



1M

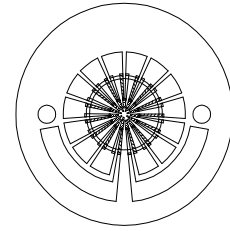
Thin Film Based Thermopile Detector

Features: A thin film-based thermopile with a 1.0mm diameter active area with good signal-to-noise ratio in a TO-5 package and a moderate time constant of 32ms with Argon encapsulation gas.

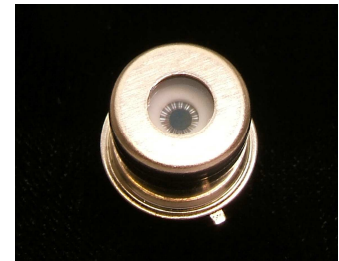
Options: 1) See [Standard Windows and Filters](#) for list of optical filter options. 2) Internal aperture precisely defines active area for applications with FOV and/or spot size requirements. See [Aperture Options](#) for available sizes. See [Thermopile Configuration Table](#) for more options.

Applications: Excellent for non-contact temperature measurement.

Benefit: Small active area with good signal-to-noise ratio.



Detector circuit overlay



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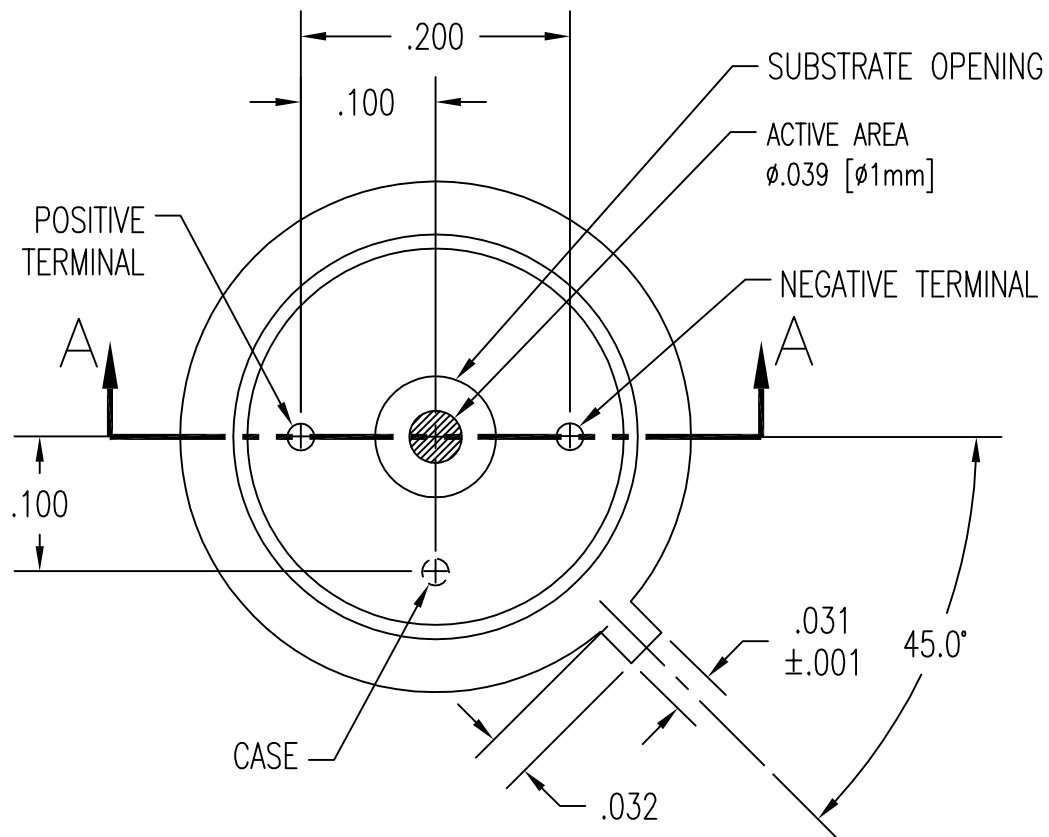
Technical Specifications

Specifications apply at 23°C with KBr Window and Argon encapsulating gas

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		Ø1mm Dia.		AA	mm	Hot junction size, per element.
Element Area		.785		A	mm ²	
Number of Junctions		15				Per element.
Number of Channels		1				Per detector package.
Output Voltage	50	60	80	V _s	µV	DC, H=330µW/cm ² (3)
Signal-to-Noise Ratio	6,173	8,571	14,035	SNR	√Hz	DC, SNR=V _s /V _n
Responsivity	19.3	23.2	30.9	ℜ	V/W	DC, ℜ=V _s /HA (2)
Resistance	2.0	3.0	4.0	R	kΩ	Detector element
Temperature Coefficient of ℜ		-.36			%/°C	Best linear fit, 0° to 85°C (1)
Temperature Coefficient of R		-.2			%/°C	Best fit, 0° to 85°C (1)
Noise Voltage	5.7	7.0	8.1	V _n	nV/√Hz	V _n ² =4kTR
Noise Equivalent Power	.19	.30	.42	NEP	nW/√Hz	DC, NEP= V _n HA/V _s (2)
Detectivity	2.1	2.9	4.8	D*	10 ⁸ cm√Hz/W	DC, D*=V _s /V _n H√A (2)
Time Constant		32		τ	ms	Chopped, -3dB point (1)
Field of View		56°/85°		FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type		TO-5				Standard package hole size: Ø.150"
Operating Temperature	-50		100	T _a	°C	

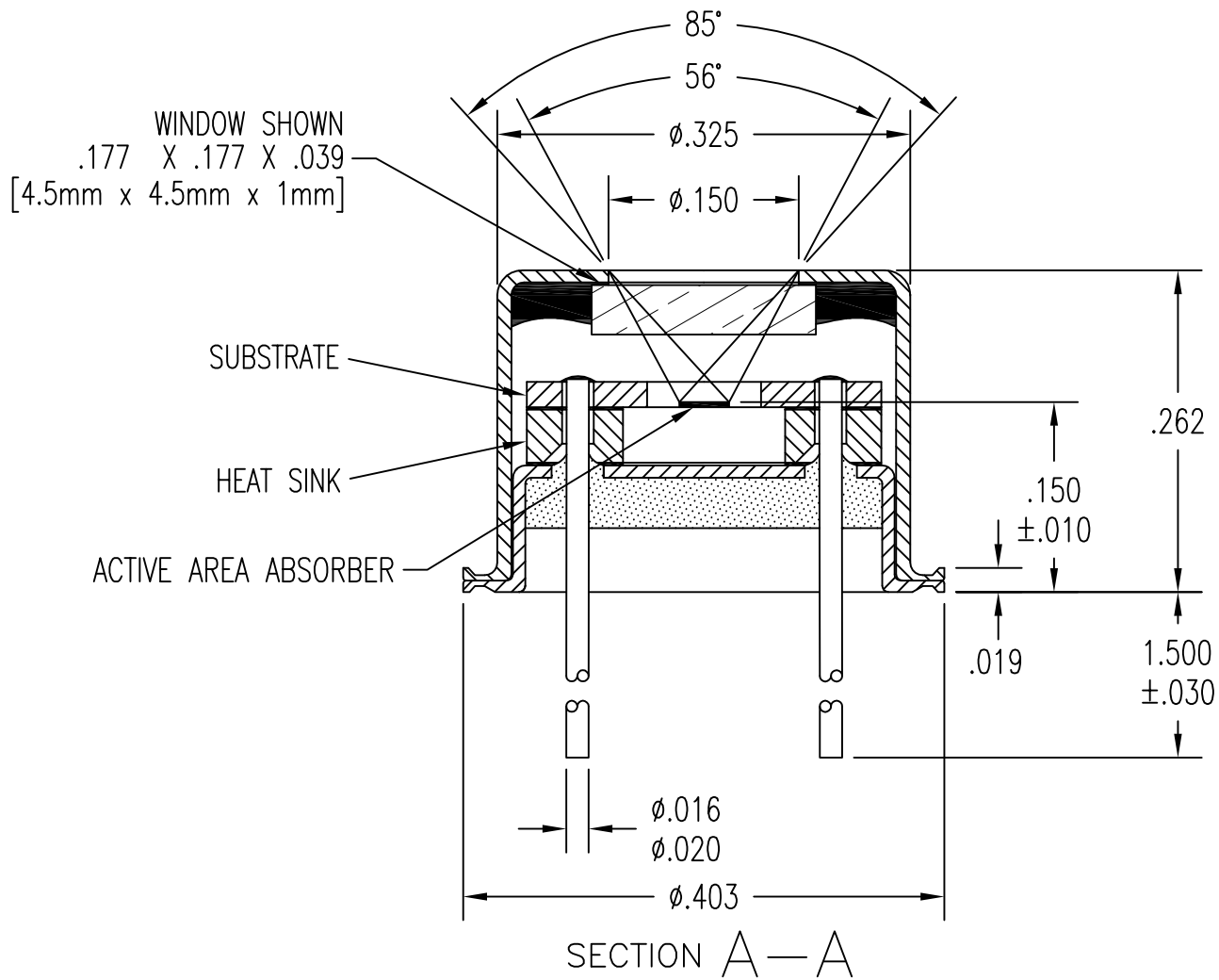
General Specifications: Flat spectral response from 100nm to > 100µm. Linear signal output from 10⁻⁶ to 0.1W/cm². Maximum incident radiance 0.1W/cm², damage threshold ≥ .5W/cm²

Notes: (1) Parameter is not 100% tested. 90% of all units meet these specifications. (2) A is detector area in cm². (3) Test Conditions: 500K Blackbody source; Detector active surface 10cm from 0.6513cm Diameter Blackbody Aperture.



TOP VIEW
WITHOUT COVER

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TOLERANCES ARE:		7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090			
FRACTIONS ±	DECIMALS .XX ± .XXX ± .005	ANGLES ±	ASSEMBLY, 1M w/ HEAT SINK, TOP VIEW		
APPROVALS	DATE	SIZE:	SCALE:	DWG. NO.	REV. PAGE:
DRAWN: DLJ	9/22/00	A	7" = 1"	1035.1	A 1 OF 2
CHECKED:		DRC PART NO.	MATERIAL:	FINISH:	
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UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES ARE:

FRACTIONS	DECIMALS	ANGLES
\pm	.XX \pm	\pm
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ASSEMBLY, 1M w/ HEAT SINK,
CROSS SECTION

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	7" = 1"	1035.2	B	2 OF 2
DRC PART NO.		MATERIAL:	FINISH:	