



## 10 Channel

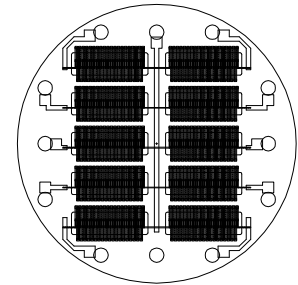
### Thin Film Based Thermopile Detector

**Features:** A ten-channel thin-film thermopile in a TO-8 package. Each active area is 3.16mm x 0.4mm and offers low noise voltage. Internal aperture minimizes channel-to-channel crosstalk while increasing sensitivity.

**Options:** 1) See [Standard Windows and Filters](#) for list of optical filter options. 2) Internal 30kΩ 5% NTC chip thermistor provides ambient package temperature measurement. See [Thermistor Options](#) p/n: MT04. See [Thermopile Configuration Table](#) for more options.

**Applications:** The perfect single package choice for analyzing multiple anesthetic gases in demanding environments such as hospital operating rooms. Potential applications in non-contact temperature and spectral discrimination of materials.

**Benefit:** Ten-channel spectral differentiation for demanding applications.



Detector circuit overlay



10 Channel

## Technical Specifications

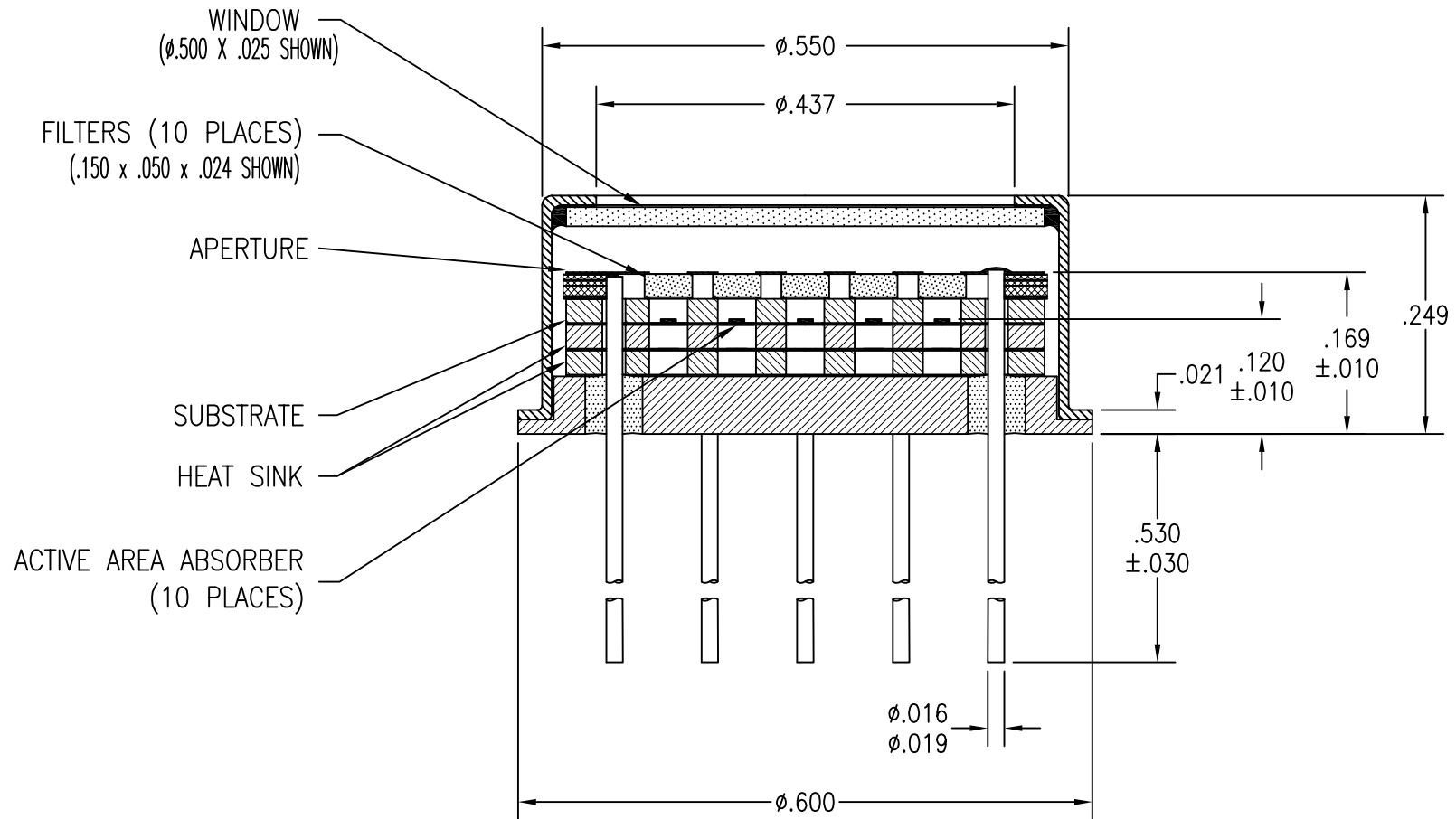
Specifications apply at 23°C with KBr Window and Argon encapsulating gas

Parameter	Min	Typical	Max	Symbol	Units	Comments
Active Area size		3.16 x .4		AA	mm	Hot junction size, per element.
Element Area		1.264		A	mm <sup>2</sup>	
Number of Junctions		40				Per element.
Number of Channels		10				Per detector package.
Output Voltage	90	115	130	V <sub>s</sub>	μV	DC, H=330μW/cm <sup>2</sup> (3)
Signal-to-Noise Ratio	6,429	10,088	16,049	SNR	√Hz	DC, SNR=V <sub>s</sub> /V <sub>n</sub>
Responsivity	21.6	27.6	31.2	ℛ	V/W	DC, ℛ=V <sub>s</sub> /HA (2)
Resistance	4.0	8.0	12	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	8.1	11.4	14.0	V <sub>n</sub>	nV/√Hz	V <sub>n</sub> <sup>2</sup> =4kTR
Noise Equivalent Power	.26	.42	.65	NEP	nW/√Hz	DC, NEP= V <sub>n</sub> HA/V <sub>s</sub> (2)
Detectivity	1.7	2.7	4.3	D*	10 <sup>8</sup> cm√Hz/W	DC, D*=V <sub>s</sub> /V <sub>n</sub> H√A (2)
Time Constant		38		τ	ms	Chopped, -3dB point (1)
Field of View		NA		FOV	Degrees	Not Applicable
Package Type		TO-8 with 12 Pins				Standard package hole size: Ø.437"
Element Matching		10	20	ℳ	%	ℳ= V <sub>A</sub> -V <sub>B</sub>  /V <sub>B</sub> (2)
Element Separation		1.8 & 4.28			mm	Center to Center
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.





SECTION A—A

NOTE: SOME FEATURES NOT SHOWN FOR CLARITY.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES. TOLERANCES ARE:		DEXTER RESEARCH CENTER, Inc. 7300 Huron River Dr., Dexter, MI 48130, ph. 734-426-3921 fax 734-426-5090			
FRACTIONS $\pm$	DECIMALS .XX $\pm$ .XXX $\pm$ .005	ANGLES $\pm$	ASSEMBLY, 10 CHANNEL, CROSS SECTION		
APPROVALS	DATE	SIZE: <b>A</b>	SCALE: 6" : 1"	DWG. NO. 1033.1	REV. PAGE: NC 2 OF 2
DRAWN: DLJ	4/17/00	DRC PART NO.		MATERIAL:	FINISH:
CHECKED:					
ENGINEERED:					
APPROVED:					