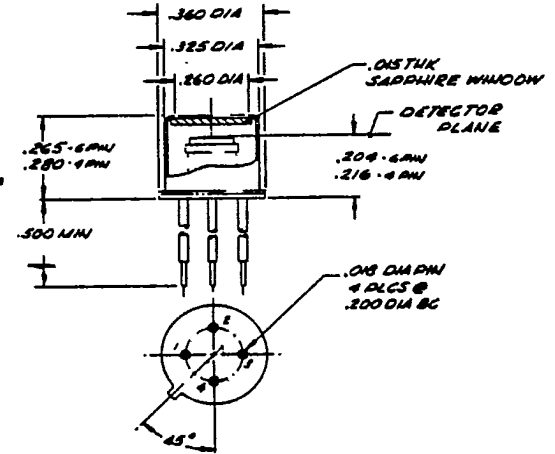
DESCRIPTION:

AT1 series Lead Sulfide (PbS) detectors are mounted on a single stage thermoelectric cooler and packaged in a TO-5 or TO-8 can. P/N AT1-25-TC Example PbS, Single Stage Cooled, 2mm sq., TO-5, Calibrated Thermistor (see order data).

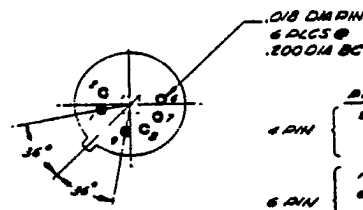
These detectors offer an economical choice with good sensitivity in the 1 to 3.5 micron spectral region without the expense and inconvenience of liquid cooling techniques.

AT1 series detectors are hermetically sealed using the latest packaging techniques to assure a long productive operation.

Improved heat sinking and mounting is provided with optional integral T0-37 headers. These units will have an overall height of .310 and a detector plane height of .222.



UNITS WITH THERMISTORS (OPTIONAL)



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

AT1 SERIES PbS DETECTORS FEATURE:

Very high sensitivity over 1 to 3.5 μm spectral region
 Thermoelectrically cooled - Single Stage -20°C operation
 Hermetically sealed - excellent stability and reliability
 Low cost - fast delivery

SPECIFICATIONS

Characteristic	Operating Conditions	Performance:			Units
		Minimum	Typical	Maximum	
Ambient temperature			+25	+65	°C
Element temperature	Package base at 25° C		-20		°C
D* (detectivity)	500° K, 650Hz, 1Hz	1.0×10^9	1.5×10^9		$\text{cmHz}^{-1} \text{W}^{-1}$
D* (detectivity)	λ_{pk} , 650Hz, 1Hz	1.0×10^{11}	1.5×10^{11}		$\text{cmHz}^{-1} \text{W}^{-1}$
Wavelength of max. response		2.3	2.5		μm
Element resistance (dark)		0.8	1.5 to 2.5	8.0	Meg ohms/ \square
Time constant	(not measured)		1,000	2,000	μsec
Cooler power required			1.2	1.5	Volts
			1.8	1.8	Amps
Power dissipation required			2		Watts
Responsivity	λ_{pk} , 650Hz				VW^{-1}
Element size 1mm x 1mm		4.0×10^5	6.0×10^5		
Element size 2mm x 2mm		2.0×10^5	3.0×10^5		
Element size 3mm x 3mm		1.5×10^5	2.5×10^5		
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			105	100	
Element size 2mm x 2mm			95	81	
Element size 3mm x 3mm			80	56	

When ordering standard detectors, specify:

Type	Element size
AT1-15	1mm x 1mm
AT1-25	2mm x 2mm
AT1-35	3mm x 3mm

1. Other element sizes available on special orders.
2. Max. element size is 4mm x 4mm. 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.