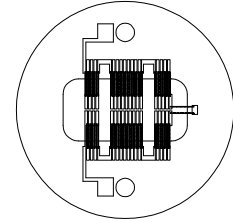




## 1SC

### Thin Film Based Thermopile Detector

**Features:** A thin film-based single channel thermopile detector that offers thermal compensation to minimize effects of sudden ambient temperature change during the initial five seconds of change. The 1SC Compensated comes in a TO-5 package with a medium sized 1.0 x 1.0mm active area. Compensation is achieved through the integration of two additional half-sized thermopile elements. Internal aperture is standard and precisely defines active area for applications with FOV and/or spot size requirements.

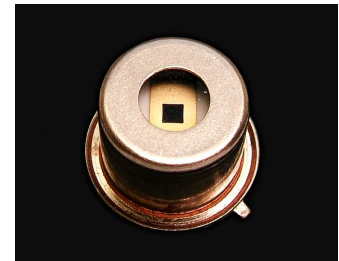


Detector circuit overlay

**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.

**Benefit:** Thermal compensation with increase in noise and a time constant of 48ms in Argon encapsulation gas.



1SC

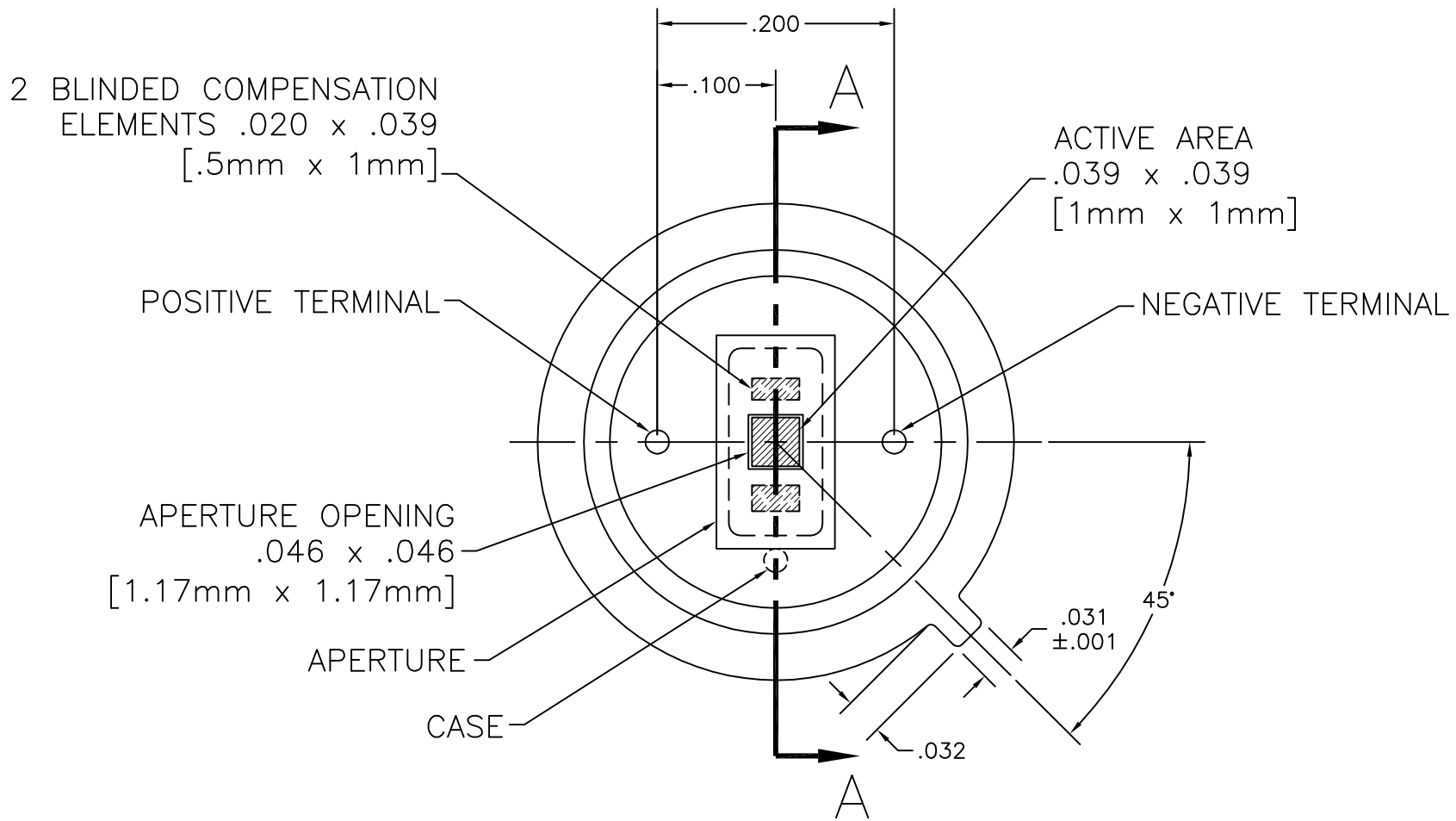
### Technical Specifications

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

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		1 x 1		AA	mm	Hot junction size, per element.
Element Area		1		A	mm <sup>2</sup>	
Number of Junctions		18				Per element.
Number of Channels		1 Compensated				Per detector package.
Output Voltage	40	48	55	V <sub>s</sub>	μV	DC, H=330μW/cm <sup>2</sup> (3)
Signal-to-Noise Ratio	2,649	3,582	5,140	SNR	√Hz	DC, SNR=V <sub>s</sub> /V <sub>n</sub>
Responsivity	12.1	14.5	16.7	ℛ	V/W	DC, ℛ=V <sub>s</sub> /HA (2)
Resistance	7.0	11.0	14.0	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	10.7	13.4	15.1	V <sub>n</sub>	nV/√Hz	V <sub>n</sub> <sup>2</sup> =4kTR
Noise Equivalent Power	.64	.92	1.25	NEP	nW/√Hz	DC, NEP= V <sub>n</sub> HA/V <sub>s</sub> (2)
Detectivity	.8	1.1	1.6	D*	10 <sup>8</sup> cm√Hz/W	DC, D*=V <sub>s</sub> /V <sub>n</sub> H√A (2)
Time Constant		48		τ	ms	Chopped, -3dB point (1)
Field of View		20°/89°		FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type		TO-5				Standard package hole size: Ø.150"
Operating Temperature	-50		100	T <sub>a</sub>	°C	

**General Specifications:** Flat spectral response from 100nm to > 100μm. Linear signal output from 10<sup>-6</sup> to 0.1W/cm<sup>2</sup>. Maximum incident radiance 0.1W/cm<sup>2</sup>, damage threshold ≥ .5W/cm<sup>2</sup>

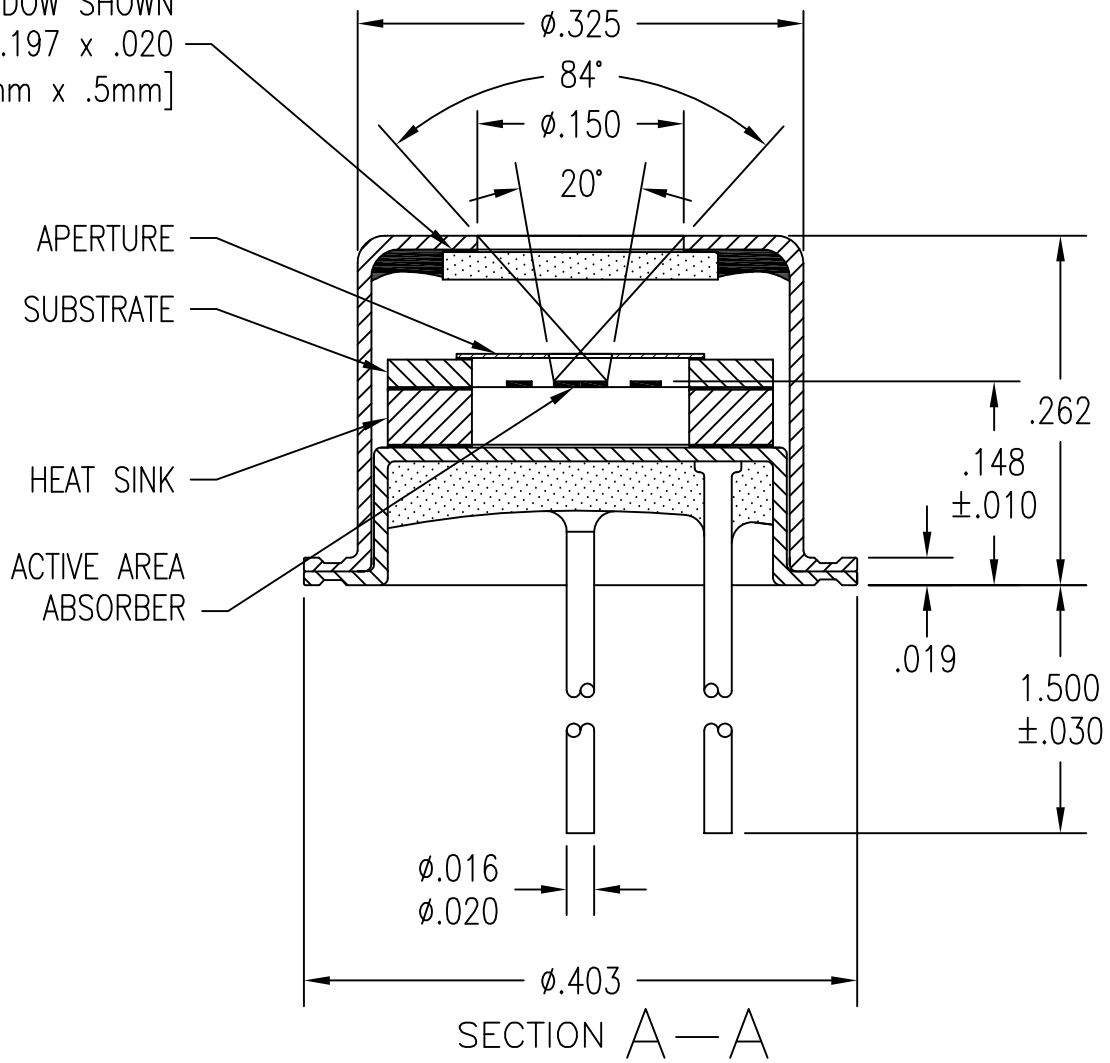
**Notes:** (1) Parameter is not 100% tested. 90% of all units meet these specifications. (2) A is detector area in cm<sup>2</sup>. (3) Test Conditions: 500K Blackbody source; Detector active surface 10cm from 0.6513cm Diameter Blackbody Aperture.



TOP VIEW  
W/O COVER

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE:		DEXTER RESEARCH CENTER, Inc.			
FRACTIONS ±		DECIMALS .XX ±	ANGLES ±		7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090
APPROVALS		DATE		ASSEMBLY, 1SC,	
DRAWN: DLJ		9/22/00		TOP VIEW	
CHECKED:		SIZE: <b>A</b>	SCALE: 7" = 1"	DWG. NO. 1005.1	REV. NC
ENGINEERED:		DRC PART NO.		MATERIAL:	PAGE: 1 OF 2
APPROVED:				FINISH:	

WINDOW SHOWN  
 .197 x .197 x .020  
 [5mm x 5mm x .5mm]



NOTE: SOME FEATURES REMOVED FOR CLARITY

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE:		DEXTER RESEARCH CENTER, Inc.			
FRACTIONS ±		DECIMALS .XX ± .XXX ± .005		7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090	
APPROVALS		DATE		ASSEMBLY, 1SC, CROSS SECTION	
DRAWN: DLJ		12/15/10		SIZE: <b>A</b>	SCALE: 7" = 1"
CHECKED:				DWG. NO. 1005.2	REV. A
ENGINEERED:				PAGE: 2 OF 2	
APPROVED:				DRC PART NO.	MATERIAL:
				FINISH:	