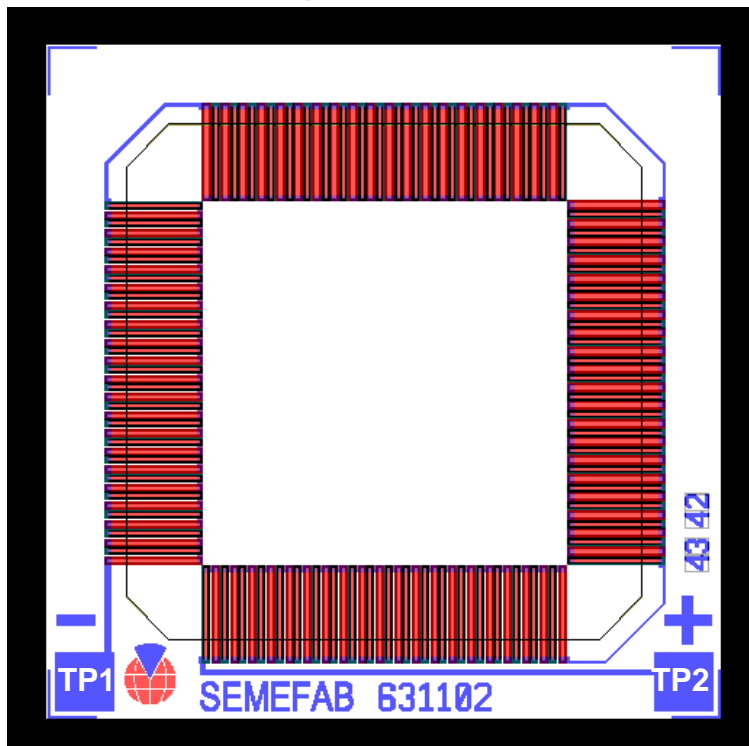


SILICON BASED THERMOPILE SENSOR with absorber. 631102A – 150MM WAFERS rev B

DESCRIPTION	APPLICATIONS
<p>The 631102A is a silicon-based, single element thermopile IR sensor with active sensing area of 1.125mm x 1.125mm. This is an improved design over the 631102 part. The 631102A incorporates an absorber for a higher output and therefore an improved specific detectivity (see Vt graph on page 3).</p>	<ul style="list-style-type: none"> • Contactless temperature measurement • Ear thermometers • Forehead temperature guns • NDIR Gas sensing • HVAC – Heating, ventilation and air conditioning • Gas flow measurement

1.0 Product Design



2.0 Bond Pad Assignment

Bond Pad	Reference
TP1	Thermopile negative pad
TP2	Thermopile positive pad

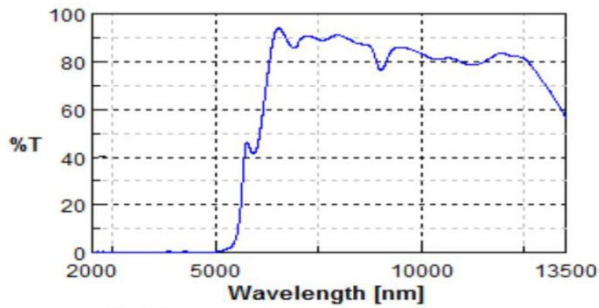
3.0 Product Information

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

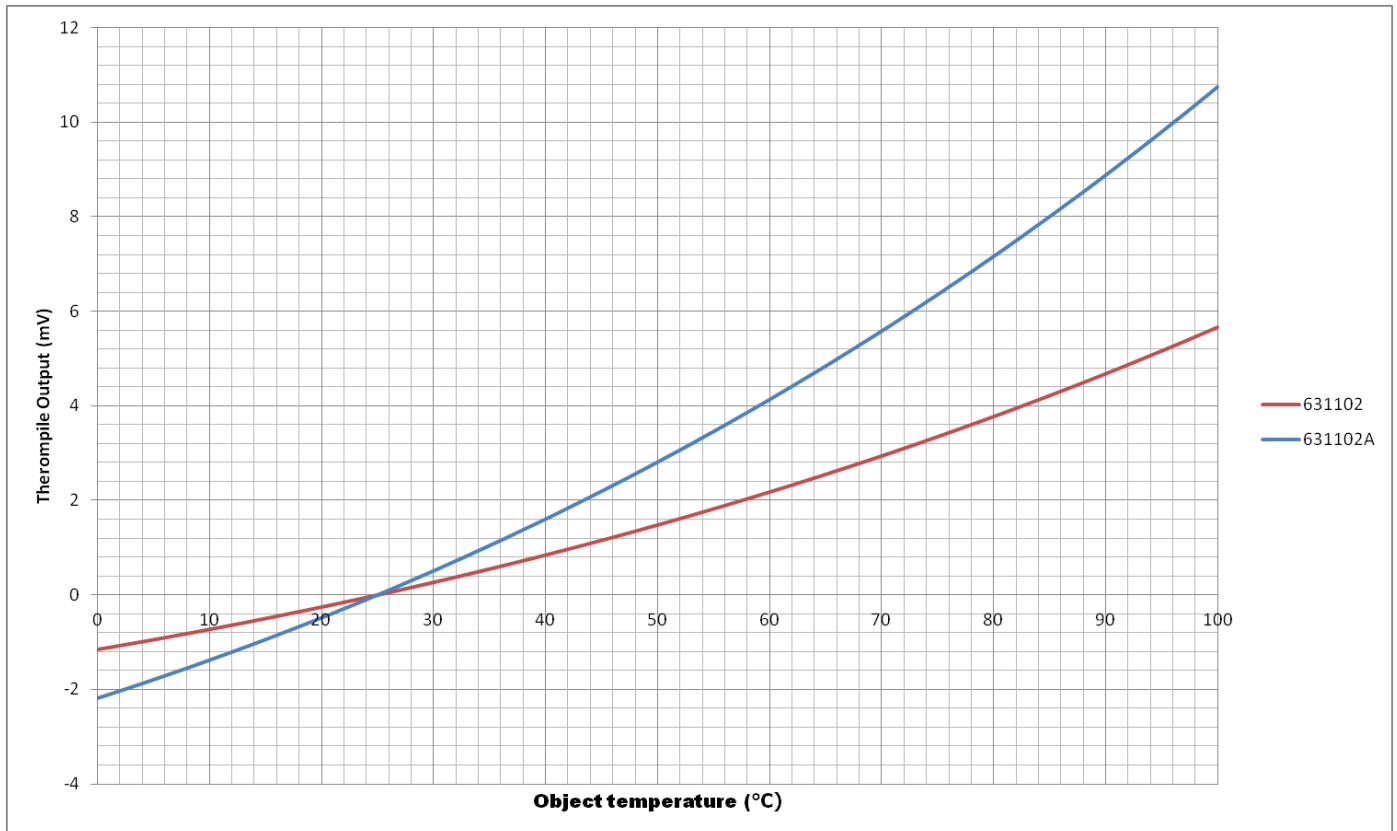
4.0 Target Specification (Absorber)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Thermopile resistance	R_{TP}	25°C	95	120	140	kΩ
Responsivity	R	25°C		236		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		1.9E+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)	Vo (mV)	T (°C)	Vo (mV)	T (°C)	Vo (mV)	T (°C)	Vo (mV)
0	-2.185						
1	-2.109	26	0.098	51	2.937	76	6.513
2	-2.031	27	0.199	52	3.064	77	6.672
3	-1.953	28	0.302	53	3.193	78	6.834
4	-1.873	29	0.404	54	3.325	79	6.997
5	-1.793	30	0.509	55	3.456	80	7.161
6	-1.711	31	0.613	56	3.589	81	7.326
7	-1.630	32	0.720	57	3.724	82	7.493
8	-1.548	33	0.826	58	3.858	83	7.662
9	-1.464	34	0.934	59	3.995	84	7.831
10	-1.379	35	1.043	60	4.132	85	8.002
11	-1.293	36	1.153	61	4.273	86	8.175
12	-1.208	37	1.263	62	4.411	87	8.350
13	-1.121	38	1.377	63	4.554	88	8.525
14	-1.033	39	1.489	64	4.696	89	8.702
15	-0.944	40	1.603	65	4.841	90	8.880
16	-0.853	41	1.719	66	4.987	91	9.061
17	-0.761	42	1.837	67	5.133	92	9.243
18	-0.670	43	1.955	68	5.282	93	9.425
19	-0.577	44	2.072	69	5.430	94	9.610
20	-0.484	45	2.192	70	5.580	95	9.796
21	-0.389	46	2.314	71	5.732	96	9.984
22	-0.292	47	2.435	72	5.886	97	10.172
23	-0.195	48	2.559	73	6.040	98	10.364
24	-0.098	49	2.684	74	6.197	99	10.556
25	0.000	50	2.810	75	6.353	100	10.750