Ao littel Technology Co.,Ltd.

TO-46 Package IR Infrared Thermopile Temperature Sensor 100K 3950 ISB-TS45H For Contactless Temperature Measurement

General

A thermopile Temperature sensor can measure temperature by detecting the infrared energy of an object outside a certain distance. The temperature is higher, infrared energy produced would be more.
Thermopile sensing elements consist of small thermocouples on silicon chips that absorb energy and produce output signals.
The ISB-TS45H Thermopile Thermopile Temperature Sensor is used for non-contact temperature measurement. The product consists of infrared filters, thermistors and other components, after TO-46 Metal encapsulated, with high reliability and high sensitivity.

Features

TO-46 Package
High Sensitivity
NTC Thermistor Compensation
Fast Response Time
5μm Longpass Filter

Application

Non-contact temperature measurement
Ear thermometer,
Forehead thermometer,
Industrial continuous temperature control

Представитель в России
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Performances

ISB-TS45H					
Parameter	**Min.**	**Typ.**	**Max.**	**Unit**	**Conditons**
Chip size		1.1×1.1		mm2	
Sensitve area		0.35×0.35		mm2	
Detection angle		90		°	
Thermopile resistance	80	98	115	KΩ	Temp=25℃
Noise voltage		38		nV/Hz1/2	Temp=25℃
NEP		0.23		nW/Hz1/2	Blackbody=500K,1Hz@25℃
Voltage Response		20.11		Vmm2/w	Blackbody=500K,1Hz@25℃
Responsivity	134	164	194	V/w	Blackbody=500K,1Hz@25℃
Temp.coefcient of resistance		0.06		%/℃	Temp=25℃～75℃
Time constant		≤ 13		ms	
Specifc detectvity		1.51 E08		cmHz1/2/w	Blackbody=500K,1Hz@25℃
NTC Resistance		100±3%		KΩ	25℃
NTC β		3950±1%		K	25/50℃

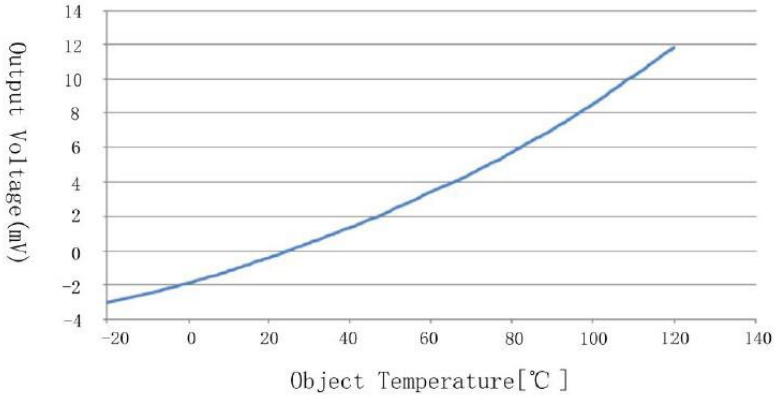
Environmental requirements

Operating Temperature：-30℃～ +85℃

Storage Temperature ：-30℃～ +100℃

Test conditions: 25℃ ambient temperature, the measured object temperature and the typical output voltage of the reactor corresponding relationship.

* Note: This parameter is tested under TO46 package plus LWP5.0 filter condition.



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Temp (℃)	V out (mv)	Temp (℃)	V out (mv)	Temp (℃)	V out (mv)	Temp (℃)	V out (mv)	Temp (℃)	V out (mv)
-20	-3.046	10	-1.196	40	1.334	70	4.477	100	8.508
-19	-2.983	11	-1.131	41	1.426	71	4.606	101	8.667
-18	-2.929	12	-1.051	42	1.526	72	4.73	102	8.839
-17	-2.879	13	-0.973	43	1.624	73	4.845	103	9.001
-16	-2.829	14	-0.888	44	1.725	74	4.962	104	9.172
-15	-2.777	15	-0.806	45	1.81	75	5.081	105	9.335
-14	-2.724	16	-0.723	46	1.892	76	5.205	106	9.499
-13	-2.673	17	-0.646	47	1.995	77	5.321	107	9.664
-12	-2.619	18	-0.572	48	2.094	78	5.455	108	9.83
-11	-2.569	19	-0.494	49	2.199	79	5.587	109	9.991
-10	-2.514	20	-0.417	50	2.306	80	5.724	110	10.15
-9	-2.461	21	-0.33	51	2.42	81	5.848	111	10.32
-8	-2.399	22	-0.248	52	2.53	82	5.981	112	10.48
-7	-2.338	23	-0.164	53	2.635	83	6.116	113	10.64
-6	-2.275	24	-0.083	54	2.753	84	6.251	114	10.81
-5	-2.214	25	0	55	2.865	85	6.376	115	10.98
-4	-2.144	26	0.086	56	2.969	86	6.514	116	11.15
-3	-2.084	27	0.174	57	3.08	87	6.641	117	11.33
-2	-2.022	28	0.258	58	3.185	88	6.767	118	11.5
-1	-1.964	29	0.346	59	3.299	89	6.907	119	11.66
0	-1.899	30	0.446	60	3.401	90	7.043	120	11.84
1	-1.829	31	0.544	61	3.508	91	7.19		
2	-1.754	32	0.623	62	3.608	92	7.33		
3	-1.689	33	0.709	63	3.715	93	7.468		
4	-1.629	34	0.798	64	3.808	94	7.604		
5	-1.155	35	0.892	65	3.91	95	7.751		
6	-1.479	36	0.974	66	4.019	96	7.9		
7	-1.416	37	1.062	67	4.123	97	8.051		
8	-1.349	38	1.149	68	4.239	98	8.191		
9	-1.275	39	1.246	69	4.354	99	8.344		

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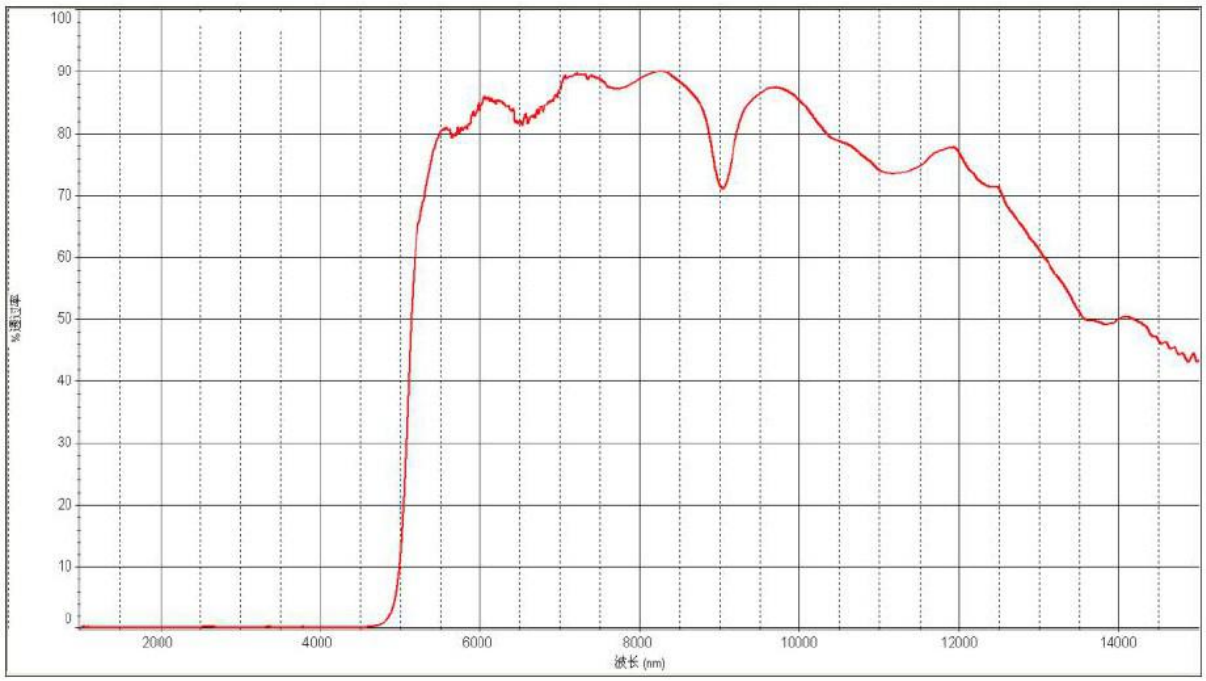
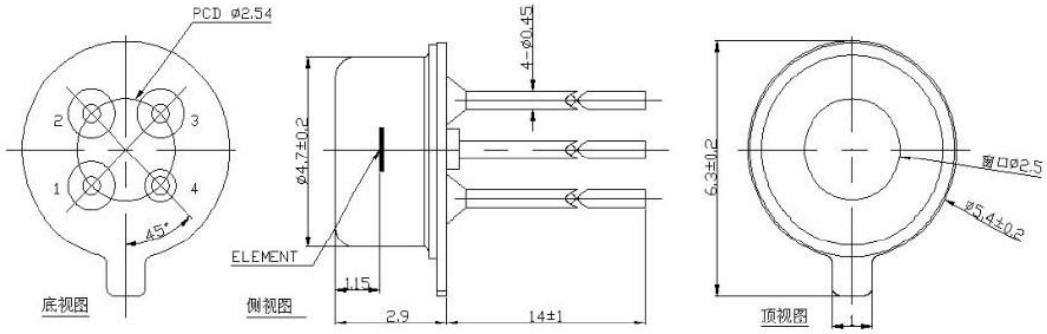
Spectral curve



Transmission rate %

Wavelength(nm)

Dimension



Unit:mm

1. THERMOPILE (+)
2. THERMISTOR
3. THERMOPILE (-)
4. GROUND

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Precautions

1. Design restrictions

The sensor is designed for indoor use.
When used in outdoor applications, be sure to use a suitable supplemental optical filter and moisture-proof structure.
To prevent secondary failures due to operational failures or malfunctions, fail-safe features can be added in advance.

2. Use restrictions

To prevent sensor failure, operational malfunction or any other malfunction, do not use this sensor under or under similar conditions.
A. Severe changes in ambient temperature.
B. Strong vibration or vibration.
C. When passing through a place with a barrier material (glass, fog, etc.), infrared rays cannot pass through the detection area.
D. In liquids, corrosive gases and seawater.
E. Continuous use in a high-humidity atmosphere.
F. Static electric field or strong electromagnetic radiation.
G. Corrosive gas or sea breeze.
H. Dirty and dusty environment that may contaminate the optical window.

3. Welding restrictions

A. Soldering with soldering iron. The soldering temperature is at 260°C for 10 seconds. Avoid overheating the sensor pins for a long time.
B. All flux must be washed off after soldering and rinsed with a brush. Using an ultrasonic cleaner may cause performance problems.

4. Product use restrictions

Use and sell under any applicable law or regulation.

Incorrect handling or storage due to incorrect use of the sensor is not the responsibility of the manufacturer.

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