承　　认　　书

SPECIFICATION　FOR　APPROVAL

客户名称（Customer）：**Jesse Rodriguez**

产品名称（Product Item）：　　**PT100 Temperature Sensor**

规格型号（Part No.）：　　**Pt100**

文件编号（File No.）：　　**WIM-GF-20200727**

编制日期（Date）：　　**2020-07-27**

公司名称：深圳市微秒电子有限公司	Shenzhen VSEC Electronic Co., Ltd.
公司地址：广东省深圳市罗湖区人民北路 3092 号物资大厦 716	
TEL：0755-82331848 / 82338520	**FAX：020-82338530**
Http:/www.vsec.top	**E-mail: sammi@vsec.top**

承认书提供了 Pt100 组件产品性能、试验条件、结构尺寸描述等，敬请贵公司确认。

如有疑问，请迅速与我们取得联系。如果贵公司改变产品使用用途或者作用方法时，请迅速与我们取得联系。

The acceptance letter provides the product performance,test conditions,structure size description and so on of PT100 temperature sensor assembly produced by Shenzhen Vsec Electronics Co.,Ltd.,please confirm.if you have any questions,please contact us as soon as possible.if you change the use or method of use of your product,please contact us quickly.

客 户 承 认 栏

Customer Recognition

<table>
<tr><th>客户确认（Customer Confirm）</th><th colspan="2">供应商确认（Supplier Confirm）</th></tr>
<tr><td rowspan="3"><u>样品确认后请在一周内回签，谢谢！</u>
<u>Please check back after sample confirmed within a week, thank you!</u></td><td>制 作（Edited）</td><td>龙富妹</td></tr>
<tr><td>审 核（Check）</td><td>肖学华</td></tr>
<tr><td colspan="2">签章（Signature）：</td></tr>
</table>

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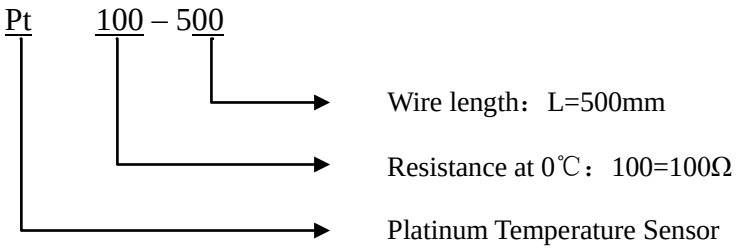
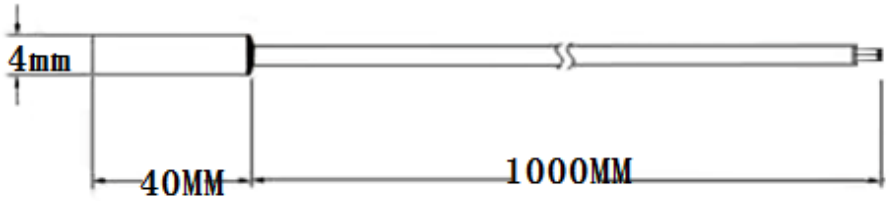
1. Model Description



2. The Shape and Dimensions （Unit）：mm[inch]



Material List			
A	Pt100-A class	C	3 wires, 1 meter cable
B	4*40mm （SS304）	D	

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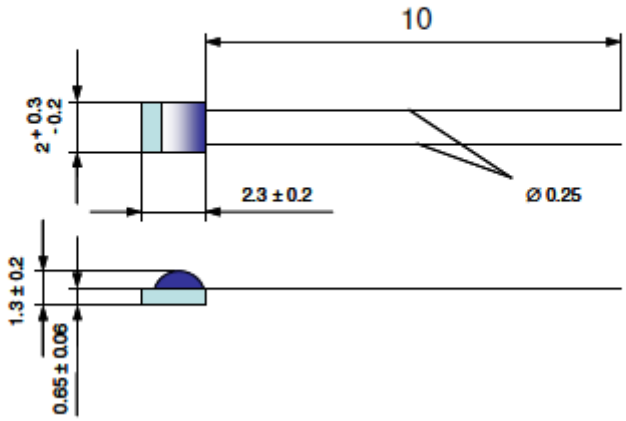
3. Technical Date

Resistance at 0°C	100 Ω
Temperature coefficient (0℃ up to 100℃)	3.85 · 10^{-3} K^{-1}
Tolerance classes to DIN EN 60751	A, B
Operating temperature range	-50 °C upto 550 °C
Measurement current (DC) at 25 ℃	1mA
Maximal permissible peak current (DC) at 25 ℃	3mA
Insulation resistance	> 10 MΩ
Self-heating at 0 ℃	< 0.5 K / mW
Thermal response time Flowing water (v = 0.2 m/s) Flowing air (v = 1 m/s)	 $T_{0.5}$ = 0.07 s $T_{0.9}$ = 0.2 s $T_{0.5}$ = 4 s $T_{0.9}$ = 10 s
Resistance value at 0 ℃ (Tolerance class A) at 100 °C (Tolerance class A) at 0 ℃ (Tolerance class B) at 100 ℃ (Tolerance class B)	 100.00 ± 0.06 138.51 ± 0.13 100.00 ± 0.12 138.51 ± 0.30

Maximal Resistance Change at UCT 250 h	< 0.1 %
Leads	PtNi
Specification	DIN EN 60751
Operating conditions Unprotected application only in dry environments	
Technology Advanced thin-film-technology (ceramic carrier with a structured platinum layer, covered with a passivating layer)	
Conformity 2002/95/EC Restriction of the use of Hazardous Substances Directive (RoHS)	
Dimensions [mm]	



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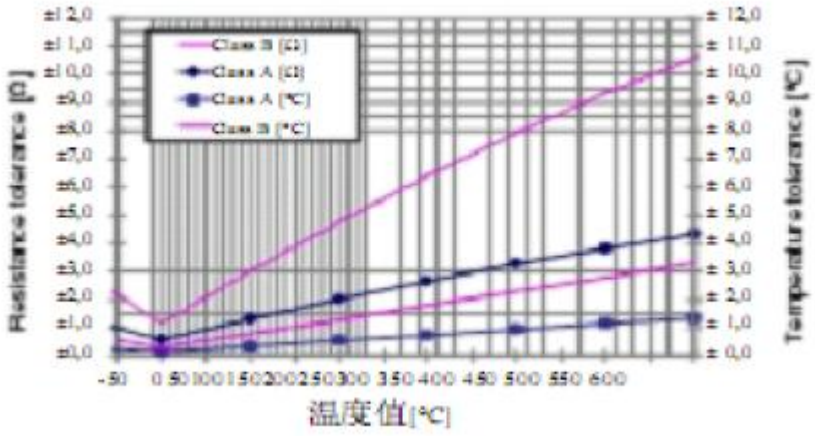
4. Functional Performance

according to DIN EN 60751



Picture 1: Resistance and temperature tolerances

Temperature range of -50 °C up to 0 °C:

$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2 + C \cdot (t - 100\ °C) \cdot t^3)$

Temperature range of 0°C up to 550°C:

$R_t = R_0 \cdot (1 + A \cdot t + B \cdot t^2)$

Tolerance classes to DIN EN 60751:

Class A: $\Delta t = \pm (0.15 + 0.002 \cdot |t|)$

Class B: $\Delta t = \pm (0.3 + 0.005 \cdot |t|)$

Whereby:

R_t … Resistance [Ω] at temperature t

R_0 … Resistance [Ω] at 0 ℃

t … Temperature [℃]

Δt … Permissible temperature deviation at t [℃]

A = $3.9083 \cdot 10^{-3}$ $℃^{-1}$

B = $- 5.775 \cdot 10^{-7}$ $℃^{-2}$

C = $- 4.183 \cdot 10^{-12}$ $℃^{-4}$

5. Fields of Application

- Industrial electronics
- Automotive electronics
- Energy and environmental engineering

6. Ordering Example

Construction	Class of accuracy	Material of connection wire	Temperature range [℃]
Pt100	A	PtNi	-50--550

Temperature unit：℃、 Resistance Unit：Ω）										
	0	1	2	3	4	5	6	7	8	9
-200	18.52									
-190	22.83	22.4	21.97	21.54	21.11	20.68	20.25	19.82	19.38	18.95
-180	27.1	26.67	26.24	25.82	25.39	24.97	24.54	24.11	23.68	23.25
-170	31.34	30.91	30.49	30.07	29.64	29.22	28.8	28.37	27.95	27.52
-160	35.54	35.12	34.7	34.28	33.86	33.44	33.02	32.6	32.18	31.76
-150	39.72	39.31	38.89	38.47	38.05	37.64	37.22	36.8	36.38	35.96
-140	43.88	43.46	43.05	42.63	42.22	41.8	41.39	40.97	40.56	40.14
-130	48	47.59	47.18	46.77	46.36	45.94	45.53	45.12	44.7	44.29
-120	52.11	51.7	51.29	50.88	50.47	50.06	49.65	49.24	48.83	48.42
-110	56.19	55.79	55.38	54.97	54.56	54.15	53.75	53.34	52.93	52.52
-100	60.26	59.85	59.44	59.04	58.63	58.23	57.82	57.41	57.01	56.6
-90	64.3	63.9	63.49	63.09	62.68	62.28	61.88	61.47	61.07	60.66
-80	68.33	67.92	67.52	67.12	66.72	66.31	65.91	65.51	65.11	64.7
-70	72.33	71.93	71.53	71.13	70.73	70.33	69.93	69.53	69.13	68.73
-60	76.33	75.93	75.53	75.13	74.73	74.33	73.93	73.53	73.13	72.73
-50	80.31	79.91	79.51	79.11	78.72	78.32	77.92	77.52	77.12	76.73
-40	84.27	83.87	83.48	83.08	82.69	82.29	81.89	81.5	81.1	80.7
-30	88.22	87.83	87.43	87.04	86.64	86.25	85.85	85.46	85.06	84.67
-20	92.16	91.77	91.37	90.98	90.59	90.19	89.8	89.4	89.01	88.62
-10	96.09	95.69	95.3	94.91	94.52	94.12	93.73	93.34	92.95	92.55
0	100	99.61	99.22	98.83	98.44	98.04	97.65	97.26	96.87	96.48
0	100	100.39	100.78	101.17	101.56	101.95	102.34	102.73	103.12	103.51
10	103.9	104.29	104.68	105.07	105.46	105.85	106.24	106.63	107.02	107.4
20	107.79	108.18	108.57	108.96	109.35	109.73	110.12	110.51	110.9	111.29
30	111.67	112.06	112.45	112.83	113.22	113.61	114	114.38	114.77	115.15
40	115.54	115.93	116.31	116.7	117.08	117.47	117.86	118.24	118.63	119.01
50	119.4	119.78	120.17	120.55	120.94	121.32	121.71	122.09	122.47	122.86
60	123.24	123.63	124.01	124.39	124.78	125.16	125.54	125.93	126.31	126.69
70	127.08	127.46	127.84	128.22	128.61	128.99	129.37	129.75	130.13	130.52
80	130.9	131.28	131.66	132.04	132.42	132.8	133.18	133.57	133.95	134.33
90	134.71	135.09	135.47	135.85	136.23	136.61	136.99	137.37	137.75	138.13

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Temperature unit：℃、 Resistance Unit：Ω）										
	0	1	2	3	4	5	6	7	8	9
100	138.51	138.88	139.26	139.64	140.02	140.4	140.78	141.16	141.54	141.91
110	142.29	142.67	143.05	143.43	143.8	144.18	144.56	144.94	145.31	145.69
120	146.07	146.44	146.82	147.2	147.57	147.95	148.33	148.7	149.08	149.46
130	149.83	150.21	150.58	150.96	151.33	151.71	152.08	152.46	152.83	153.21
140	153.58	153.96	154.33	154.71	155.08	155.46	155.83	156.2	156.58	156.95
150	157.33	157.7	158.07	158.45	158.82	159.19	159.56	159.94	160.31	160.68
160	161.05	161.43	161.8	162.17	162.54	162.91	163.29	163.66	164.03	164.4
170	164.77	165.14	165.51	165.89	166.26	166.63	167	167.37	167.74	168.11
180	168.48	168.85	169.22	169.59	169.96	170.33	170.7	171.07	171.43	171.8
190	172.17	172.54	172.91	173.28	173.65	174.02	174.38	174.75	175.12	175.49
200	175.86	176.22	176.59	176.96	177.33	177.69	178.06	178.43	178.79	179.16
210	179.53	179.89	180.26	180.63	180.99	181.36	181.72	182.09	182.46	182.82
220	183.19	183.55	183.92	184.28	184.65	185.01	185.38	185.74	186.11	186.47
230	186.84	187.2	187.56	187.93	188.29	188.66	189.02	189.38	189.75	190.11
240	190.47	190.84	191.2	191.56	191.92	192.29	192.65	193.01	193.37	193.74
250	194.1	194.46	194.82	195.18	195.55	195.91	196.27	196.63	196.99	197.35
260	197.71	198.07	198.43	198.79	199.15	199.51	199.87	200.23	200.59	200.95
270	201.31	201.67	202.03	202.39	202.75	203.11	203.47	203.83	204.19	204.55
280	204.9	205.26	205.62	205.98	206.34	206.7	207.05	207.41	207.77	208.13
290	208.48	208.84	209.2	209.56	209.91	210.27	210.63	210.98	211.34	211.7
300	212.05	212.41	212.76	213.12	213.48	213.83	214.19	214.54	214.9	215.25
310	215.61	215.96	216.32	216.67	217.03	217.38	217.74	218.09	218.44	218.8
320	219.15	219.51	219.86	220.21	220.57	220.92	221.27	221.63	221.98	222.33
330	222.68	223.04	223.39	223.74	224.09	224.45	224.8	225.15	225.5	225.85
340	226.21	226.56	226.91	227.26	227.61	227.96	228.31	228.66	229.02	229.37
350	229.72	230.07	230.42	230.77	231.12	231.47	231.82	232.17	232.52	232.87
360	233.21	233.56	233.91	234.26	234.61	234.96	235.31	235.66	236	236.35
370	236.7	237.05	237.4	237.74	238.09	238.44	238.79	239.13	239.48	239.83
380	240.18	240.52	240.87	241.22	241.56	241.91	242.26	242.6	242.95	243.29
390	243.64	243.99	244.33	244.68	245.02	245.37	245.71	246.06	246.4	246.75
400	247.09	247.44	247.78	248.13	248.47	248.81	249.16	249.5	245.85	250.19

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Temperature unit：℃、 Resistance Unit：Ω）										
	0	1	2	3	4	5	6	7	8	9
410	250.53	250.88	251.22	251.56	251.91	252.25	252.59	252.93	253.28	253.62
420	253.96	254.3	254.65	254.99	255.33	255.67	256.01	256.35	256.7	257.04
430	257.38	257.72	258.06	258.4	258.74	259.08	259.42	259.76	260.1	260.44
440	260.78	261.12	261.46	261.8	262.14	262.48	262.82	263.16	263.5	263.84
450	264.18	264.52	264.86	265.2	265.53	265.87	266.21	266.55	266.89	267.22
460	267.56	267.9	268.24	268.57	268.91	269.25	269.59	269.92	270.26	270.6
470	270.93	271.27	271.61	271.94	272.28	272.61	272.95	273.29	273.62	273.96
480	274.29	274.63	274.96	275.3	275.63	275.97	276.3	276.64	276.97	277.31
490	277.64	277.98	278.31	278.64	278.98	279.31	279.64	279.98	280.31	280.64
500	280.98	281.31	281.64	281.98	282.31	282.64	282.97	283.31	283.64	283.97
510	284.3	284.63	284.97	285.3	285.63	285.96	286.29	286.62	286.85	287.29
520	287.62	287.95	288.28	288.61	288.94	289.27	289.6	289.93	290.26	290.59
530	290.92	291.25	291.58	291.91	292.24	292.56	292.89	293.22	293.55	293.88
540	294.21	294.54	294.86	295.19	295.52	295.85	296.18	296.5	296.83	297.16
550	297.49	297.81	298.14	298.47	298.8	299.12	299.45	299.78	300.1	300.43
560	300.75	301.08	301.41	301.73	302.06	302.38	302.71	303.03	303.36	303.69
570	304.01	304.34	304.66	304.98	305.31	305.63	305.96	306.28	306.61	306.93
580	307.25	307.58	307.9	308.23	308.55	308.87	309.2	309.52	309.84	310.16
590	310.49	310.81	311.13	311.45	311.78	312.1	312.42	312.74	313.06	313.39
600	313.71	314.03	314.35	314.67	314.99	315.31	315.64	315.96	316.28	316.6
610	316.92	317.24	317.56	317.88	318.2	318.52	318.84	319.16	319.48	319.8
620	320.12	320.43	320.75	321.07	321.39	321.71	322.03	322.35	322.67	322.98
630	323.3	323.62	323.94	324.26	324.57	324.89	325.21	325.53	325.84	326.16
640	326.48	326.79	327.11	327.43	327.74	328.06	328.38	328.69	329.01	329.32
650	329.64	329.96	330.27	330.59	330.9	331.22	331.53	331.85	332.16	332.48
660	332.79									

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