



M5

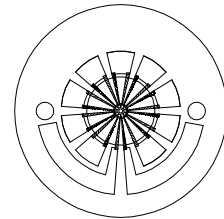
Thin Film Based Thermopile Detector

Features: A thin film-based thermopile offering very low noise and a small 0.5mm diameter active area in a TO-5 package. This is one of the lowest noise thermopiles you can buy and provides a time constant 28ms time constant 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 medium signal-to-noise ratio.



Detector circuit overlay



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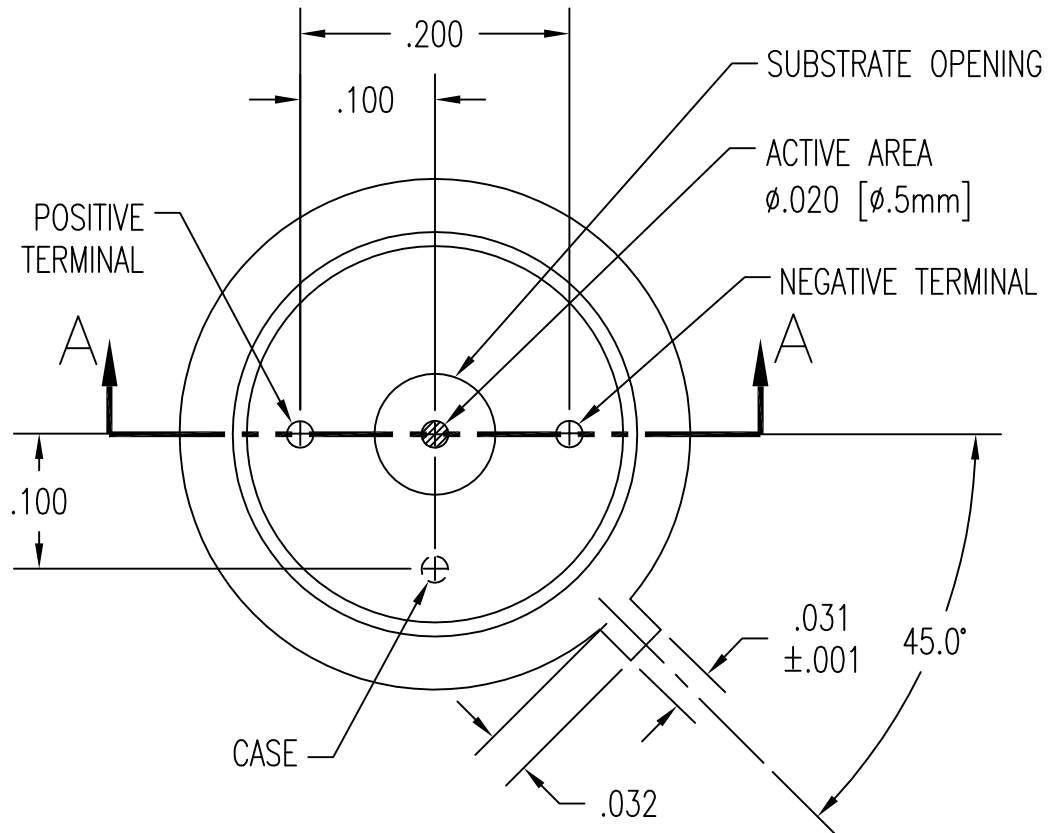
Technical Specifications

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

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size	Ø.5mm Dia.			AA	mm	Hot junction size, per element.
Element Area	.196			A	mm ²	
Number of Junctions	10					Per element.
Number of Channels	1					Per detector package.
Output Voltage	22	35	45	V _s	µV	DC, H=330µW/cm ² (3)
Signal-to-Noise Ratio	2,716	5,000	7,895	SNR	√Hz	DC, SNR=V _s /V _n
Responsivity	34.0	54.1	69.6	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	.08	.13	.24	NEP	nW/√Hz	DC, NEP= V _n HA/V _s (2)
Detectivity	1.9	3.4	5.4	D*	10 ⁸ cm√Hz/W	DC, D*=V _s /V _n H√A (2)
Time Constant		28		τ	ms	Chopped, -3dB point (1)
Field of View	64°/78°			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	

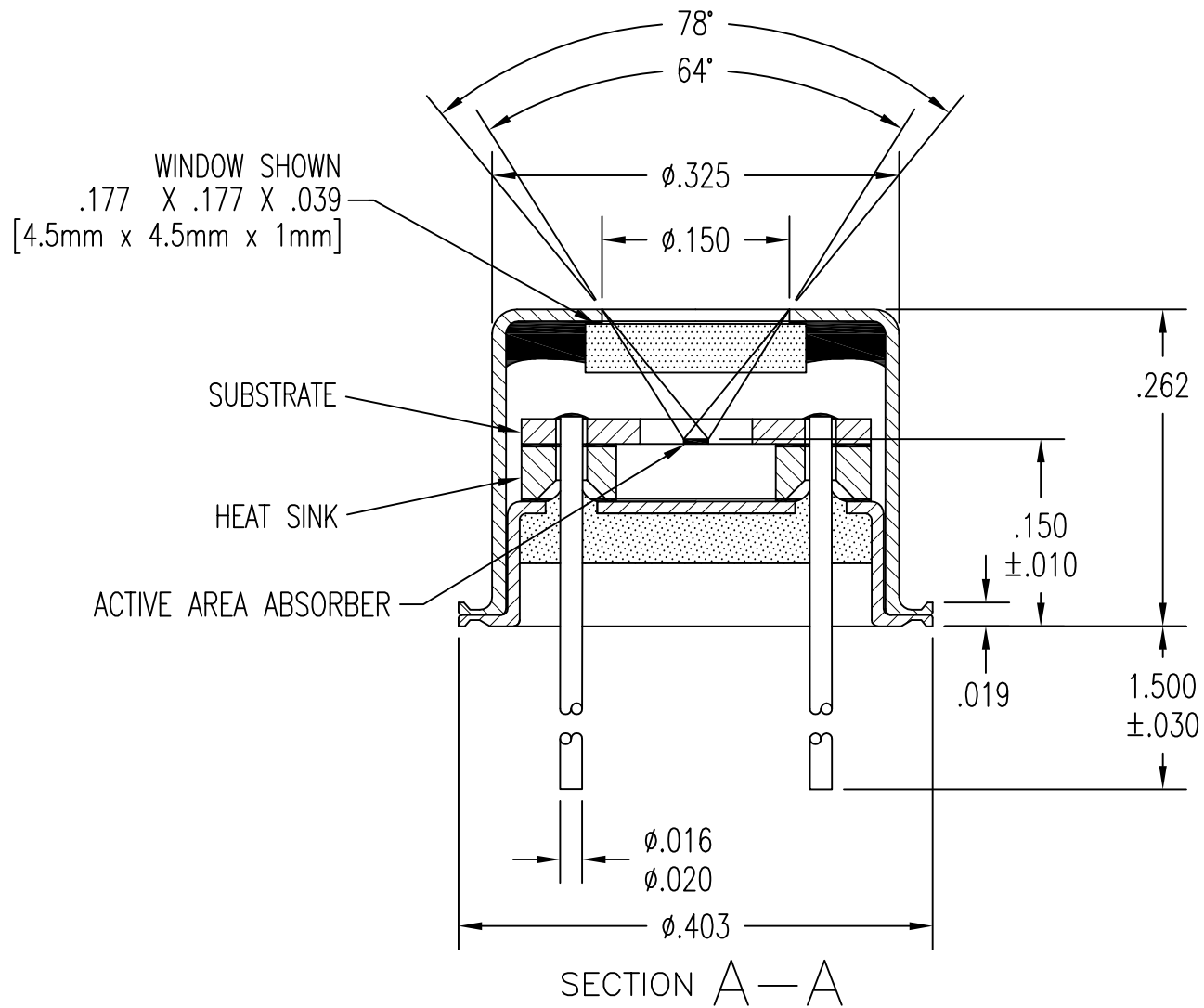
General Specifications: Flat spectral response from 100nm to > 100µm. Linear signal output from 10⁻⁶ to 0.1W/cm². Maximum incident radiance 0.1W/cm², damage threshold ≥ .5W/cm²

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

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE:			DEXTER RESEARCH CENTER, Inc.				
FRACTIONS ±	DECIMALS .XX ± .XXX ± .005	ANGLES ±	ASSEMBLY, M5 W/ HEAT SINK, TOP VIEW				
APPROVALS		DATE	SIZE: A	SCALE: 7 : 1	DWG. NO. 1034.1	REV. A	PAGE: 1 OF 2
DRAWN:	DLJ	9/25/00	MATERIAL:		FINISH:		
CHECKED:							
ENGINEERED:							
APPROVED:							



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.		DEXTER RESEARCH CENTER, Inc.			
TOLERANCES ARE:		ASSEMBLY, M5 w/ HEAT SINK, CROSS SECTION			
FRACTIONS ±	DECIMALS .XX ± .XXX ± .005	ANGLES ±	SIZE: A	SCALE: 7 : 1	DWG. NO. 1034.2
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DRAWN: DLJ	12/15/10	B	2 OF 2		
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