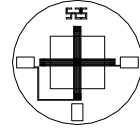




S25* TO-18

Silicon Based Thermopile Detector

Features: A single-channel silicon-based thermopile that offers the smallest single element active area size at 0.25mm x 0.25mm in a small TO-18 package. Delivers a fast 16ms time constant in Argon encapsulation gas and even faster with Neon gas at 9ms. 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 measurement when extremely small spot size is a design requirement.

Benefit: Small active area, fast time constant in a small package with lower output that has a higher cost

Technical Specifications

S25 TO-18

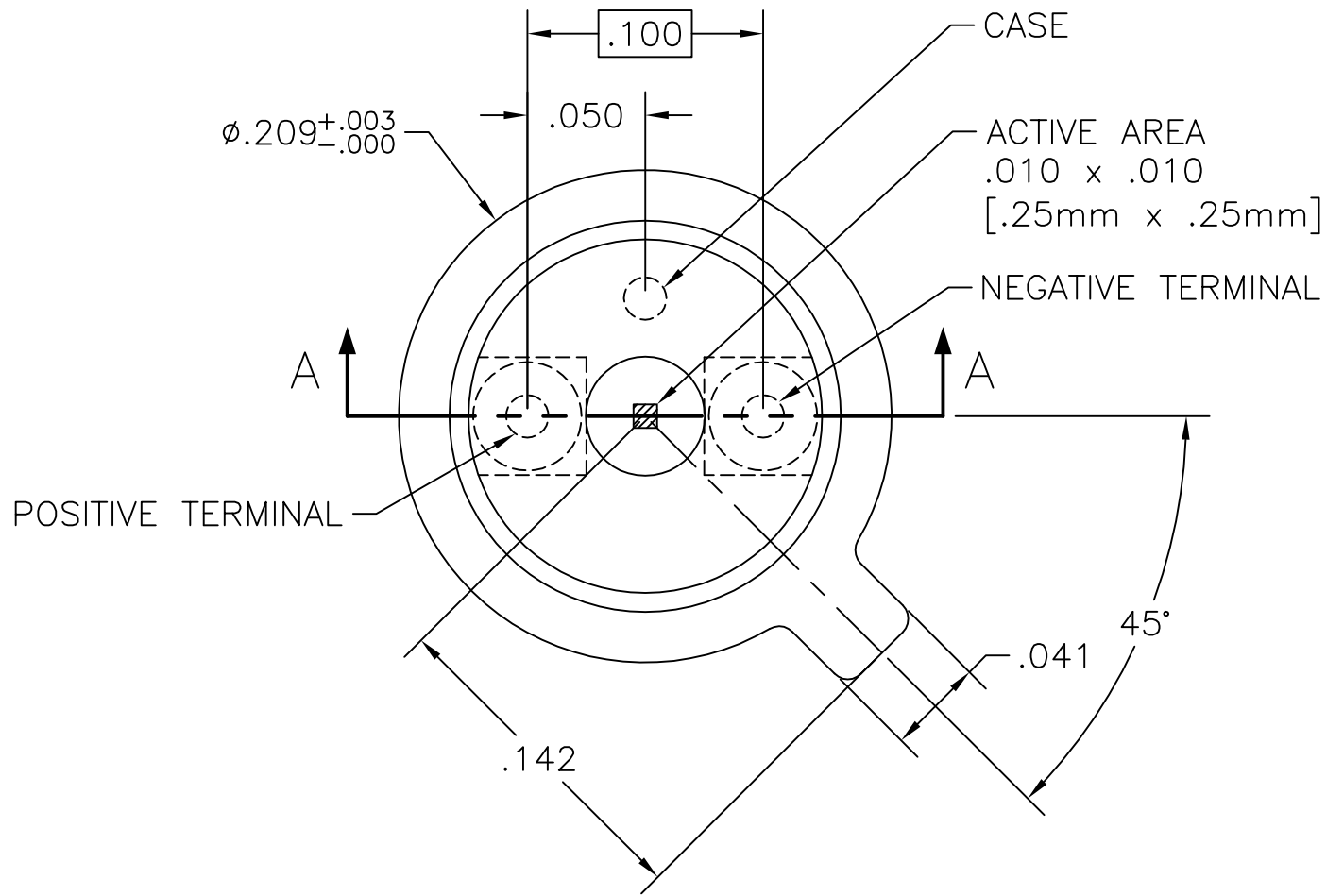
Specifications apply at 23°C with KBr Window and Argon encapsulating gas

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		.25 x .25		AA	mm	Hot junction size, per element.
Element Area		.0625		A	mm ²	
Number of Junctions		20				Per element.
Number of Channels		1				Per detector package.
Output Voltage		23		V _s	μV	DC, H=330μW/cm ² (3)
Signal-to-Noise Ratio		1,186		SNR	√Hz	DC, SNR=V _s /V _n
Responsivity		111.5		ℜ	V/W	DC, ℜ=V _s /HA (2)
Resistance	18	23	28	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	17.2	19.4	21.4	V _n	nV/√Hz	V _n ² =4kTR
Noise Equivalent Power		.17		NEP	nW/√Hz	DC, NEP= V _n HA/V _s (2)
Detectivity		1.44		D*	10 ⁸ cm√Hz/W	DC, D*=V _s /V _n H√A (2)
Time Constant		16		τ	ms	Chopped, -3dB point (1)
Field of View		88°/103°		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

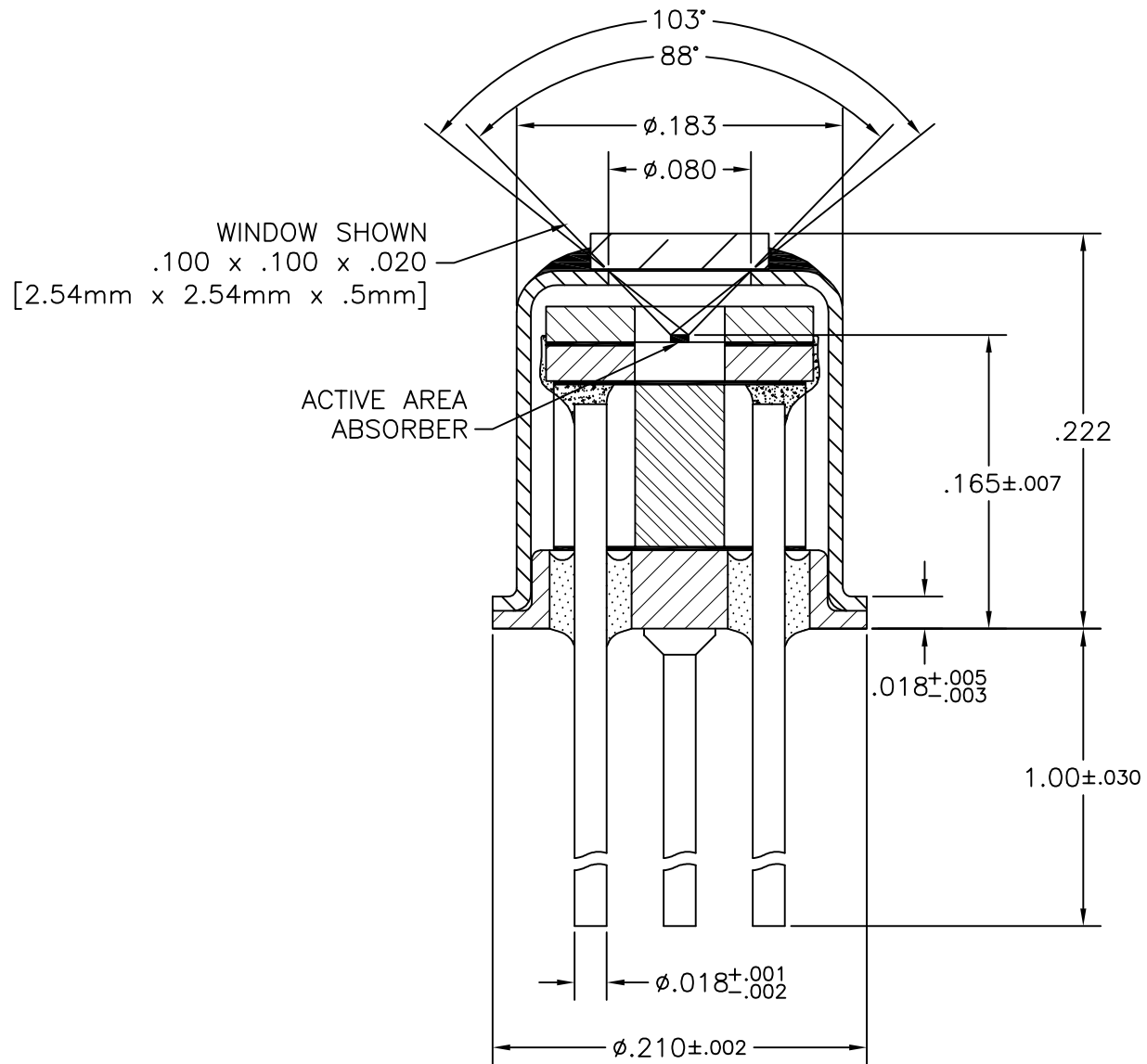
Notes: (1) Parameter is not 100% tested. 90% of all units meet these specifications. (2) A is detector area in cm². (3) Test Conditions: 500K Blackbody source; Detector active surface 10cm from 0.6513cm Diameter Blackbody Aperture.

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



TOP VIEW
W/O COVER

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FRACTIONS ±	DECIMALS .XX ± .XXX ± .005	ANGLES ± 1°	ASSEMBLY, S25, TO-18, TOP VIEW		
APPROVALS	DATE	SIZE:	SCALE:	DWG. NO.	REV. PAGE:
DRAWN: DLJ	8/15/06	A	13" : 1"	1054.1	A 1 OF 2
CHECKED:		DRC PART NO.	MATERIAL:	FINISH:	
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SECTION A-A

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 ASSEMBLY, S25, TO-18,
 CROSS SECTION

SIZE: A	SCALE: 10" : 1"	DWG. NO. 1054.2	REV. A	PAGE: 2 OF 2
DRC PART NO.		MATERIAL:	FINISH:	