

SILICON BASED THERMOPILE SENSOR 631102 – 150MM WAFERS REV B

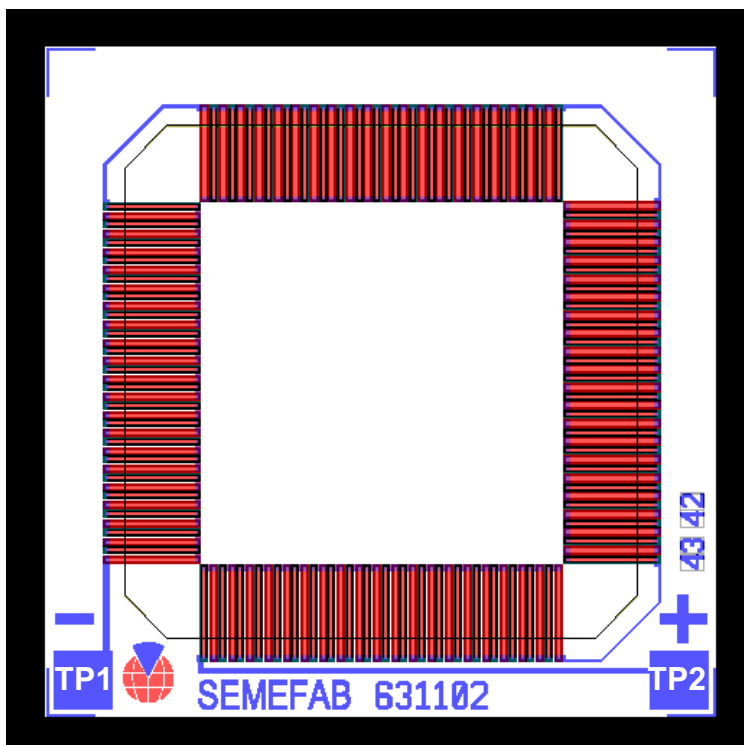
DESCRIPTION

The 631102 is a silicon-based, single element thermopile IR sensor with active sensing area of 1.125mm x 1.125mm.

APPLICATIONS

- Contactless temperature measurement
- Ear thermometers
- Appliances
- Horizon sensor
- Gas Analysis

1.0 Product Design



2.0 Bond Pad Assignment

Bond Pad	Reference
TP1	Thermopile negative pad
TP2	Thermopile positive pad

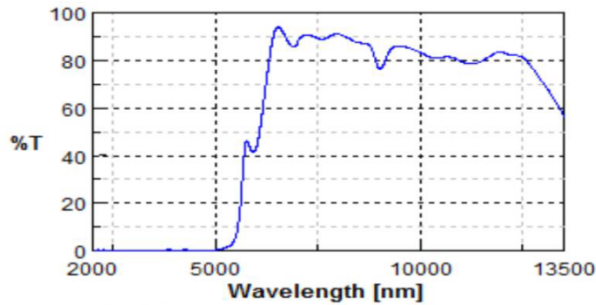
3.0 Product Information

Feature	Size
Chip size	1.6mm x 1.6mm
Active area (Hot junction)	1.125mm x 1.125mm
Bond pad size	0.125mm x 0.125mm
Bulk substrate thickness	0.380mm
Saw channel width	0.152mm
No of junctions	80

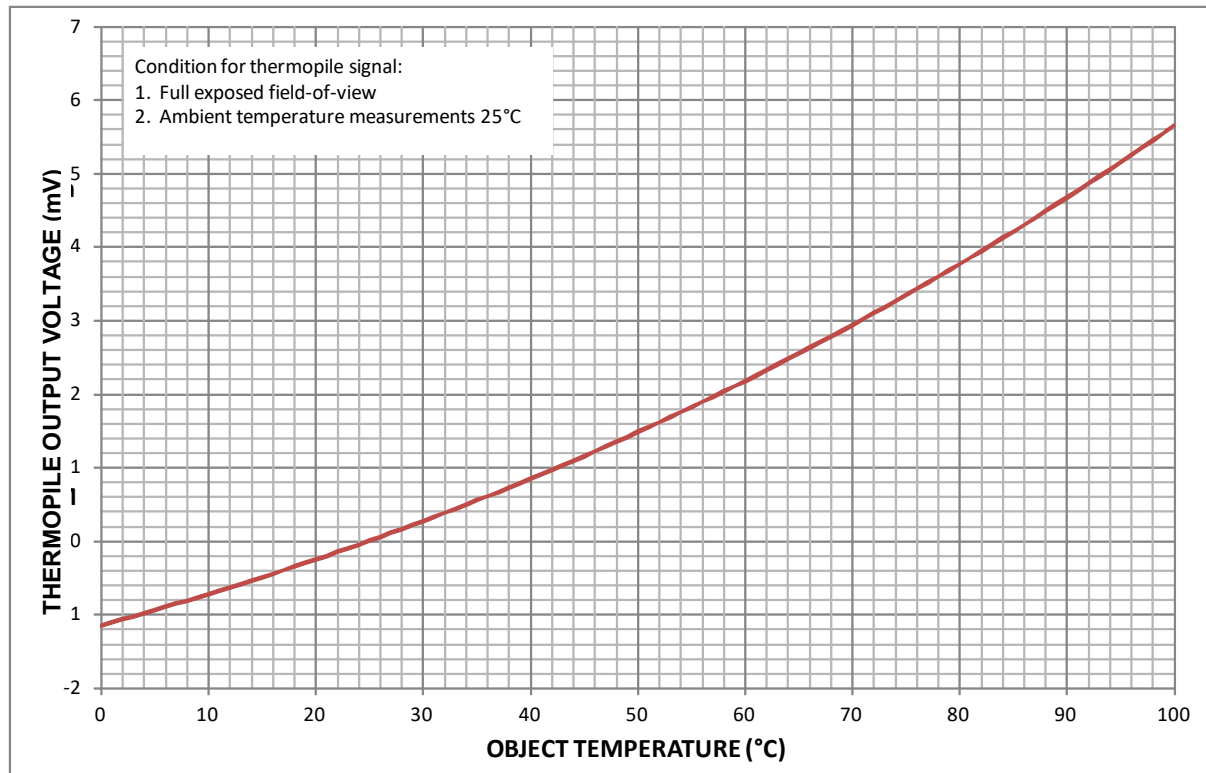
4.0 Target Specification (No Absorber)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Thermopile resistance	R_{TP}	25°C	95	120	140	k Ω
Responsivity	R	25°C		124		V/W
Time constant	t	25°C		10		ms
Noise voltage	V_N	25°C		45		nV/ $\sqrt{\text{Hz}}$
Noise Equivalent Power	NEP	25°C		0.27		nW/ $\sqrt{\text{Hz}}$
Specific detectivity	D^*	25°C		1.0E+08		cm/ $\sqrt{\text{Hz/W}}$
Temp coefficient of responsivity	TC_R			0.1		%/°C

* Note all measurements made on TO46 package sample with filter (LWP5.0)



5.0 VT GRAPH



* Note all measurements made on TO46 package sample with filter (LWP5.0)

6.0 VT TABLE

T (°C)	VOUT (mV)	T (°C)	VOUT (mV)	T (°C)	VOUT (mV)	T (°C)	VOUT (mV)
0	-1.150						
1	-1.110	26	0.052	51	1.546	76	3.428
2	-1.069	27	0.105	52	1.613	77	3.512
3	-1.028	28	0.159	53	1.681	78	3.597
4	-0.986	29	0.213	54	1.750	79	3.683
5	-0.944	30	0.268	55	1.819	80	3.769
6	-0.901	31	0.323	56	1.889	81	3.856
7	-0.858	32	0.379	57	1.960	82	3.944
8	-0.815	33	0.435	58	2.031	83	4.033
9	-0.771	34	0.492	59	2.103	84	4.122
10	-0.726	35	0.549	60	2.175	85	4.212
11	-0.681	36	0.607	61	2.249	86	4.303
12	-0.636	37	0.665	62	2.322	87	4.395
13	-0.590	38	0.725	63	2.397	88	4.487
14	-0.544	39	0.784	64	2.472	89	4.580
15	-0.497	40	0.844	65	2.548	90	4.674
16	-0.449	41	0.905	66	2.625	91	4.769
17	-0.401	42	0.967	67	2.702	92	4.865
18	-0.353	43	1.029	68	2.780	93	4.961
19	-0.304	44	1.091	69	2.858	94	5.058
20	-0.255	45	1.154	70	2.937	95	5.156
21	-0.205	46	1.218	71	3.017	96	5.255
22	-0.154	47	1.282	72	3.098	97	5.354
23	-0.103	48	1.347	73	3.179	98	5.455
24	-0.052	49	1.413	74	3.262	99	5.556
25	0.000	50	1.479	75	3.344	100	5.658