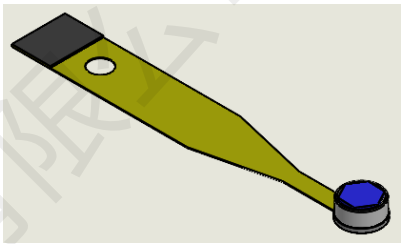
Preliminary Datasheet Thermopile Single
HFS PH F5.5

Features and Benefits

- Non-contact surface temperature detection
- Thermopile Sensor on Flex PCB with 6 ZIF – Contacts
- Pre-Heating technology for faster and more accurate temperature sensing
- Low Heat Shock technology
- Unique Thermopile technology for best support of Pre-Heating function
- F5.5 Filter and housing design for 14 ° field of view
- Pure analog output
- Thermistor with 100 kΩ for temperature reference
- High accuracy over wide sensor temperature and object temperature ranges
- Complies with ROHS regulations

Ordering Information

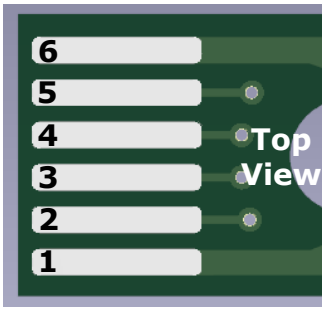
HFS -> Heimann thermopile sensor connected to a Flex PCB
PH -> PH Cap, 5 mm diameter, 1.95 mm height
F5.5 -> SI window with 5% cut on at 5.5 µm

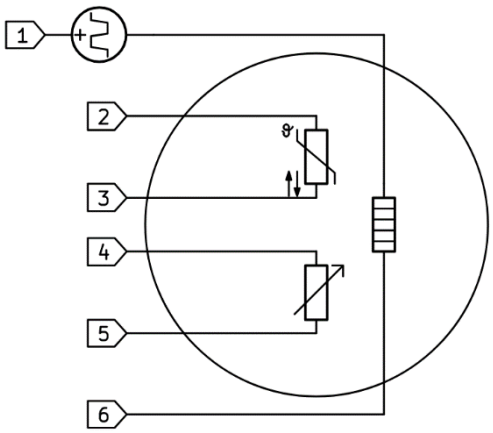


Pin Configuration

Pin	*Description*
1	Heater*
2	Thermistor
3	Thermistor
4	Thermopile -
5	Thermopile +
6	Heater coonected to metal cap

*For powering with PWM
it is recommended to use this pin.





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Absolute Maximum Ratings

Parameter	*Value*		*Unit*	*Comment*
	Min	*Max*		
Storage temperature	-40	100	°C	
Operating temperature	-40	85	°C	

General and Electrical Parameter Thermopile

Parameter	*Value*	*Unit*	*Comment*
Thermistor Resistance	100	kΩ	Nominal at 25°C
Thermopile Resistance	90	kΩ	Tbd after final evaluation
Heater Resistance	7	Ω	Typical
Supply voltage for Heater	3.3	V	Typical, should be adjusted to the required sensor temperature
Chip Size	1.5 x 1.5	mm²	Thermopile chip
Sensor absorbing area	0.5 x 0.5	mm²	Thermopile chip
Voltage sensitivity	36	V/W	Thermopile chip
Time constant	8	ms	Thermopile chip
Noise voltage	37.5	nV/√Hz	r.m.s., 25 °C at 90kΩ
Response time	tbd	ms	
Refresh rate	tbd	ms	
ESD sensitivity	2	kV	Human body

General and Electrical Parameter Thermistor

Type	Thermistor 100kΩ					
Parameter	*Symbol*	*Limits*			*Units*	*Conditions*
		Min	*Typ.*	*Max*		
Resistance	R_{TH}	96	100	104	kΩ	at 25°C
BETA-value	β	3928	3940	3952	K	±0.3% at 25°C/50°C

T / °C	*Rth_min total tolerance Ohm*	*Rth_min BETA tolerance Ohm*	*Rth_nom Ohm*	*Rth_max BETA tolerance Ohm*	*Rth_max total tolerance Ohm*
-20	894949	932497	938700	945103	982651
-15	677971	706387	710400	714713	743129
-10	517872	539560	542200	545040	566728
-5	398722	415410	417200	418990	435678
0	309285	322221	323400	324579	337515
5	241383	251469	252150	252861	262947
10	189752	197675	198070	198485	206408
15	150213	156480	156690	156910	163177
20	119705	124696	124780	124864	129855
25	96000	100000	100000	100000	104000
30	77346	80571	80620	80679	83904
35	62682	65297	65370	65463	68078
40	51067	53199	53300	53401	55533
45	41829	43576	43680	43794	45541
50	34428	35868	35980	36092	37532
55	28485	29676	29790	29894	31085
60	23685	24676	24780	24884	25875
65	19785	20613	20700	20807	21635
70	16588	17283	17370	17467	18162
75	13968	14554	14640	14726	15312
80	11808	12303	12380	12467	12962
85	10009	10429	10500	10571	10991
90	8513	8871	8934	9000	9358
95	7264	7569	7627	7687	7992
100	6217	6479	6531	6585	6847
105	5339	5563	5610	5659	5883
110	4597	4790	4833	4877	5070
115	3969	4136	4175	4215	4382
120	3436	3581	3616	3653	3798

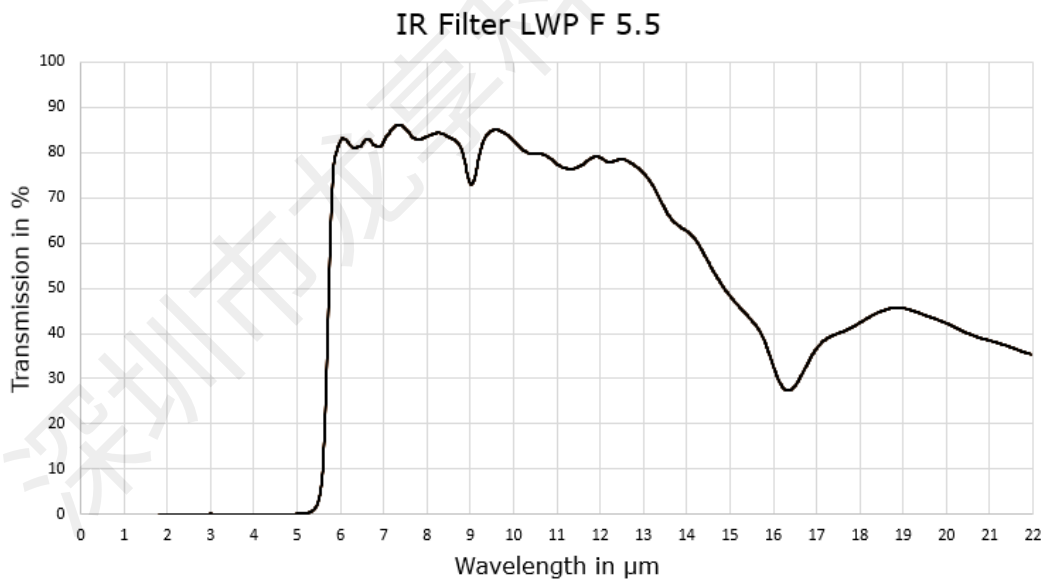
Field of View, Spot Size

Parameter	*Typical Value*	*Unit*	*Comment*
Field of View	90	degrees	50% energy points

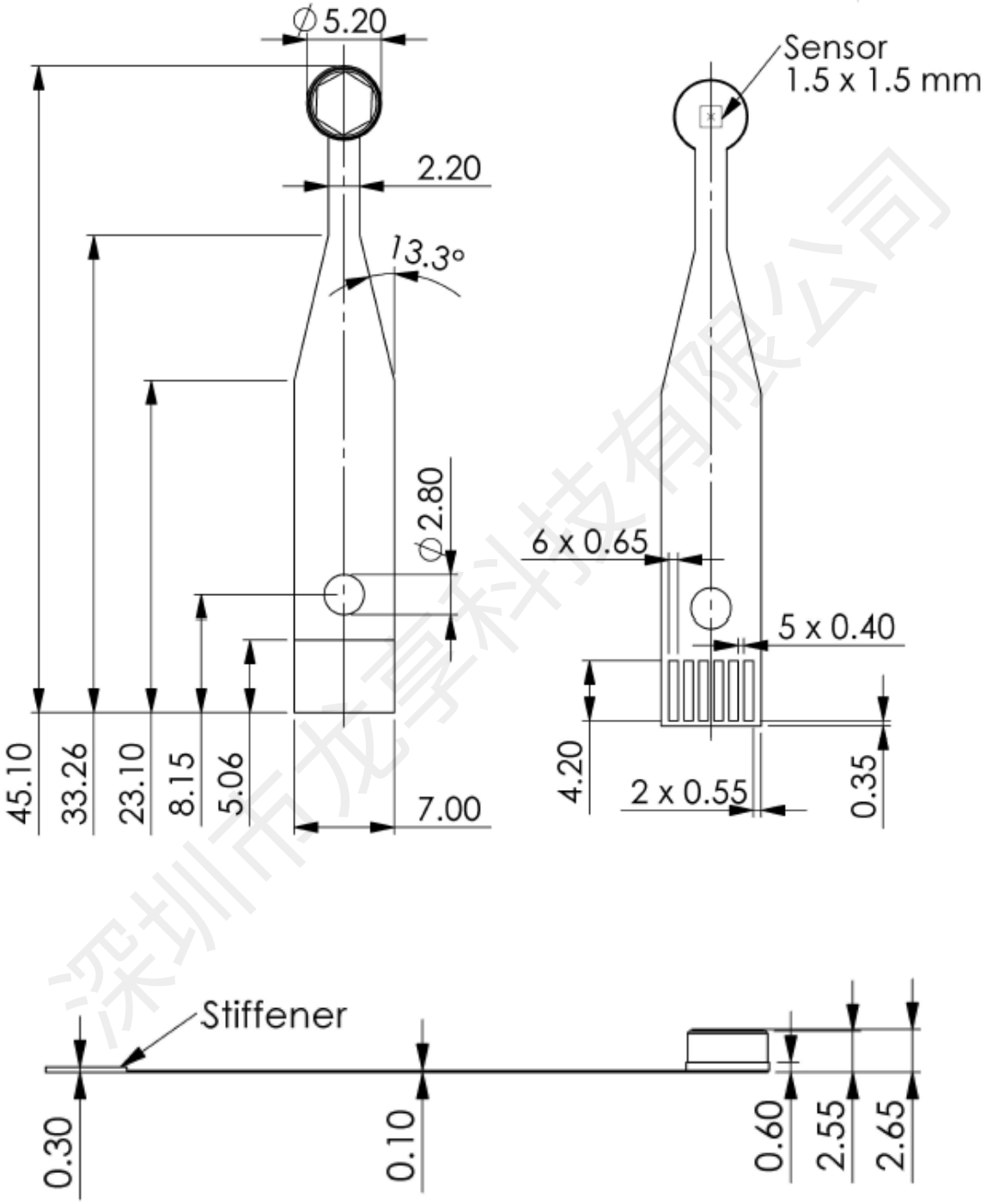
Filter Characteristics

Filter F 5.5					
Parameter	*Limits*			*Unit*	*Conditions*
	Min	*Typ*	*Max*		
Average transmission	70			%	7.5µm to 13.5µm
Average transmission			1	%	visual to 5µm
Cut on	5.2	5.5	5.8	µm	25°C
Filter thickness		0.525			
Filter material	silicon coated				

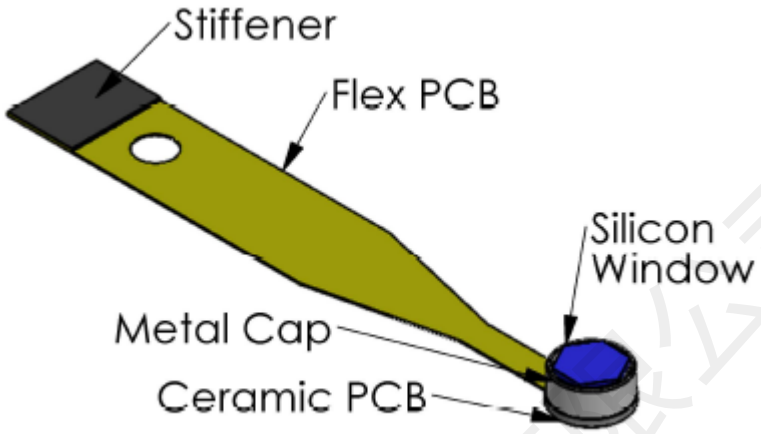
Sample Curve



Dimensional Drawing



Schematic Drawing



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