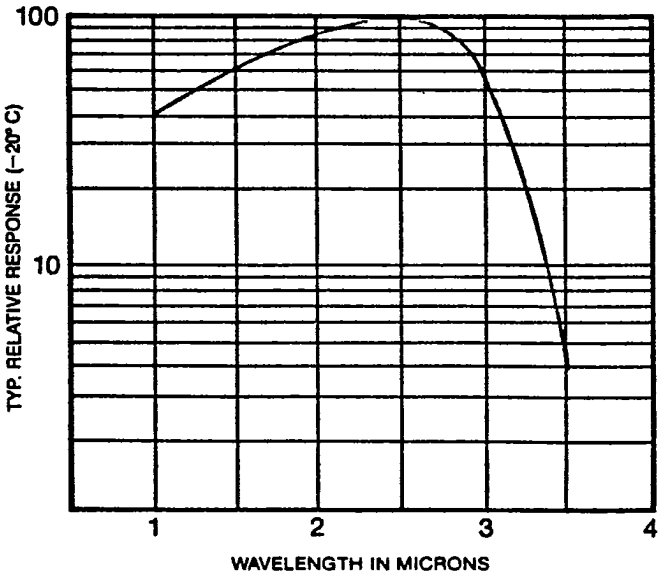
AT1 SERIES
PbS Single Stage
Thermoelectrically cooled



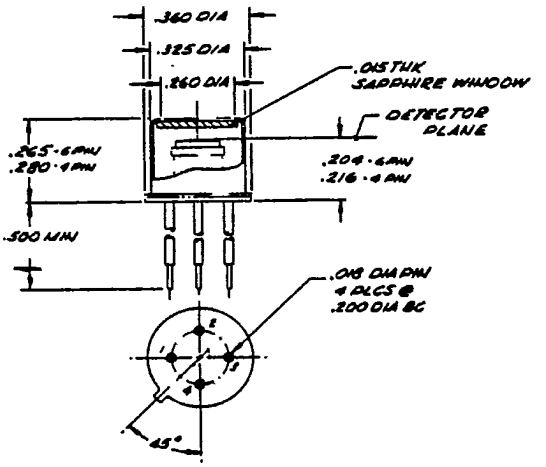
DESCRIPTION:

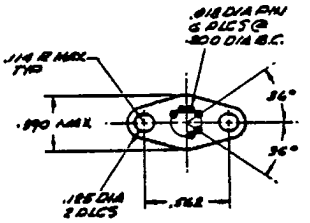
AT1 series Lead Sulfide (PbS) detectors are mounted on a single stage thermoelectric cooler and packaged in a TO-5 or TO-8 can. P/N AT1-25-TC Example PbS, Single Stage Cooled, 2mm sq., TO-5, Calibrated Thermistor (see order data).

These detectors offer an economical choice with good sensitivity in the1 to 3.5 micron spectral region without the expense and inconvenience of liquid cooling techniques.

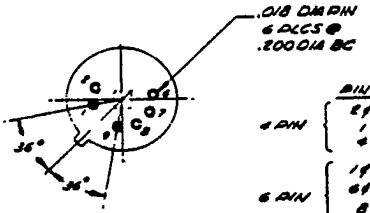
AT1 series detectors are hermetically sealed using the latest packaging techniques to assure a long productive operation.

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
4 PIN	2 & 3	WHT	DETECTOR
	1	RED	COOLER (+)
	4	BLK	COOLER (−)
6 PIN	1 & 2	YEL	THERMISTOR
	6 & 7	WHT	DETECTOR
	8	BLK	COOLER (−)
	9	RED	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: Minimum	Typical	Maximum	Units
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}		$cmHz^{1/2}W^{-1}$
D* (detectivity)	λpk, 650Hz, 1Hz	1.0×10^{11}	1.5×10^{11}		$cmHz^{1/2}W^{-1}$
Wavelength of max. response		2.3	2.5		μm
Element resistance (dark)		0.8	1.5 to 2.5	8.0	Meg ohms/□
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	λpk, 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 1MΩ 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.