



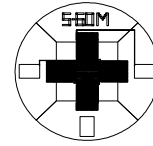
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S60M* TO-18

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 small TO-18 package. Delivers a fast 18ms time constant in Argon encapsulation gas and even faster with Neon gas at 10.8ms. Delivers a very low Temperature Coefficient of Responsivity of $-0.04\%/^{\circ}\text{C}$.



Detector circuit overlay

Options: See [Standard Windows and Filters](#) for list of optical filter options. 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 in a small package that has a higher cost

Technical Specifications

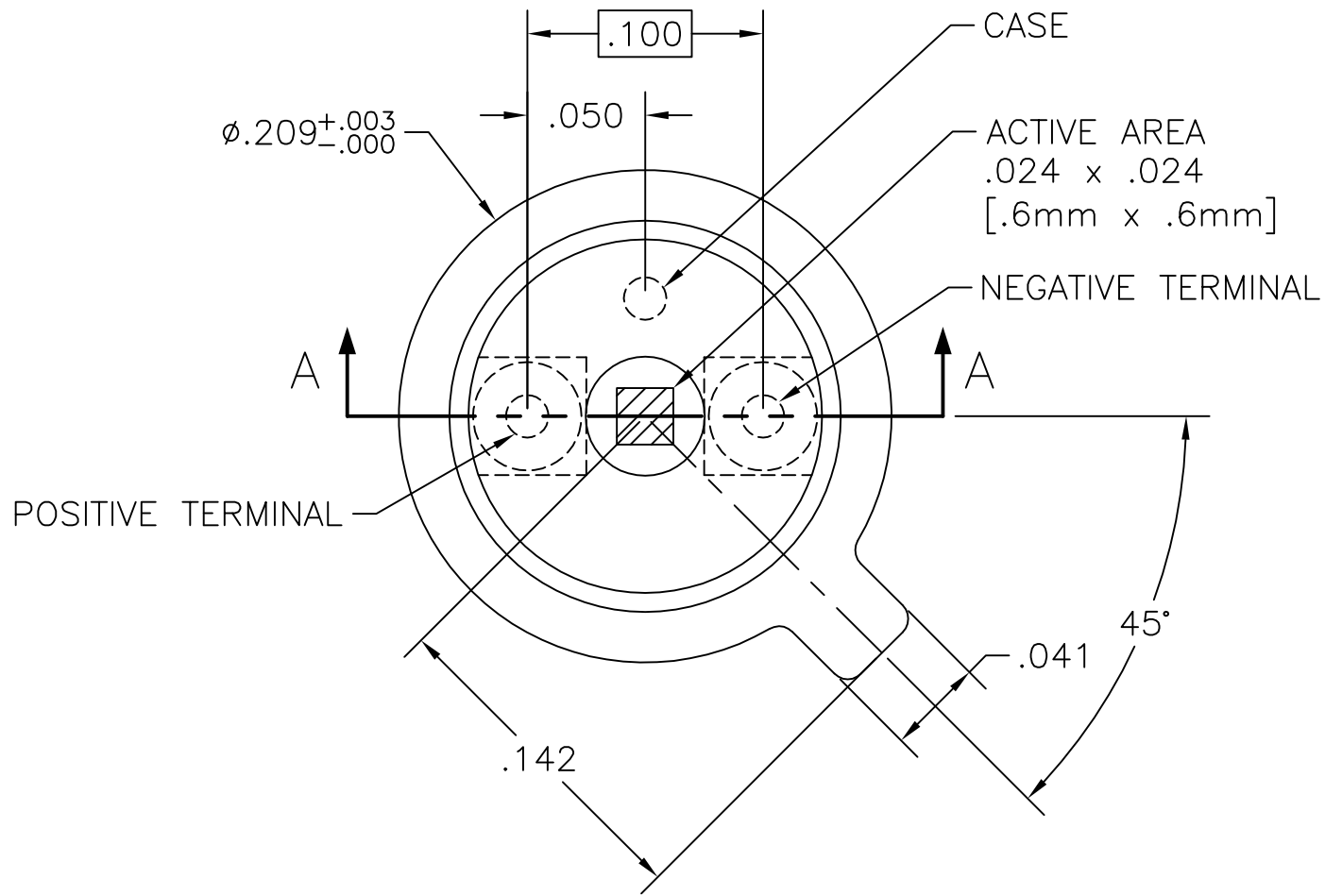
Specifications apply at 23°C with KBr Window and Argon encapsulating gas

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		89		V _s	μV	DC, H=330μW/cm ² (3)
Signal-to-Noise Ratio		2,320		SNR	√Hz	DC, SNR=V _s /V _n
Responsivity		74.9		ℜ	V/W	DC, ℜ=V _s /HA (2)
Resistance	65	90	120	R	kΩ	Detector element
Temperature Coefficient of ℜ		-.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		.51		NEP	nW/√Hz	DC, NEP= V _n HA/V _s (2)
Detectivity		1.17		D*	10 ⁸ cm√Hz/W	DC, D*=V _s /V _n H√A (2)
Time Constant		18		τ	ms	Chopped, -3dB point (1)
Field of View		76°/111°		FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type		TO-18				Standard package hole size: Ø.080"
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

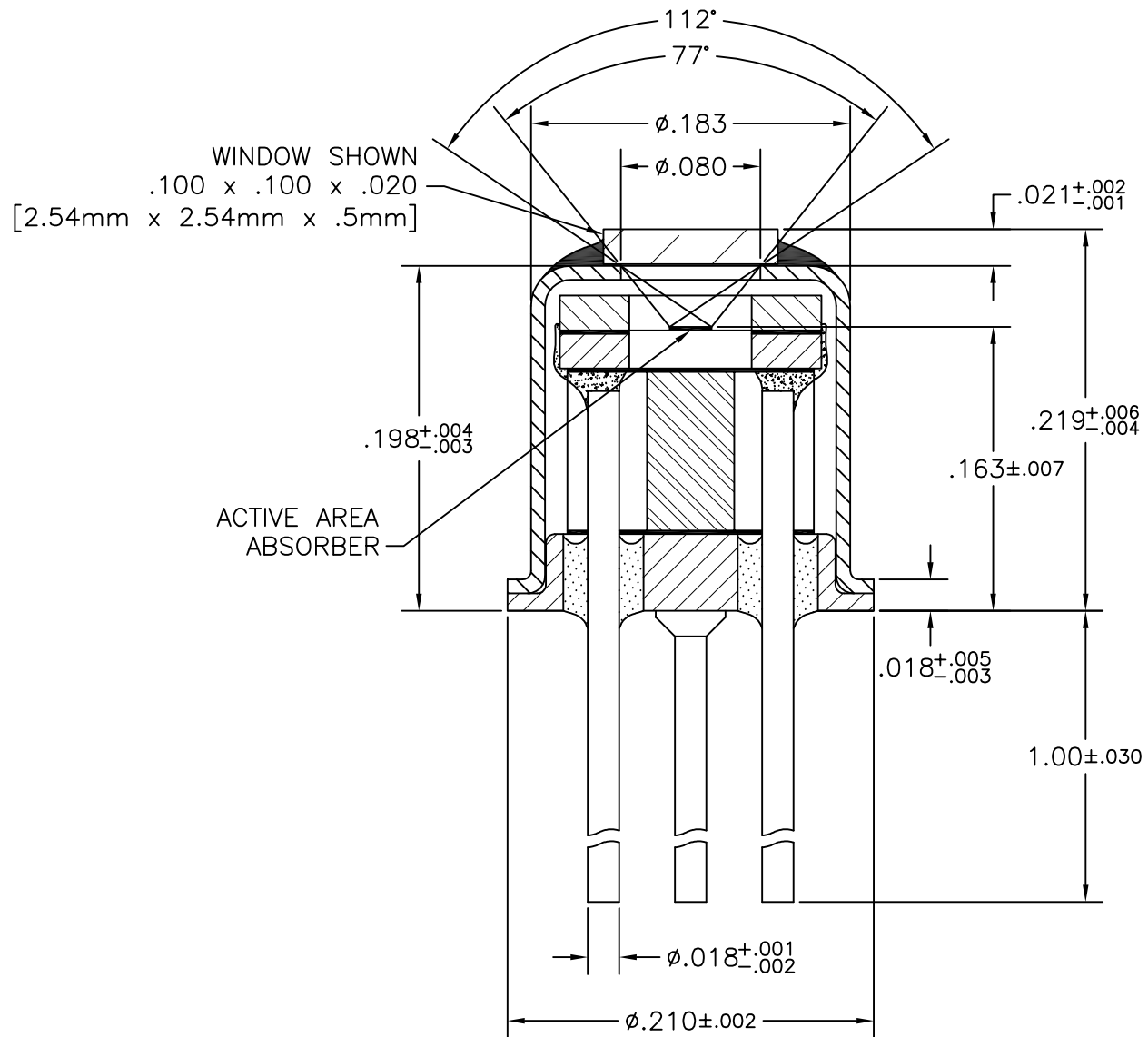
Notes: (1) Parameter is not 100% tested. 90% of all units meet these specifications. (2) A is detector area in cm². (3) Test Conditions: 500K Blackbody source; Detector active surface 10cm from 0.6513cm Diameter Blackbody Aperture.

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



TOP VIEW
W/O COVER

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 .XX ± .XXX ± .005	ANGLES ±	ASSEMBLY, S60, TO-18		
APPROVALS	DATE	TOP VIEW			
DRAWN: DLJ	12/08/05	SIZE: A	SCALE: 13" = 1"	DWG. NO. 1050.1	REV. A
CHECKED:				PAGE: 1 OF 2	
ENGINEERED:		DRC PART NO.		MATERIAL:	FINISH:
APPROVED:					



SECTION A-A

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.

TOLERANCES ARE:

FRACTIONS	DECIMALS	ANGLES
\pm	.XX \pm	\pm
	.XXX \pm	.005

APPROVALS	DATE
DRAWN: DLJ	1/07/08
CHECKED:	
ENGINEERED:	
APPROVED:	

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ASSEMBLY, S60, TO-18,
CROSS SECTION

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	10" : 1"	1050.2	B	2 OF 2

DRC PART NO.	MATERIAL:	FINISH: