We're Everywhere It Matters…

M14

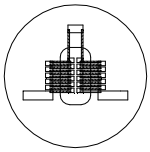
Thin Film Based Thermopile Detector

Features: A single-channel thin film-based thermopile offering very low noise in a compact TO-18 package with a small active area of 0.92mm x 0.4mm. This is one of the lowest noise thermopiles you can buy and provides a fast 14ms time constant with Argon encapsulation gas.

Options: See Standard Windows and Filters for list of optical filter options. See Thermopile Configuration Table for more options.

Applications: Excellent for ear thermometers and handheld non-contact temperature measurement.

Benefit: Small package size and very low noise with lower signal-to-noise ratio.



Detector circuit overlay

M14

Technical Specifications

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

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		.92 x .4		AA	mm	Hot junction size, per element.
Element Area		.368		A	mm^2	
Number of Junctions		12				Per element.
Number of Channels		1				Per detector package.
Output Voltage	15	20	25	V_s	µV	DC, H=330µW/cm^2 (3)
Signal-to-Noise Ratio	1,852	2,857	5,000	SNR	√Hz	DC, SNR=V_s/V_n
Responsivity	12.4	16.5	20.6	$\mathcal{R}$	V/W	DC, $\mathcal{R}=V_s/HA$ (2)
Resistance	1.5	3.0	4.0	R	kΩ	Detector element
Temperature Coefficient of $\mathcal{R}$		-.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	5.0	7.0	8.1	V_n	nV/√Hz	$V_n^2=4kTR$
Noise Equivalent Power	.24	.43	.66	NEP	nW/√Hz	DC, NEP= $V_n HA/V_s$ (2)
Detectivity	.93	1.4	2.5	D*	10^8cm√Hz/W	DC, $D^*=V_s/V_n H\sqrt{A}$ (2)
Time Constant		14		$\mathcal{T}$	ms	Chopped, -3dB point (1)
Field of View		53°/105°		FOV	Degrees	See Assembly Drawings for FOV Description.
Package Type		TO-18				Standard package hole size:∅.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/cm^2. Maximum incident radiance 0.1W/cm^2, damage threshold ≥ .5W/cm^2

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

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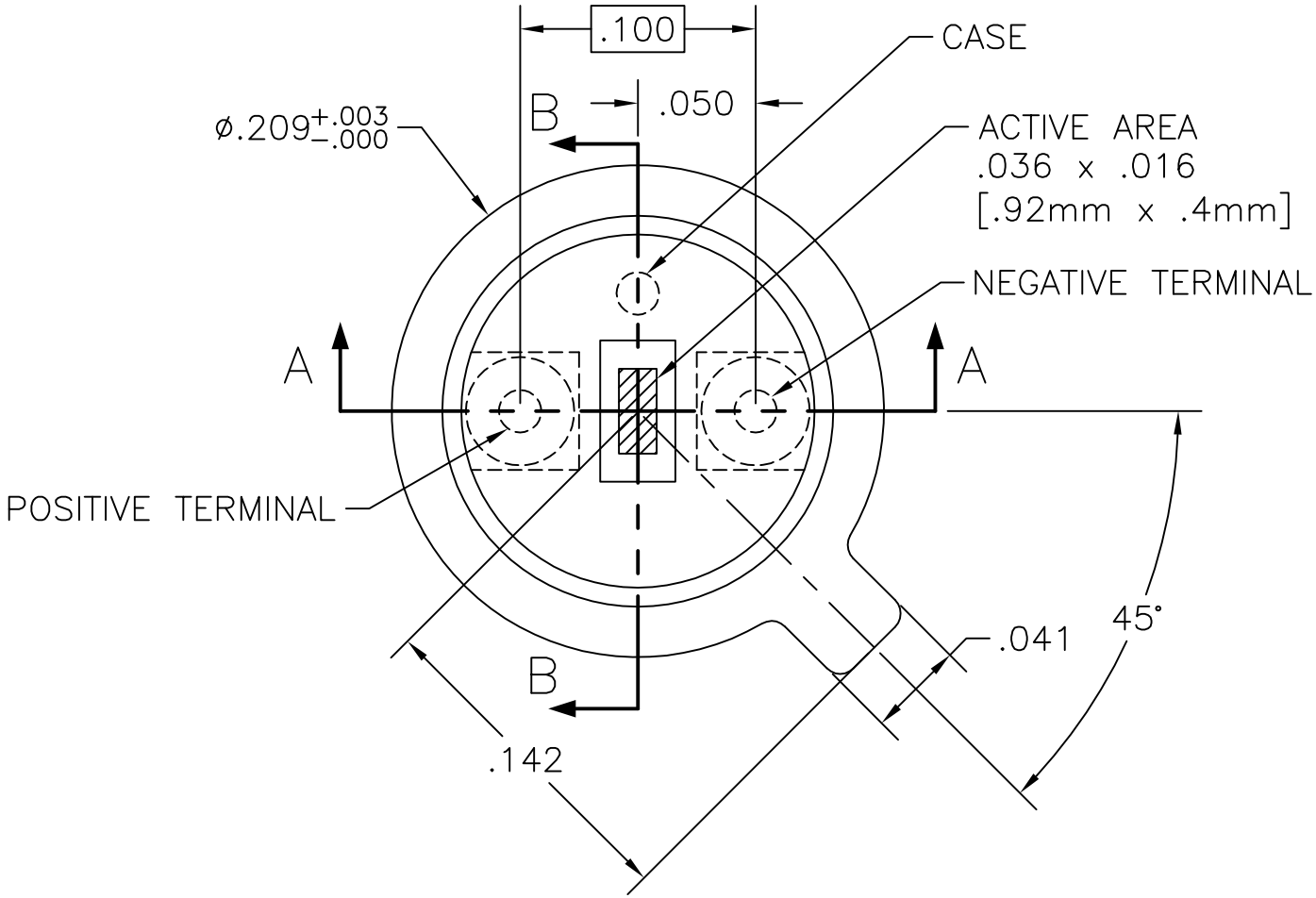
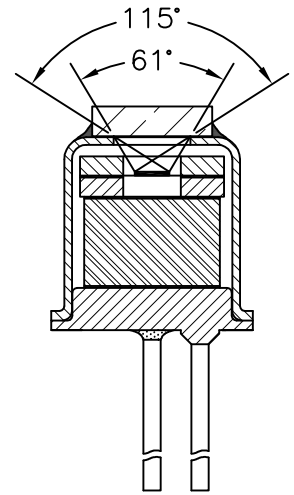
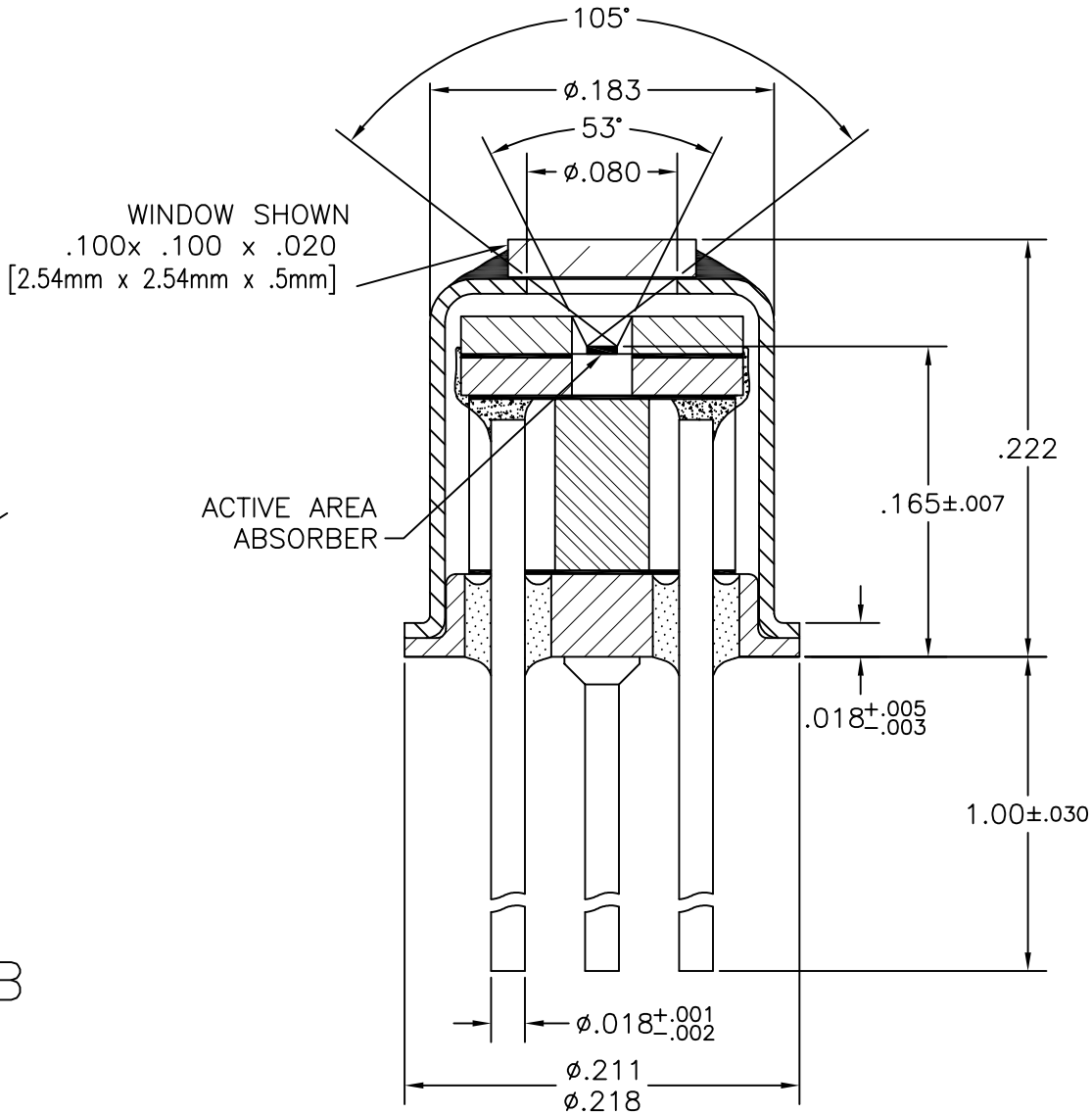


TOP VIEW
W/O COVER

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± .005 ANGLES ± 1°		DEXTER RESEARCH CENTER, Inc. 7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090	
APPROVALS	DATE	ASSEMBLY, M14, TO-18, TOP VIEW	
DRAWN: DLJ	4/13/11		
CHECKED:		SIZE: A / SCALE: 13" : 1" / DWG. NO. 1048.1 / REV. A / PAGE: 1 OF 2	
ENGINEERED:		DRC PART NO. / MATERIAL: / FINISH:	
APPROVED:			



SECTION B–B
.5X SCALE



SECTION A–A

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± .005 ANGLES ±		DEXTER RESEARCH CENTER, Inc. 7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090	
APPROVALS	DATE	ASSEMBLY, M14, TO-18, CROSS SECTION	
DRAWN: DLJ	4/13/11		
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APPROVED:			