



S60M* TO-5

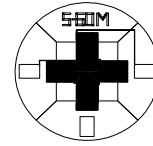
Silicon Based Thermopile Detector

Features: A single-channel silicon-based thermopile with very high output for its small 0.6mm x 0.6mm active area in a TO-5 package. Delivers a very low Temperature Coefficient of Responsivity of $-0.04\%/^{\circ}\text{C}$.

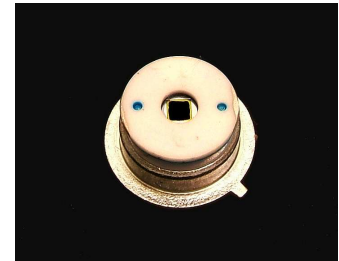
Options: 1) See [Standard Windows and Filters](#) for list of optical filter options. 2) Internal aperture precisely defines active area for applications with FOV and/or spot size requirements. See [Aperture Options](#) for available sizes. See [Thermopile Configuration Table](#) for more options.

Applications: Excellent for non-contact temperature and gas analysis.

Benefit: High output, small active area, fast time constant that has a higher cost.



Detector circuit overlay



Technical Specifications

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

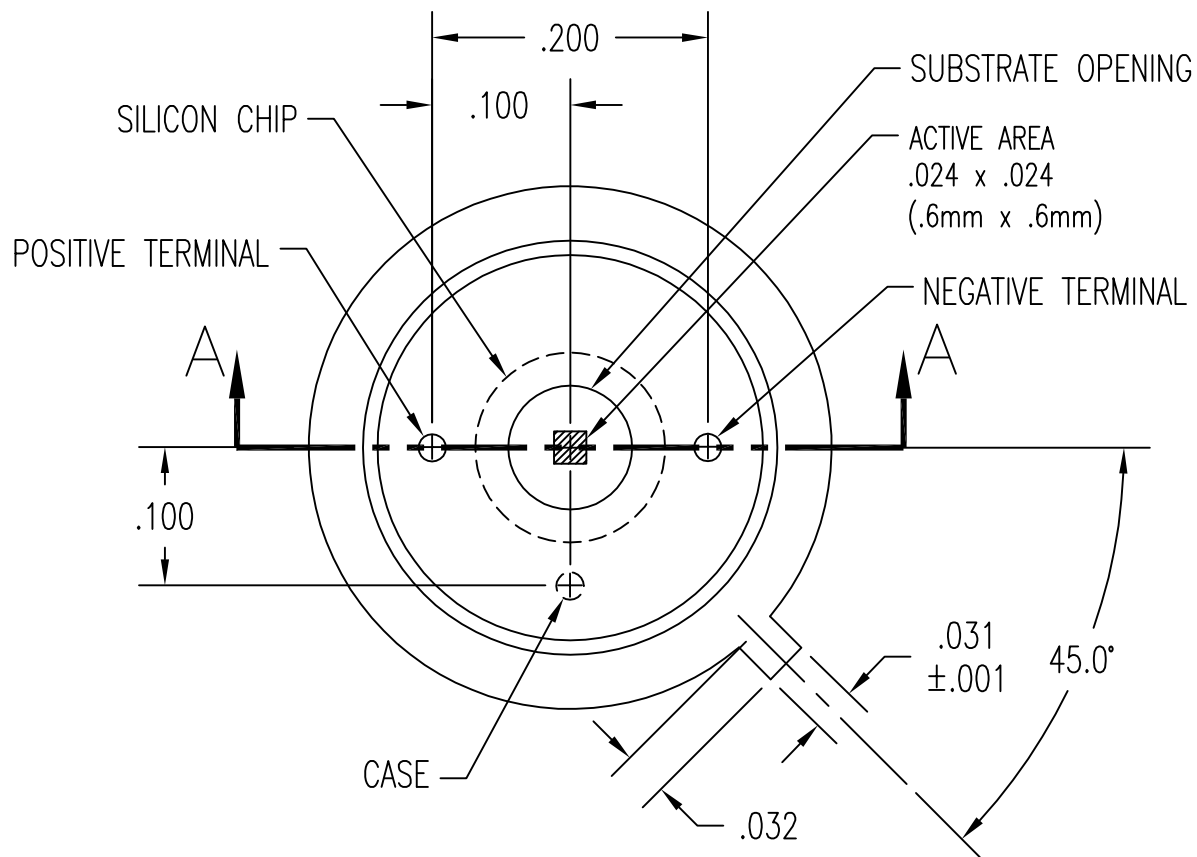
S60M TO-5

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		.6 x .6		AA	mm	Hot junction size, per element.
Element Area		.36		A	mm ²	
Number of Junctions		72				Per element.
Number of Channels		1				Per detector package.
Output Voltage	90	120	140	V _s	μV	DC, H=330μW/cm ² (3)
Signal-to-Noise Ratio	2,123	3,125	4,294	SNR	√Hz	DC, SNR=V _s /V _n
Responsivity	75.8	101.0	117.8	ℳ	V/W	DC, ℳ=V _s /HA (2)
Resistance	65	90	120	R	kΩ	Detector element
Temperature Coefficient of ℳ		-.04			%/°C	Best linear fit, 0° to 85°C (1)
Temperature Coefficient of R		.11			%/°C	Best fit, 0° to 85°C (1)
Noise Voltage	32.6	38.4	42.4	V _n	nV/√Hz	V _n ² =4kTR
Noise Equivalent Power	.28	.38	.56	NEP	nW/√Hz	DC, NEP= V _n HA/V _s (2)
Detectivity	1.1	1.6	2.2	D*	10 ⁸ cm√Hz/W	DC, D*=V _s /V _n H√A (2)
Time Constant		27		τ	ms	Chopped, -3dB point (1)
Field of View		64°/81°		FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type		TO-5				Standard package hole size: ∅.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

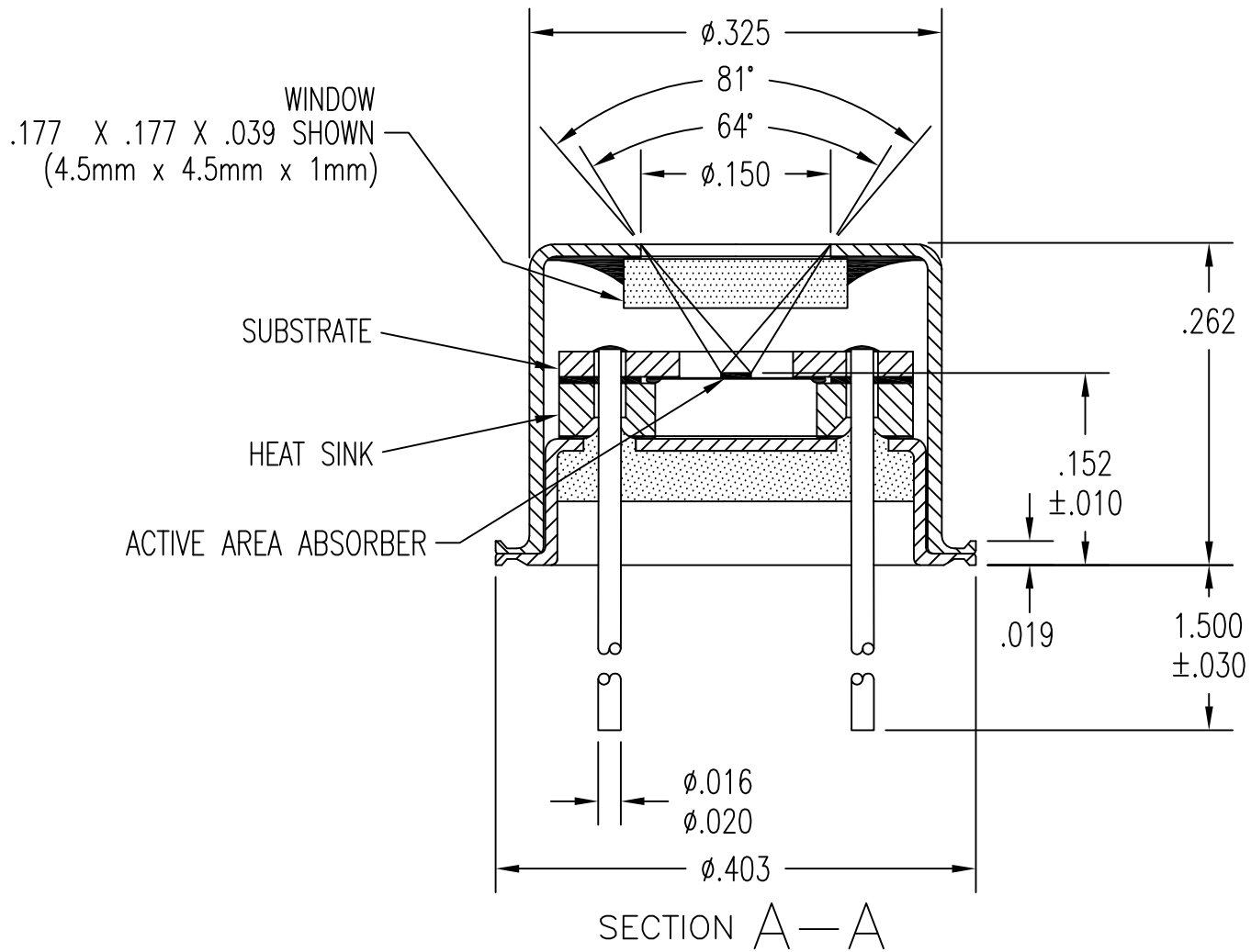
Notes: (1) Parameter is not 100% tested. 90% of all units meet these specifications. (2) A is detector area in cm². (3) Test Conditions: 500K Blackbody source; Detector active surface 10cm from 0.6513cm Diameter Blackbody Aperture.

*Protected by U.S. Patent No. 5,059,543 and U.S. Patent No. 5,100,479



TOP VIEW
WITHOUT COVER
OR APERTURE

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.		DEXTER RESEARCH CENTER, Inc.			
TOLERANCES ARE:		7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090			
FRACTIONS	DECIMALS	ANGLES	ASSEMBLY, S60 & S60M		
±	.XX ±	±	TO-5, TOP VIEW		
	.XXX ± .005		SIZE:	SCALE:	DWG. NO.
APPROVALS	DATE		A	7" = 1"	1042.1
DRAWN:	DLJ	6/27/00			REV. PAGE:
CHECKED:					NC 1 OF 2
ENGINEERED:			DRC PART NO.	MATERIAL:	FINISH:
APPROVED:					



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.		DEXTER RESEARCH CENTER, Inc.			
TOLERANCES ARE:		7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090			
FRACTIONS	DECIMALS	ANGLES	ASSEMBLY, S60, & S60M		
\pm	.XX \pm	\pm	TO-5, CROSS SECTION		
	.XXX \pm .005				
APPROVALS	DATE	SIZE:	SCALE:	DWG. NO.	REV. PAGE:
DRAWN: DLJ	12/15/10	A	7" = 1"	1042.2	A 2 OF 2
CHECKED:		DRC PART NO.	MATERIAL:	FINISH:	
ENGINEERED:					
APPROVED:					