DeXter RESEARCH CENTER

We're Everywhere It Matters…

DR34 Compensated

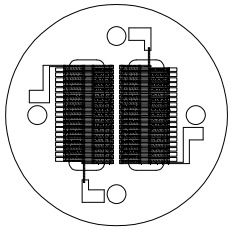
Thin Film Based Thermopile Detector

Features: A one-channel compensated thin-film thermopile in a TO-5 package. The active area and compensating element area are 3.16mm x 0.4mm each. Internal aperture minimizes channel-to-channel crosstalk and thus increasing sensitivity.

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

Applications: Industrial and medical monitoring including infant incubators.

Benefit: Compensated rectangular shaped active area in a TO-5 package with moderate output.



Detector circuit overlay

DR34 Compensated

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^2	
Number of Junctions		40				Per element.
Number of Channels		1 Compensated				Per detector package.
Output Voltage	90	115	130	V_s	µV	DC, H=330µW/cm^2 (3)
Signal-to-Noise Ratio	4,545	7,099	11,404	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	8	16	24	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	11.4	16.2	19.8	V_n	nV/√Hz	V_n^2=4kTR
Noise Equivalent Power	.37	.59	.92	NEP	nW/√Hz	DC, NEP= V_n HA/V_s (2)
Detectivity	1.2	1.9	3.1	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-5 with 3 Pins				Standard package hole size: ∅.180"
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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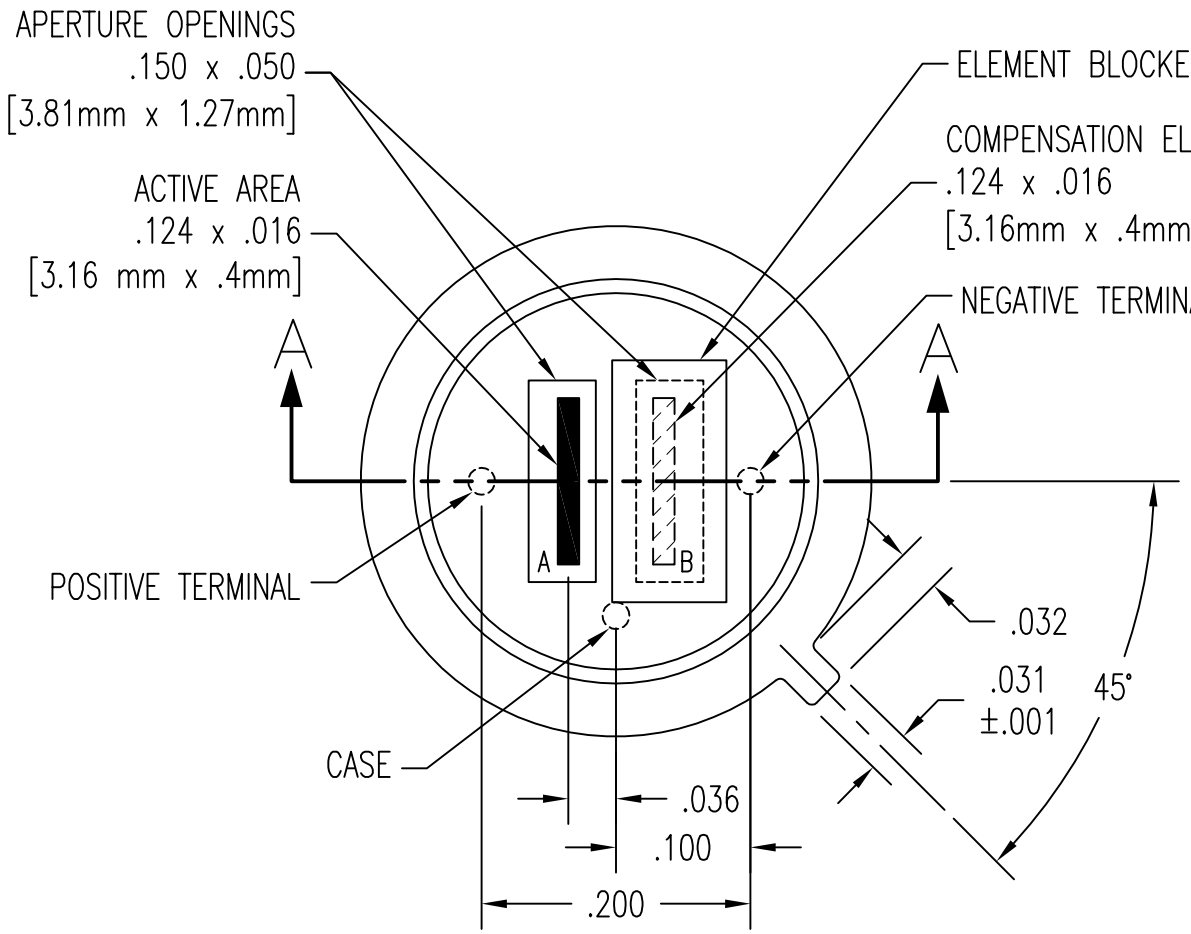

TOP VIEW

WITHOUT COVER,
OR FILTERS

	DESCRIPTION	P/N
A		
B		

NOTE: SOME FEATURES NOT SHOWN FOR CLARITY

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

APPROVALS	DATE
DRAWN: DLJ	9/18/12
CHECKED:	
ENGINEERED:	
APPROVED:	

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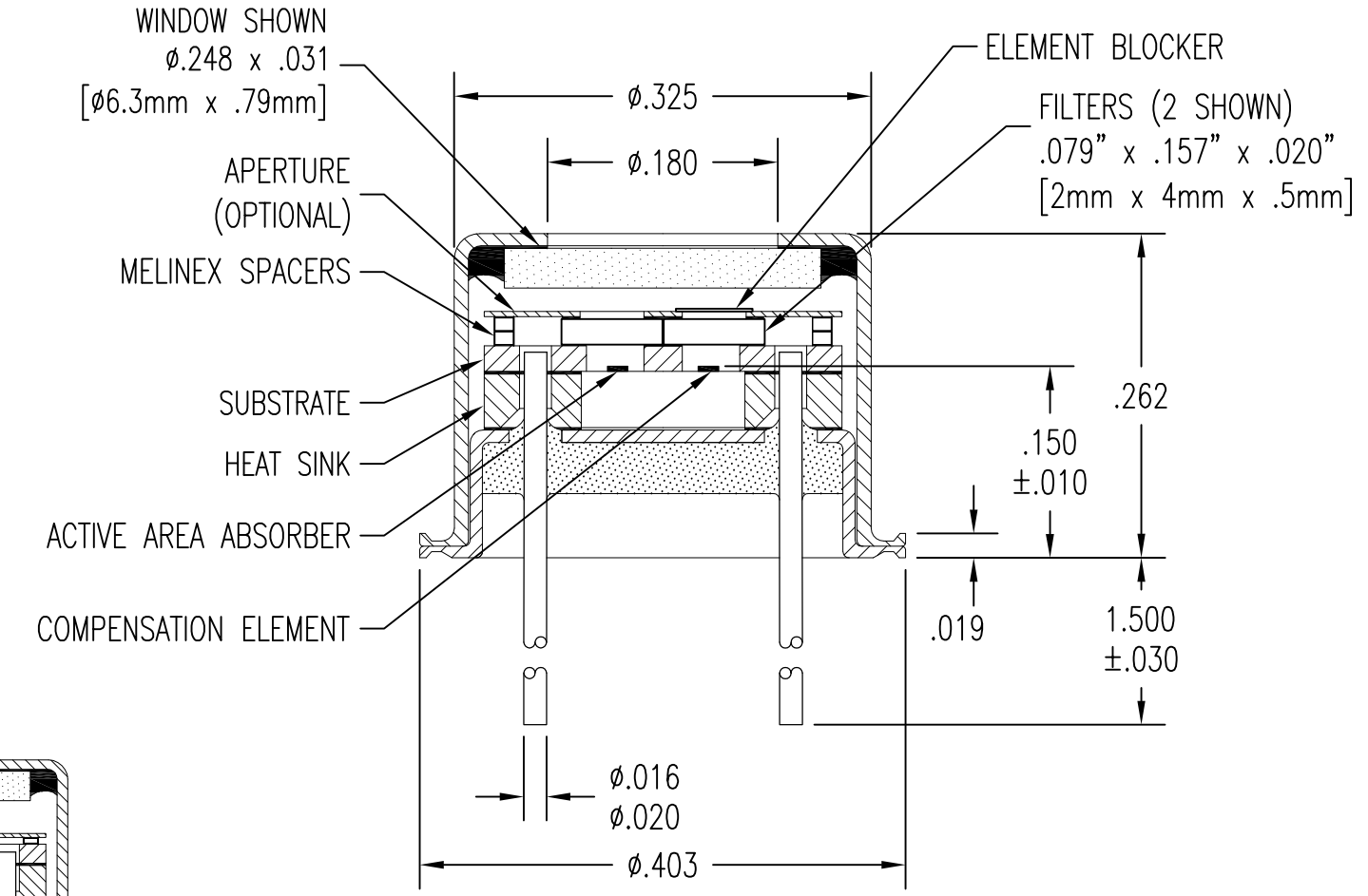
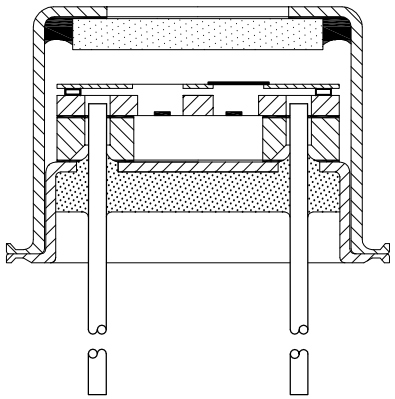
ASSEMBLY, DR34, INTERNALLY COMPENSATED, TOP VIEW

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	7" = 1"	1055.1	C	1 OF 2

DRC PART NO.	MATERIAL:	FINISH:



SECTION A—A
WITH INTERNAL FILTERS



SECTION A—A
WITHOUT INTERNAL FILTERS

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ASSEMBLY, DR34 INTERNALLY COMPENSATED, W/ H.S., CROSS SECTION

SIZE:	SCALE:	DWG. NO.	REV.	PAGE:
A	7" = 1"	1055.2	D	2 OF 2

DRC PART NO.	MATERIAL:	FINISH: