



Specification of Thermopile Sensor EOC-GDC-TP-2C-CH₄



Specification:

- MEMS Thermopile Element
- TO-39 Package (Dual Channel)
- Very High Signal
- 3.40/3.95 μm NBP Filter
- High Accuracy NTC

Application:

- NDIR CH₄ Gas Detection
- Downhole Safety Monitoring
- Industrial Process Control

Absolute Maximum Rating

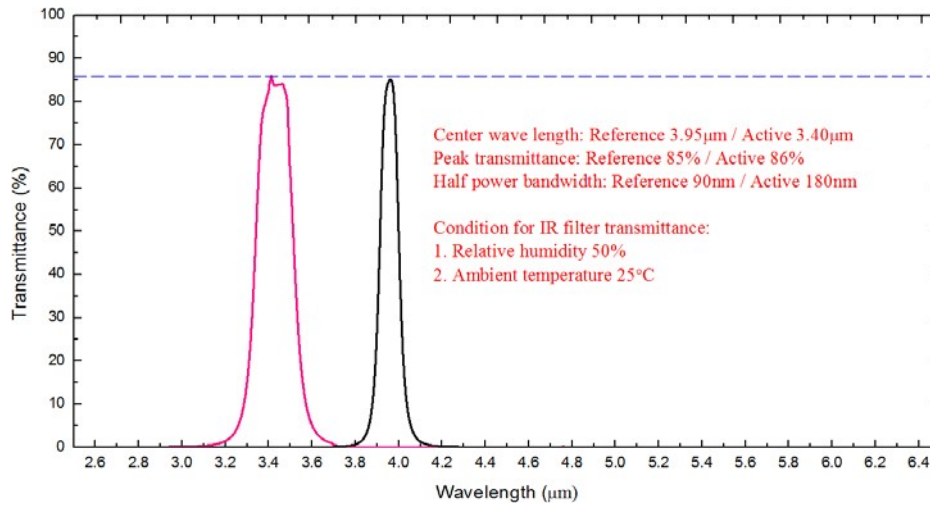
Parameter	Value	Unit
Operating Temperature	-30 to +100	° C
Storage Temperature	-40 to +125	° C

Performance Specification

Parameter	Typ	Unit	Conditions
Chip Size	1.8 × 1.8	mm ²	
Sensitive Area	1.35 × 1.35	mm ²	
Thermopile Resistance	43 ± 10%	kΩ	Temp = 25 °C
Noise Voltage	27 ± 2	nV/Hz ^{1/2}	Temp = 25 °C
NEP	0.62	nW/Hz ^{1/2}	500 K, 1 Hz
Responsivity	43	V/W	500K, 5.5 μm (Long Pass)
Temp Coefficient of Resistance	0.1	%/°C	Temp = 25~50 °C
Time Constant	32	ms	
Specific Detectivity	6.8e+07	cmHz ^{1/2} /W	500 K, 1 Hz
Thermistor Resistance	100 ± 3%	kΩ	Temp = 25 °C
Thermistor BETA-Value	3950 ± 1%	K	25 °C/50 °C

Filter Specification

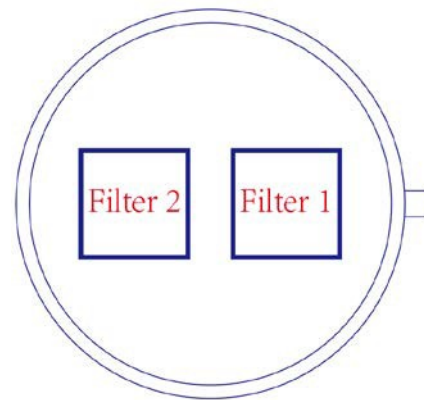
Parameter	Active channel	Reference channel	Unit	Description
Center Wave Length	3.40	3.95	μm	Narrow Band Pass
Half Power Bandwidth	180	90	nm	
Peak Transmission	>80	>80	%	



Optical Characteristic

Parameter	Value	Unit	Description
Field of View	98	°	50% Maximum Signal
Window Size	2.5*2.5	mm	Two Channel

Filter 1	3.95 (Reference)
Filter 2	3.40 (Active)



Temperature VS. Resistance 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

Electrical Connection

Pin	1	2	3	4
Define	NTC	Thermopile 2	Thermopile 1	GND

Mechanical Dimension

