

Resch

Temperature Sensor

STP583F59B

Resch electronic co., LTD.

STP583F59B Thermopile sensor

The STP583F59B is a new type CMOS compatible thermopile sensor, featuring integrated optics, good sensitivity, high reproducibility and reliability. The integrated optical lens ensure a high distance to spot ratio (D:S), and high sensitivity with small field of view. A thermistor chip is also provided inside the TO-39 package for ambient temperature reference.

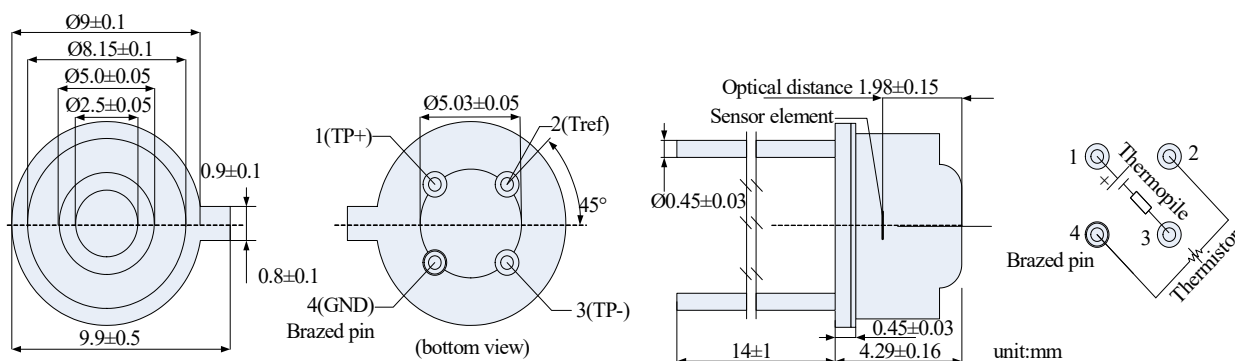
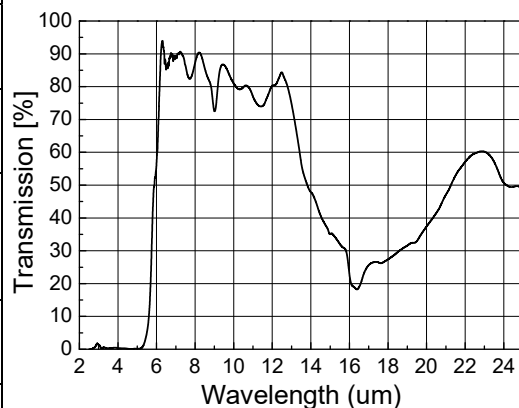
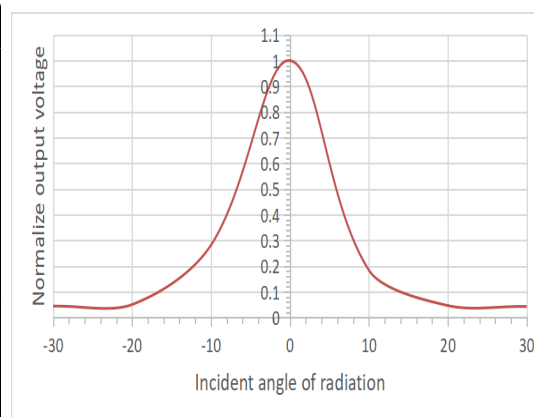
Features

- TO-39 housing with integrated optics
- High sensitivity with Small Field of View (FOV)
- High Distance to Spot ratio (D:S)

Applications

- Non-contact temperature measurements
- General purpose thermometry
- IR based gas sensing

Parameter	Symbol	Typ	Units	Remark
Sensitive area	A	1	mm ²	Absorber area
Thermopile resistance	R _{TP}	75 ± 20	K Ω	
Responsivity	R	165 ± 40	V/W	500K, with filter cut-on 5.5 μm
Time constant	τ	15	ms	
Noise voltage	V _N	35.2	nV/H z ^{1/2}	25° C
Specific detectivity	D*	1.65*10 ⁸	cmHz ^{1/2} /W	25° C
TC of resistance	TC _{RTP}	0.08 ± 0.04	%/K	-40° C ~100° C ambient
Field of view	Fov	20	Degr ees	At 50% intensity points
Thermistor resistance		100 ± 5	K Ω	25° C
β-value		3950 ± 20	K	Defined at 25° C/50° C



Temp(° C)	R_st (K Ω)	Temp(° C)	R_st (K Ω)	Temp(° C)	R_st (K Ω)
-20	965.8195	21	119.4230	62	22.9660
-19	911.5533	22	114.1960	63	22.1542
-18	860.6741	23	109.2256	64	21.3749
-17	812.9499	24	104.4979	65	20.6267
-16	768.1666	25	100.0000	66	19.9081
-15	726.1259	26	95.7194	67	19.2179
-14	686.6434	27	91.6446	68	18.5547
-13	649.5486	28	87.7646	69	17.9175
-12	614.6833	29	84.0692	70	17.3052
-11	581.9004	30	80.5486	71	16.7165
-10	551.0637	31	77.1937	72	16.1505
-9	522.0463	32	73.9959	73	15.6063
-8	494.7305	33	70.9470	74	15.0829
-7	469.0067	34	68.0395	75	14.5794
-6	444.7733	35	65.2660	76	14.0950
-5	421.9353	36	62.6197	77	13.6288
-4	400.4045	37	60.0941	78	13.1802
-3	380.0988	38	57.6832	79	12.7483
-2	360.9416	39	55.3812	80	12.3325
-1	342.8615	40	53.1827	81	11.9321
0	325.7920	41	51.0825	82	11.5465
1	309.6710	42	49.0757	83	11.1750
2	294.4406	43	47.1578	84	10.8171
3	280.0466	44	45.3244	85	10.4723
4	266.4385	45	43.5713	86	10.1399
5	253.5692	46	41.8947	87	9.8196
6	241.3946	47	40.2908	88	9.5108
7	229.8733	48	38.7563	89	9.2130
8	218.9668	49	37.2876	90	8.9258
9	208.6389	50	35.8818	91	8.6488
10	198.8560	51	34.5358	92	8.3817
11	189.5862	52	33.2469	93	8.1239
12	180.8000	53	32.0122	94	7.8751
13	172.4696	54	30.8294	95	7.6350
14	164.5689	55	29.6959	96	7.4033
15	157.0735	56	28.6095	97	7.1796
16	149.9605	57	27.5681	98	6.9636
17	143.2084	58	26.5695	99	6.7550
18	136.7970	59	25.6118	100	6.5535
19	130.7073	60	24.6931	101	6.3589
20	124.9216	61	23.8118	102	6.1709