

## Silicon Based Thermopile Detector

<b>Technical Specifications:</b> Specifications apply at 23°C with KBr Window and Nitrogen encapsulating gas						
Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size	1.5 x 1.5			AA	mm	Hot junction size, per element.
Element Area	2.25			A	mm <sup>2</sup>	
Number of Junctions	120					Per element.
Number of Channels	1					Per detector package.
Output Voltage	180	230	280	V <sub>s</sub>	μV	DC, H=330μW/cm <sup>2</sup> (3)
Responsivity	24.2	31.0	37.7	R	V/W	DC, R=V <sub>s</sub> /HA (2)
Resistance	60	75	90	R	kΩ	
Temperature Coefficient of Responsivity		-.01			%/°C	Best linear fit, 20° to 40°C (1)
Temperature Coefficient of Resistance		.11			%/°C	Best fit, 0° to 85°C (1)
Noise Voltage	31.3	35.0	38.4	V <sub>n</sub>	nV/√Hz	V <sub>n</sub> <sup>2</sup> =4kTR
Noise Equivalent Power	.83	1.13	1.58	NEP	nW/√Hz	DC, NEP= V <sub>n</sub> HA/V <sub>s</sub> (2)
Detectivity	.95	1.3	1.8	D*	10 <sup>8</sup> cm√Hz/W	DC, D*=V <sub>s</sub> /V <sub>n</sub> H√A (2)
Time Constant		38		T	ms	Chopped, -3dB point (1)
Field of View	48°/92° or 19.5°			FOV	Degrees	See Assembly Drawing for Description. TO-5, Diffractive Lens
Package Type	TO-5					Standard package hole size: Ø.150"
Thermistor Option of <b>ST150R</b>	55	75	95	R <sub>T</sub>	kΩ	PTC Thermistor is on the detector chip and is a Poly-Silicon resistor.
Thermistor Temperature Coefficient of Resistance <b>ST150R</b>	.107	.11	.113		%/°C	ΔR/(RΔT), Best fit, 0° to 85°C (1)
Thermistor (optional)	28.5	30	31.5	R <sub>T</sub>	kΩ	Discrete internal NTC chip thermistor, 5% tolerance @ 25°C.

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.

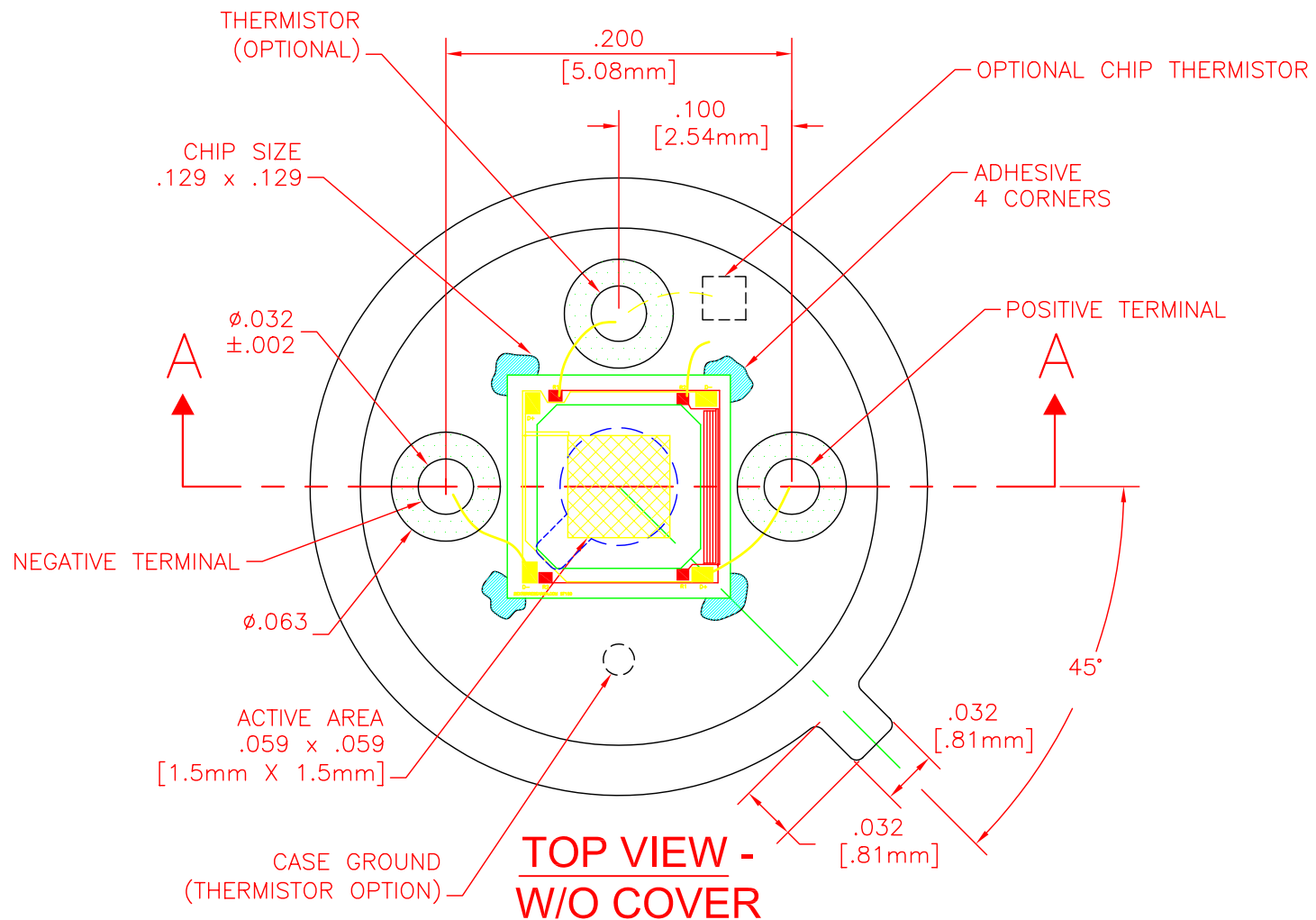
### General Specifications:

- Flat Spectral Response: UV to Far IR
- Window Material: Over 100 filters in stock.
- Encapsulating Gas Options: Argon, Neon, Nitrogen, or Xenon.
- Operating Temperature Range: -50° to 100°C. Short durations up to 125°C possible.
- FOV: Dependent on Window index of refraction. Customize FOV with package hole size.
- Signal Output: Linear from 10<sup>-6</sup> to .1W/cm<sup>2</sup>
- Maximum Incidence: .1 W/cm<sup>2</sup>

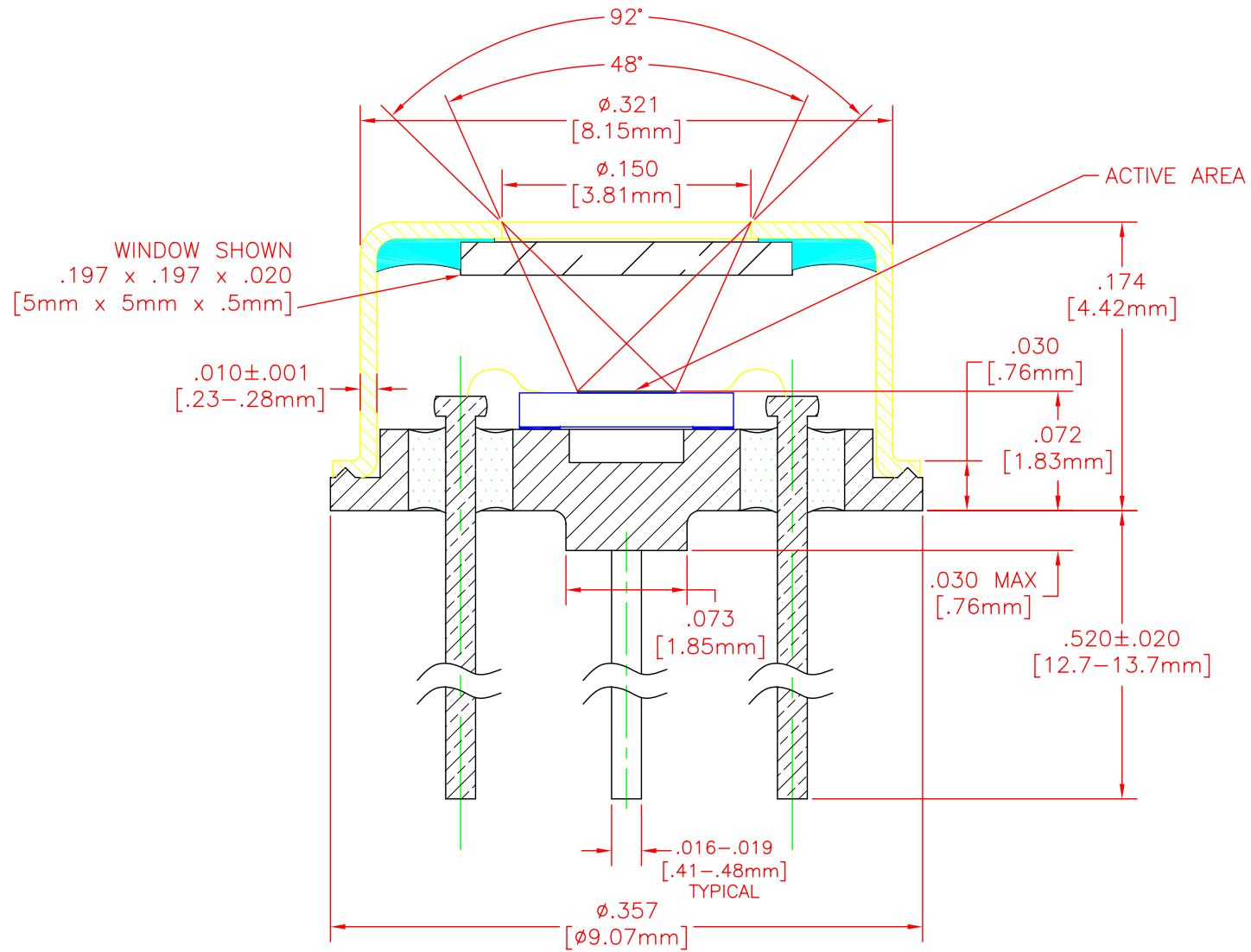
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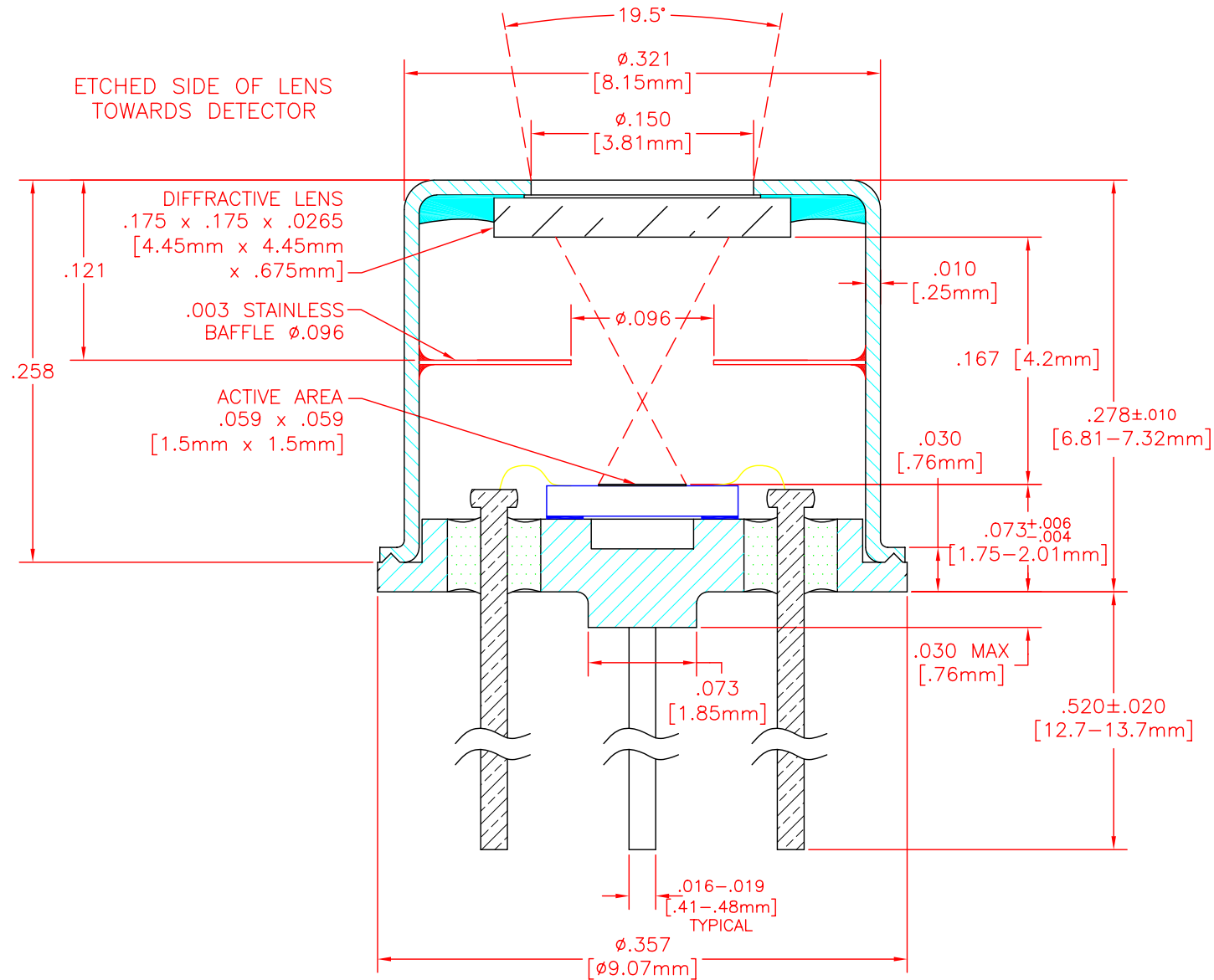


UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.		DEXTER RESEARCH CENTER, Inc. 7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090			
TOLERANCES ARE:					
FRACTIONS ±	DECIMALS .XX ± .01 .XXX ± .005	ANGLES ±	ASSEMBLY, ST150/ST150R, TO-5 RW, TOP VIEW		
APPROVALS	DATE	SIZE: A	SCALE: 10" = 1"	DWG. NO. 1017.3	REV. C
DRAWN: DLJ	3/30/04				PAGE: 2 OF 2
CHECKED:		DRC PART NO.	MATERIAL:	FINISH:	
ENGINEERED:					
APPROVED:					



SECTION A-A

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TOLERANCES ARE:		7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090			
FRACCTIONS ±	DECIMALS .XX ± .01 .XXX ± .005	ANGLES ±	ASSEMBLY, ST150/ST150R, TO-5 RW, CROSS SECTION		
APPROVALS	DATE	SIZE:	SCALE:	DWG. NO.	REV. PAGE:
DRAWN: DLJ	8/16/04	A	10" = 1"	1017.1	C 1 OF 2
CHECKED:		DRC PART NO.		MATERIAL:	FINISH:
ENGINEERED:					
APPROVED:					



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.  
TOLERANCES ARE:

FRACTIONS	DECIMALS	ANGLES
±	.XX ± .01	±
	.XXX ± .005	

APPROVALS	DATE
DRAWN: DLJ	5/20/04
CHECKED:	
ENGINEERED:	
APPROVED:	

**DEXTER RESEARCH CENTER, Inc.**  
7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090

**ASSEMBLY, ST150  
DIFFRACTIVE LENS A2DIF01**

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	9" : 1"	1093	B	1 OF 1
DRC PART NO.		MATERIAL:		FINISH: