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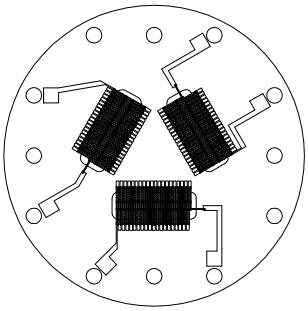
TM34

Thin Film Based Thermopile Detector



Detector circuit overlay

Features: A three-channel thin-film thermopile in a TO-8 package. Each symmetrically positioned active area is 3.16mm x 0.4mm. Offers low noise output and internal aperture minimizing 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: Gas analysis for automotive, environmental air quality, industrial sensors and medical monitoring.

Benefit: Low noise and 3-channels in a TO-8 package with moderate output.

Technical Specifications

TM34

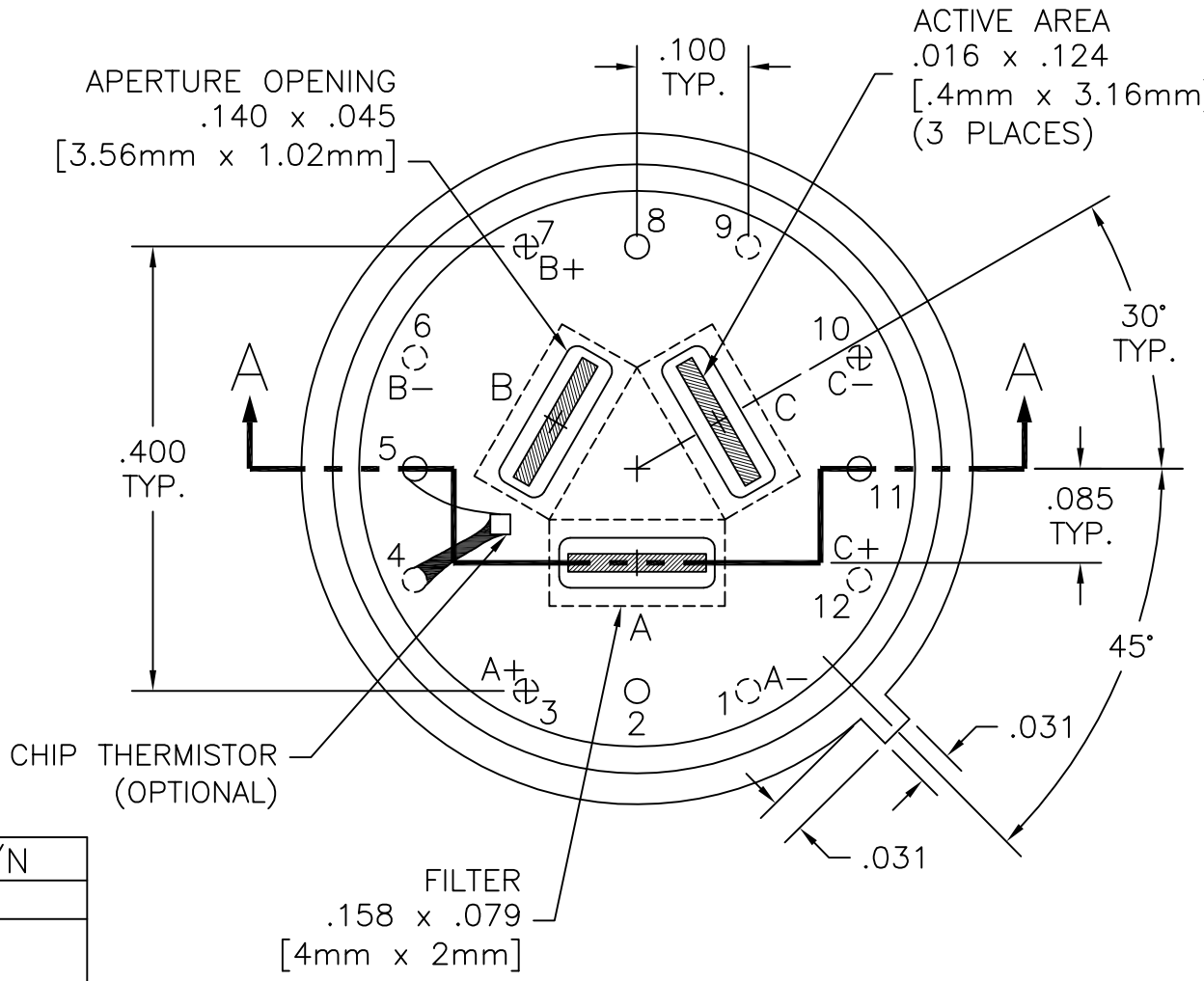
Specifications apply at 23°C with KBr Window and Argon encapsulating gas

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^2	
Number of Junctions		40				Per element.
Number of Channels		3				Per detector package.
Output Voltage	90	115	130	V_s	µV	DC, H=330µW/cm^2 (3)
Signal-to-Noise Ratio	6,429	10,088	16,049	SNR	√Hz	DC, SNR=V_s/V_n
Responsivity	21.6	27.6	31.2	ℜ	V/W	DC, ℜ=V_s/HA (2)
Resistance	4.0	8.0	12.0	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	8.1	11.4	14.0	V_n	nV/√Hz	V_n^2=4kTR
Noise Equivalent Power	.26	.42	.65	NEP	nW/√Hz	DC, NEP= V_n HA/V_s (2)
Detectivity	1.7	2.7	4.3	D*	10^8cm√Hz/W	DC, D*=V_s/ V_n H√A (2)
Time Constant		38		$\mathcal{T}$	ms	Chopped, -3dB point (1)
Field of View		NA		FOV	Degrees	Not Applicable
Package Type		TO-8 with 3 Pins				Standard package hole size: ∅.150"
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.

Dexter Research Center • 7300 Huron River Drive • Dexter, MI 48130 • www.DexterResearch.com • +1 734 426 3921



TOP VIEW
WITHOUT COVER

PIN	ELEMENT	DESCRIPTION	P/N
2	APERTURE SUPPORT		
1 3	A− A+		
4 5	THERMISTOR (OPTIONAL)		
6 7	B− B+		
8	APERTURE SUPPORT		
9	NO CONNECTION		
10 12	C− C+		
11	CASE GROUND (OPTIONAL)		

NOTE: SOME FEATURES NOT SHOWN FOR CLARITY.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES.
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .01 .XXX ± .005 | ANGLES ± 1°

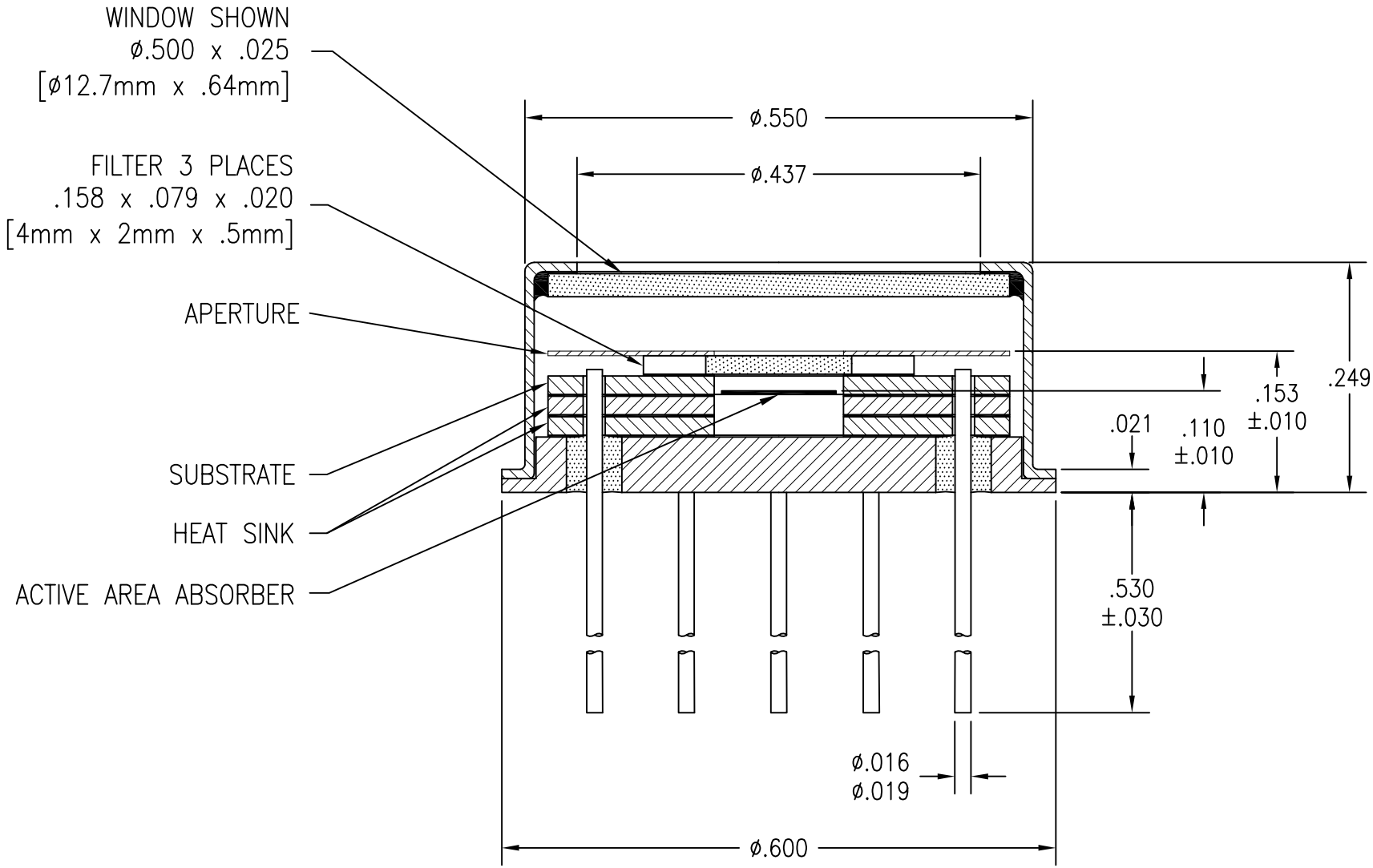
APPROVALS	DATE
DRAWN: DLJ	4/10/03
CHECKED:	
ENGINEERED:	
APPROVED:	

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

ASSEMBLY, TM34, TO-8 R.W.
12 PIN, TOP VIEW

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	6" : 1"	1089.1	A	1 OF 2

DRC PART NO.	MATERIAL:	FINISH:



SECTION A–A

NOTE: SOME FEATURES NOT SHOWN FOR CLARITY.

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ASSEMBLY, TM34, TO-8 R.W. 12 PIN, CROSS SECTION

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	6" : 1"	1089.2	A	2 OF 2

DRC PART NO.	MATERIAL:	FINISH: