



DR46

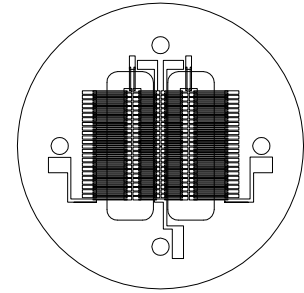
Thin Film Based Thermopile Detector

Features: A two-channel or a one-channel compensated thin-film thermopile in a TO-8 package. Each active area is 4mm x 0.6mm. Offers high output with excellent signal-to-noise ratio. An internal aperture minimizes channel-to-channel crosstalk increasing sensitivity.

Options: See [Standard Windows and Filters](#) for list of optical filter options. See [Thermopile Configuration Table](#) for more options.

Applications: Gas analysis, non-contact temperature measurement, fire detection / suppression.

Benefit: High output, low noise and dual channel in a TO-8 package size.



Detector circuit overlay



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Technical Specifications

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

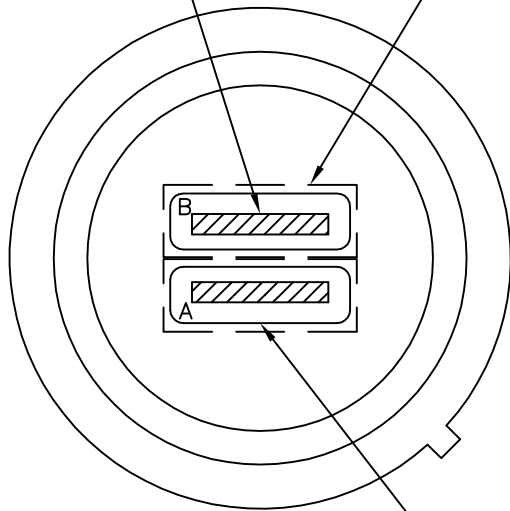
Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		4 x .6		AA	mm	Hot junction size, per element.
Element Area		2.4		A	mm ²	
Number of Junctions		50				Per element.
Number of Channels		2				Per detector package.
Output Voltage	170	210	250	V _s	μV	DC, H=330μW/cm ² (3)
Signal-to-Noise Ratio	10,828	16,406	23,364	SNR	√Hz	DC, SNR=V _s /V _n
Responsivity	21.5	26.5	31.6	ℛ	V/W	DC, ℛ=V _s /HA (2)
Resistance	7	10	15	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	12.8	15.7	V _n	nV/√Hz	V _n ² =4kTR
Noise Equivalent Power	.34	.48	.73	NEP	nW/√Hz	DC, NEP= V _n HA/V _s (2)
Detectivity	2.1	3.2	4.6	D*	10 ⁸ cm√Hz/W	DC, D*=V _s /V _n H√A (2)
Time Constant		40		τ	ms	Chopped, -3dB point (1)
Field of View		NA		FOV	Degrees	Not Applicable
Package Type		TO-8 with 5 Pins				Standard package hole size: Ø.437"
Element Matching		5	10	ℳ	%	ℳ= V _A -V _B /V _B (2)
Element Separation		2.0			mm	Center to Center
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.

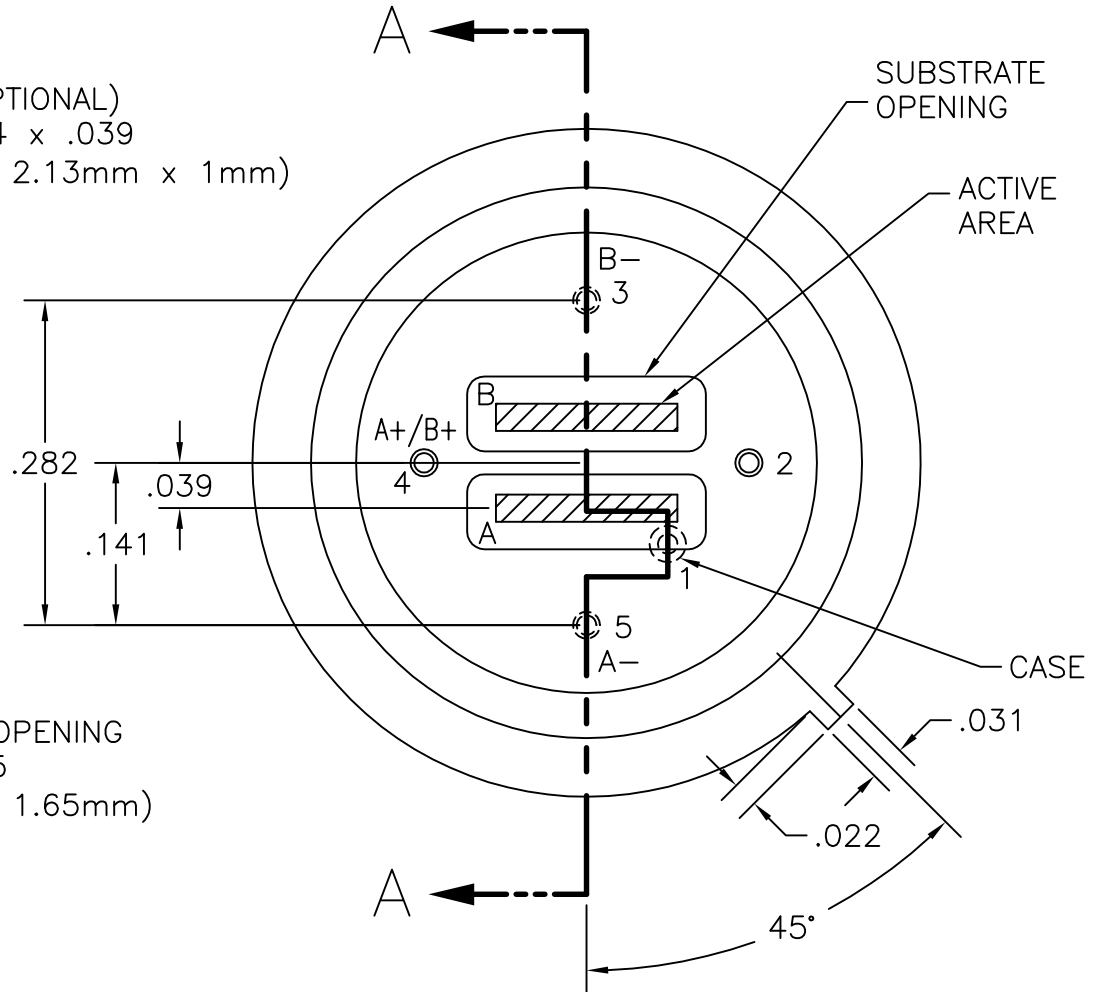
ACTIVE AREA
.158 x .024
(4mm x .6mm)

FILTERS (OPTIONAL)
.224 x .084 x .039
(5.68mm x 2.13mm x 1mm)



TOP VIEW
WITHOUT COVER
.75X SCALE

APERTURE OPENING
.208 x .065
(5.28mm x 1.65mm)

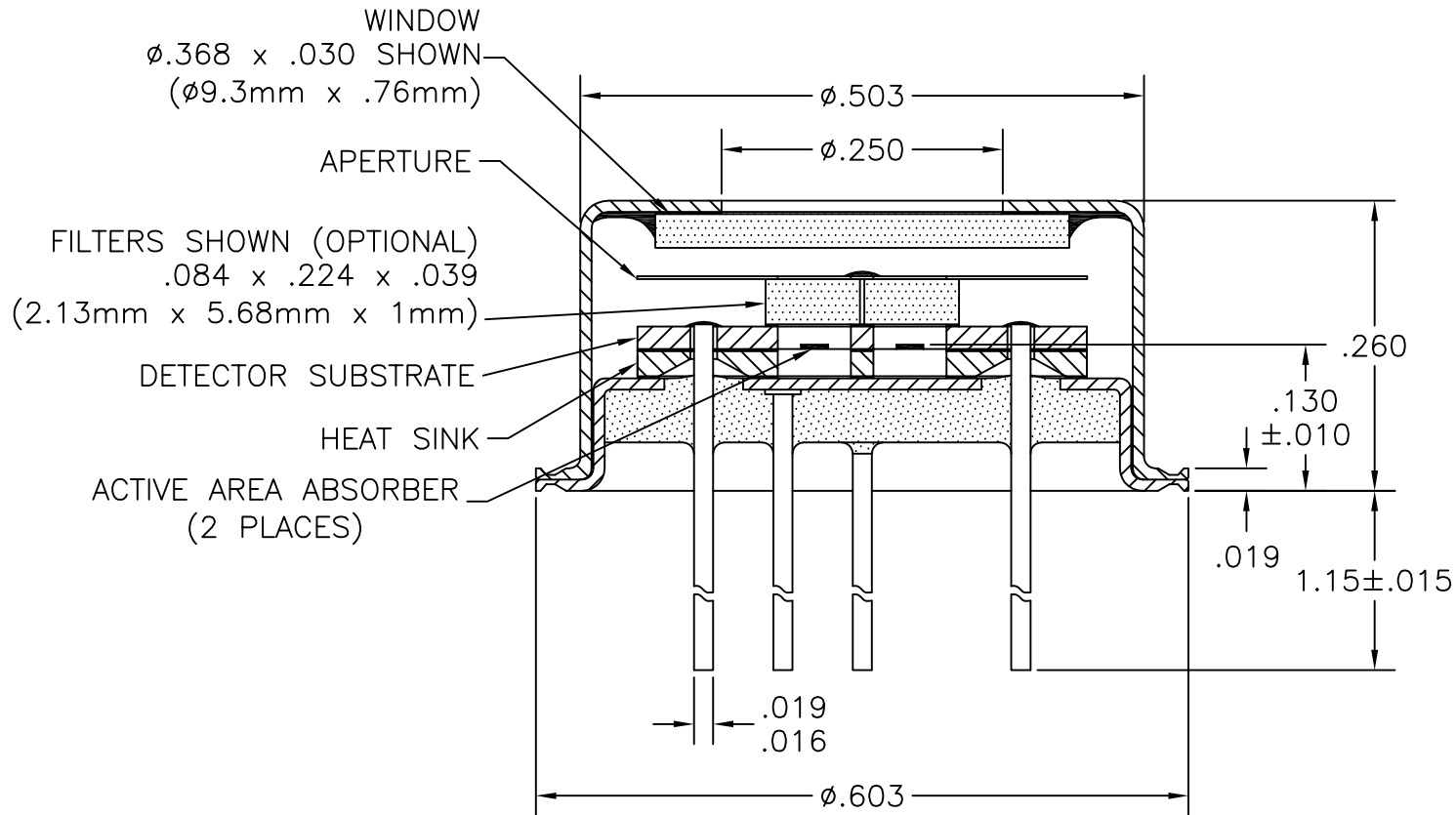


TOP VIEW
WITHOUT COVER, FILTERS
OR APERTURE

PIN	ELEMENT	DESCRIPTION	P/N
4	A+		
5	A-		
4	B+		
3	B-		
1	CASE GROUND		
2	NO CONNECTION		

NOTE: APERTURE SUPPORTED BY PINS 2,4

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, DR46		
APPROVALS	DATE	TOP VIEW			
DRAWN: DLJ	6/22/09	SIZE: A	SCALE: 6" = 1"	DWG. NO. 1006.1	REV. F
CHECKED:		DRC PART NO.		MATERIAL:	PAGE: 1 OF 2
ENGINEERED:				FINISH:	
APPROVED:					



SECTION A-A

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE:			DEXTER RESEARCH CENTER, Inc.				
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FRACTIONS ±	DECIMALS .XX ± .01 .XXX ± .005	ANGLES ±	ASSEMBLY, DR46, CROSS SECTION				
APPROVALS	DATE						
DRAWN: DLJ	12/16/10		SIZE: A	SCALE: 6" = 1'	DWG. NO. 1006.2	REV. E	PAGE: 1 OF 2
CHECKED:			DRC PART NO.		MATERIAL:	FINISH:	
ENGINEERED:							
APPROVED:							