

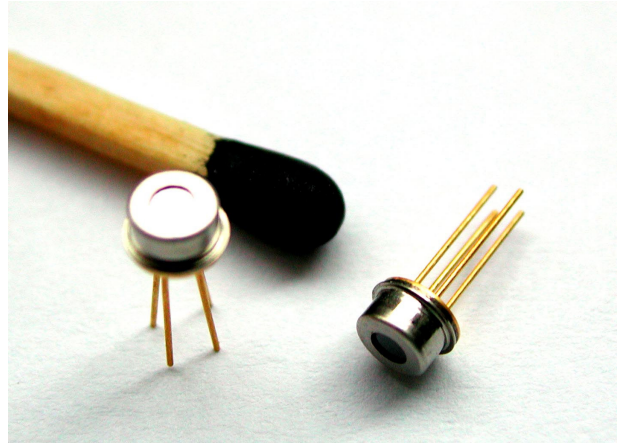


HMS Z11 – F5.5

Ultrasmall Thermopile Sensor

FEATURES:

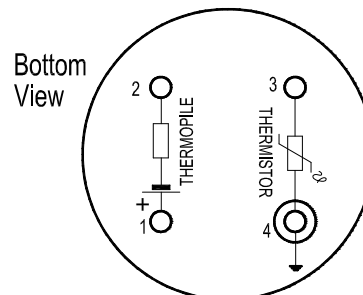
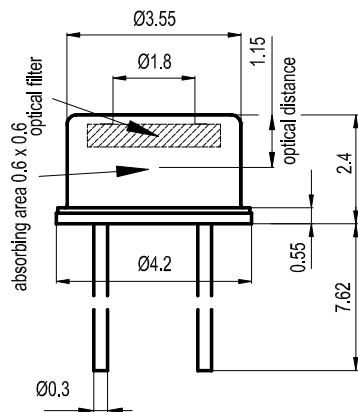
- Ultra Small Housing
- Integrated Ambient Temperature Sensor
- High Sensitivity
- Fast Response
- Perfect Symmetry:
No tap



APPLICATIONS:

- Baby-Ear-Thermometer
- μ -Pyrometer

The smallest Thermopile Mini Sensor from Heimann Sensor GmbH, comprising a new type CMOS compatible sensor chip plus a thermistor reference chip, features good sensitivity, small temperature coefficient of sensitivity as well as high reproducibility and reliability. The sensor will be available in a new transistor outline package smaller than TO18, equipped with an IR transmitting filter window (transmission curve as shown below). The sensor can be equipped with customized filter upon request.



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Thermopile				
Parameter	Typical Value	Unit	Condition	Remark
Element Size	0.6 x 0.6	mm ²		Active area
Voltage Response	13	Vmm ² /W		
Sensitivity	36	V/W	Tobj=373K Tamb=298K	
Thermopile Resistance	86	kΩ	25 °C	
TC of Thermopile Resistance	20	ppm	Operating temp. range	
Thermopile Noise	38	nV/√ Hz	25 °C	
Detectivity	5.6 · 10 ⁷	cm √ Hz/W		
Time Constant	<6	ms	63%	

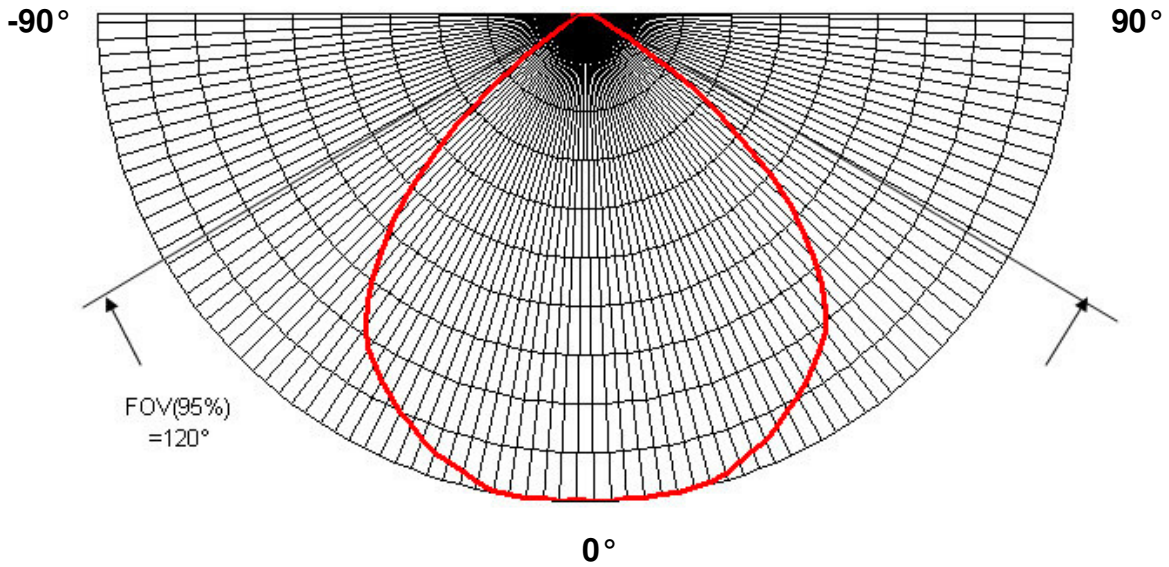
Thermistor				
Parameter	Nominal Value	Unit	Condition	Remark
Thermistor Ref.	100	kΩ	25 °C	I<10μA
TC of Thermistor R	3940	K	R(T)=R ₂₅ * exp(B*(1/T-1/298K))	

Optical				
Parameter	Typical Value	Unit	Condition	Remark
Field of View	120	deg	95% intens. within fov.	See graph below

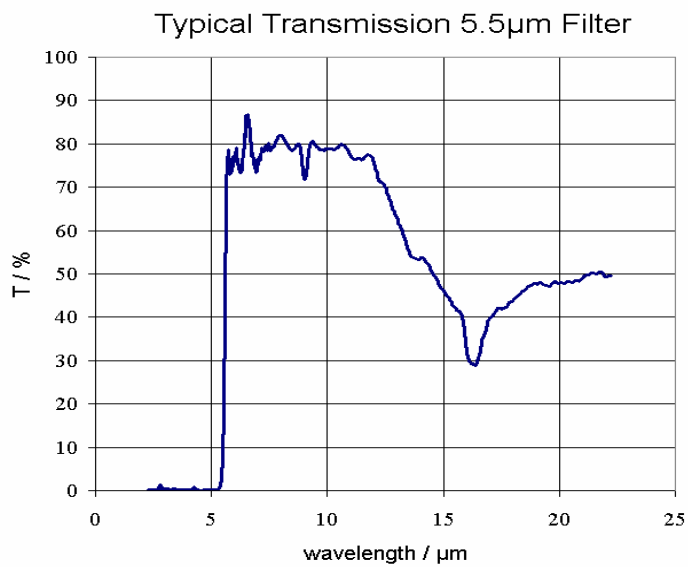
Temperature				
Parameter	Value	Unit	Condition	Remark
Operating / Storage	-40..100	deg C	Humidity?	

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Field of view



Optical Transmission



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Table of nominal values for Thermopile-Signal and Thermistor-Resistance

Condition for Thermopile-Signal: Fully exposed FOV, $\varepsilon=1.00$, $T_{amb}=25\text{ }^{\circ}\text{C}$

TEMP(°C)	Thermopile(V)	Thermistor (Ω)	TEMP(°C)	Thermopile(V)	Thermistor (Ω)	TEMP(°C)	Thermopile(V)	Thermistor (Ω)
0	-9.286E-04	3.217E+05	40	6.786E-04	5.331E+04	80	2.975E-03	1.235E+04
1	-8.963E-04	3.060E+05	41	7.279E-04	5.120E+04	81	3.041E-03	1.195E+04
2	-8.623E-04	2.912E+05	42	7.773E-04	4.919E+04	82	3.107E-03	1.156E+04
3	-8.300E-04	2.772E+05	43	8.266E-04	4.727E+04	83	3.175E-03	1.119E+04
4	-7.960E-04	2.640E+05	44	8.759E-04	4.544E+04	84	3.243E-03	1.083E+04
5	-7.620E-04	2.514E+05	45	9.269E-04	4.368E+04	85	3.313E-03	1.048E+04
6	-7.279E-04	2.395E+05	46	9.780E-04	4.200E+04	86	3.381E-03	1.015E+04
7	-6.922E-04	2.282E+05	47	1.029E-03	4.040E+04	87	3.451E-03	9.827E+03
8	-6.582E-04	2.175E+05	48	1.080E-03	3.886E+04	88	3.522E-03	9.517E+03
9	-6.225E-04	2.074E+05	49	1.133E-03	3.738E+04	89	3.592E-03	9.218E+03
10	-5.868E-04	1.978E+05	50	1.185E-03	3.598E+04	90	3.664E-03	8.930E+03
11	-5.494E-04	1.887E+05	51	1.238E-03	3.462E+04	91	3.735E-03	8.652E+03
12	-5.136E-04	1.800E+05	52	1.293E-03	3.333E+04	92	3.806E-03	8.384E+03
13	-4.762E-04	1.718E+05	53	1.345E-03	3.209E+04	93	3.880E-03	8.126E+03
14	-4.388E-04	1.640E+05	54	1.400E-03	3.091E+04	94	3.953E-03	7.876E+03
15	-4.014E-04	1.566E+05	55	1.454E-03	2.977E+04	95	4.026E-03	7.635E+03
16	-3.623E-04	1.496E+05	56	1.510E-03	2.868E+04	96	4.099E-03	7.403E+03
17	-3.232E-04	1.429E+05	57	1.566E-03	2.763E+04	97	4.174E-03	7.179E+03
18	-2.840E-04	1.365E+05	58	1.623E-03	2.663E+04	98	4.249E-03	6.962E+03
19	-2.449E-04	1.305E+05	59	1.679E-03	2.567E+04	99	4.323E-03	6.753E+03
20	-2.058E-04	1.248E+05	60	1.737E-03	2.475E+04	100	4.400E-03	6.551E+03
21	-1.650E-04	1.193E+05	61	1.793E-03	2.386E+04			
22	-1.242E-04	1.141E+05	62	1.852E-03	2.302E+04			
23	-8.334E-05	1.092E+05	63	1.910E-03	2.220E+04			
24	-4.252E-05	1.045E+05	64	1.970E-03	2.142E+04			
25	0.000E+00	1.000E+05	65	2.029E-03	2.067E+04			
26	4.252E-05	9.574E+04	66	2.089E-03	1.995E+04			
27	8.504E-05	9.168E+04	67	2.148E-03	1.926E+04			
28	1.276E-04	8.782E+04	68	2.209E-03	1.859E+04			
29	1.718E-04	8.413E+04	69	2.271E-03	1.795E+04			
30	2.160E-04	8.063E+04	70	2.332E-03	1.734E+04			
31	2.602E-04	7.728E+04	71	2.395E-03	1.675E+04			
32	3.044E-04	7.409E+04	72	2.456E-03	1.618E+04			
33	3.504E-04	7.105E+04	73	2.519E-03	1.563E+04			
34	3.963E-04	6.815E+04	74	2.584E-03	1.511E+04			
35	4.422E-04	6.538E+04	75	2.646E-03	1.460E+04			
36	4.881E-04	6.274E+04	76	2.711E-03	1.412E+04			
37	5.358E-04	6.021E+04	77	2.777E-03	1.365E+04			
38	5.834E-04	5.780E+04	78	2.842E-03	1.320E+04			
39	6.310E-04	5.550E+04	79	2.908E-03	1.277E+04			