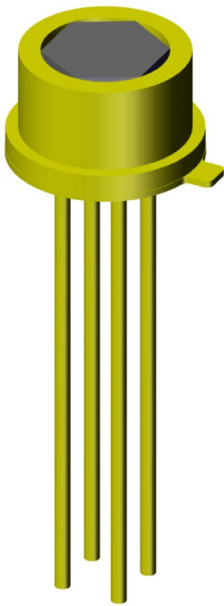


Thermopile Temperature Sensor MTP10-B7F55 TSR



Features:

- MEMS Thermopile Element
- TO-39 Package
- Excellent Thermal Shock Resistance
- High Sensitivity
- 5.5um LWP Filter
- High Accuracy NTC

Applications:

- Non-contact Temperature Measurements
- Forehead Thermometers
- Continuous Temperature Control of Manufacturing
- Consumer Applications
- Home Appliance Temperature Measurement

Model No.: MTP10-B7F55 TSR	Approved by	Checked by	Drawn by
Rev. 04 / Date: 2021.07			

Model No.: MTP10-B7F55 TSR

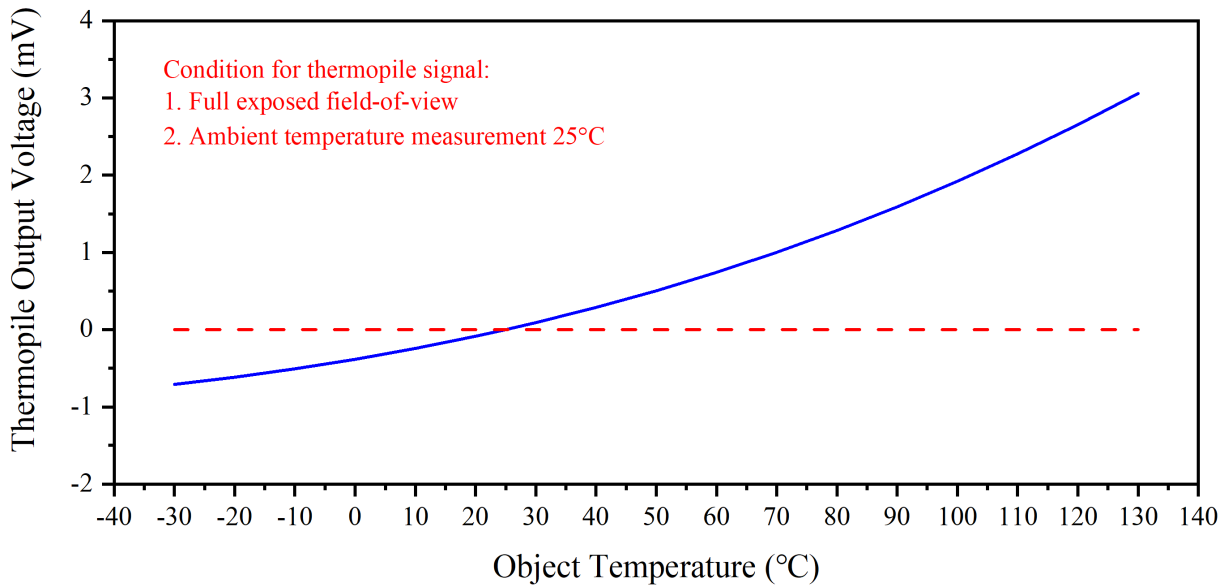
Absolute Maximum Rating

Parameter	Value	Unit
Operating Temperature	-30~100	°C
Storage Temperature	-40~125	°C

Performance Specification

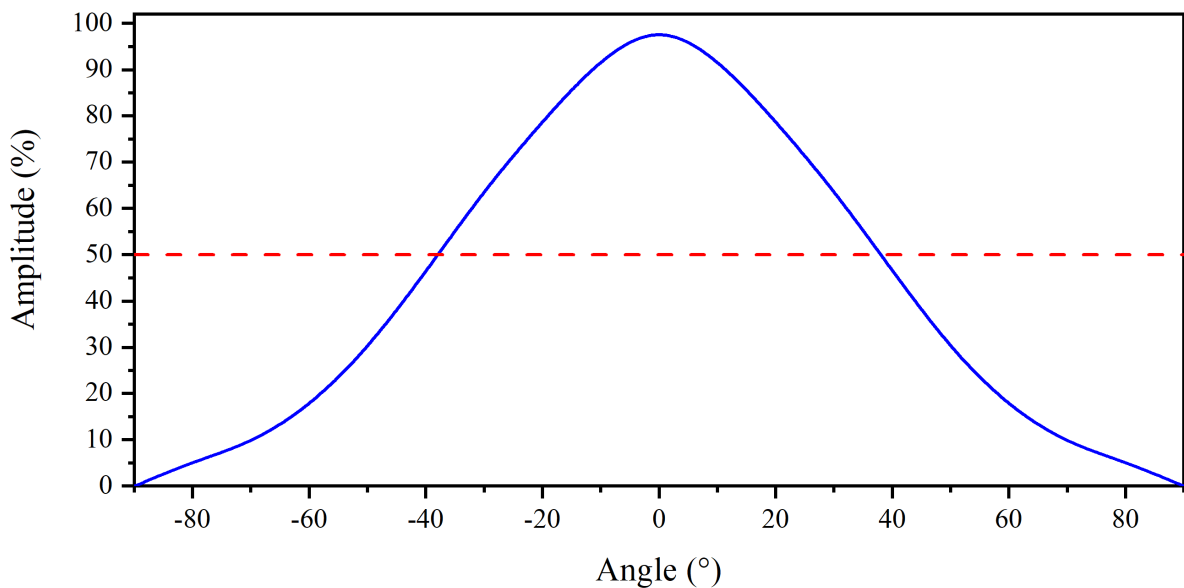
Parameter	Value	Unit	Conditions
Chip Size	1.1*1.1	mm ²	
Membrane Area	0.75*0.75	mm ²	
Field of View	76	°	at 50 % intensity points
Thermopile Resistance	54 ± 10%	kΩ	Temp=25°C
Noise Voltage	30 ± 2	nV/Hz ^{1/2}	Temp=25°C
NEP	0.37	nV/Hz ^{1/2}	500K,1Hz
Responsivity	81	V/W	500K,5.5um(LWP)
Temp Coefficient of Resistance	0.1	%/°C	25°C/50°C
Time Constant	20	ms	
Specific Detectivity	5.9E+07	cmHz ^{1/2} /W	500K,1Hz
Thermistor Resistance	100 ± 3%	kΩ	25°C
Thermistor BETA-Value	3950 ± 1%	K	25°C/50°C

Typical Performance Curve



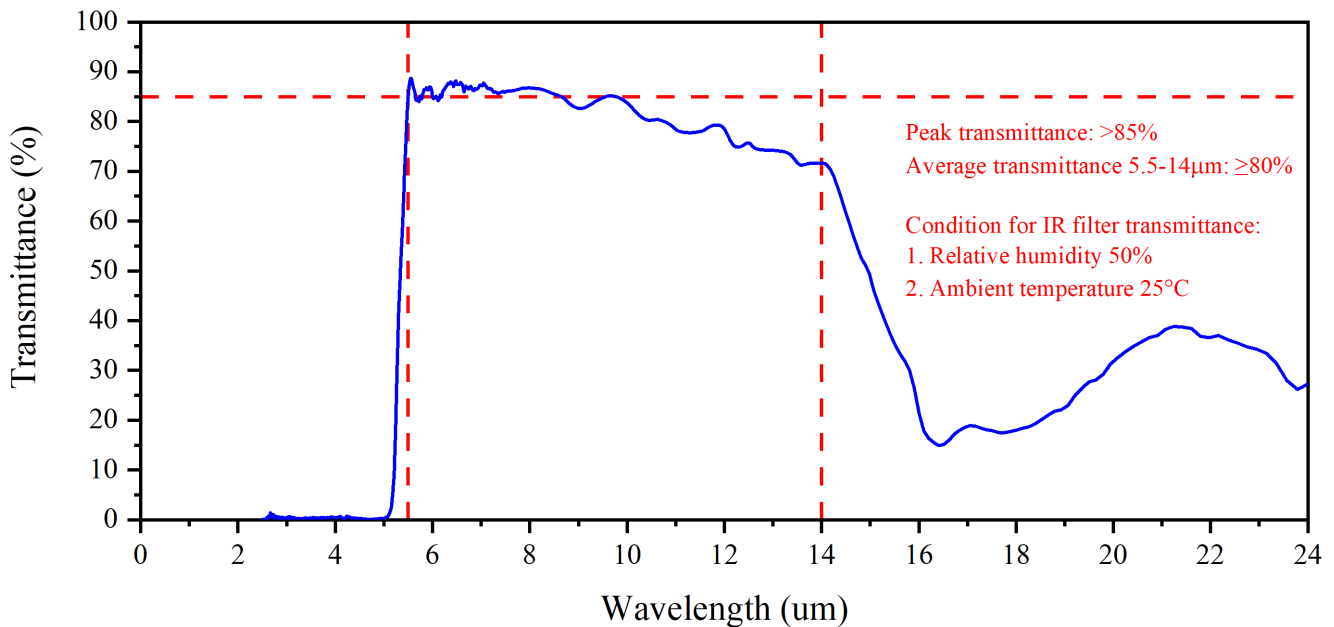
Optical Characteristic

Parameter	Value	Unit	Description
Field of View	76	°	50% Maximum Signal



Filter Specification

Parameter	Value	Unit	Description
Transmission Range	5.5~14	um	LWP
Transmission	≥80	%	5.5~14um
Transmission Blocking Average	1	%	<5um



Electrical Connection

Pin	1	2	3	4
Definition	TP+	NTC+	TP-	GND

Resistance vs. Temperature Table of NTC

T (°C)	R (kΩ)	T (°C)	R (kΩ)	T (°C)	R (kΩ)
-20	953.19	20	124.91	60	24.701
-19	900.37	21	119.41	61	23.821
-18	850.79	22	114.19	62	22.976
-17	804.21	23	109.22	63	22.166
-16	760.45	24	104.50	64	21.388
-15	719.32	25	100.00	65	20.641
-14	680.64	26	95.72	66	19.923
-13	644.27	27	91.65	67	19.234
-12	610.04	28	87.77	68	18.572
-11	577.82	29	84.07	69	17.936
-10	547.48	30	80.55	70	17.325
-9	518.90	31	77.20	71	16.738
-8	491.98	32	74.00	72	16.173
-7	466.60	33	70.95	73	15.630
-6	442.67	34	68.04	74	15.108
-5	420.11	35	65.265	75	14.605
-4	398.81	36	62.618	76	14.122
-3	378.72	37	60.092	77	13.657
-2	359.74	38	57.681	78	13.209
-1	341.83	39	55.379	79	12.779
0	324.90	40	53.180	80	12.364
1	308.90	41	51.080	81	11.965
2	293.78	42	49.073	82	11.580
3	279.48	43	47.155	83	11.210
4	265.96	44	45.321	84	10.853
5	253.16	45	43.569	85	10.509
6	241.05	46	41.892	86	10.177
7	229.58	47	40.289	87	9.858
8	218.72	48	38.755	88	9.550
9	208.44	49	37.286	89	9.253
10	198.69	50	35.881	90	8.967
11	189.45	51	34.536	91	8.691
12	180.69	52	33.248	92	8.424
13	172.38	53	32.014	93	8.167
14	164.50	54	30.832	94	7.919
15	157.02	55	29.699	95	7.680
16	149.91	56	28.614	96	7.449
17	143.17	57	27.573	97	7.226
18	136.77	58	26.576	98	7.010
19	130.69	59	25.619	99	6.802
				100	6.601

Mechanical Dimension

