

APPROVAL DATA SHEET

客戶承認書

CUSTOMER : Maritex

APPLICATION : _____

PRODUCT : NTC THERMISTOR

CUSTOMER NO.: _____

PART NO. : 11S0603102JAE

PROJECT NO. : _____

DATE : 2015/2/23

VERSION : Ver.1

R 25	:	<u>1,000</u>	ohms ±	<u>5.0%</u>
B 25 - 85	:	<u>2950</u>	°K ±	<u>3.0%</u>

PLEASE SIGN BACK ONE COPY OF THIS SPECIFICATION AFTER
COMPLETION OF APPROVAL

APPROVAL BY: _____

DATE: _____



宏碩科技股份有限公司

Hyper- Sense Technology Co., Ltd.

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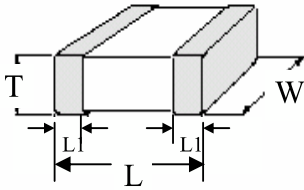
HST	SPECIFICATION	NTC THERMISTOR
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PART NO. : 11S0603102JAE

1. APPEARANCE

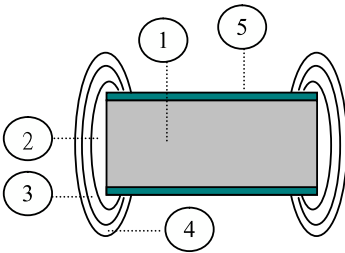
1-1 DIMENSIONS

unit : mm



Symbol	Min.	Nor.	Max.
L	1.45	1.60	1.75
W	0.65	0.80	0.95
T	-	-	0.95
L1	0.20	-	0.50

1-2 CONSTRUCTION & MATERIAL



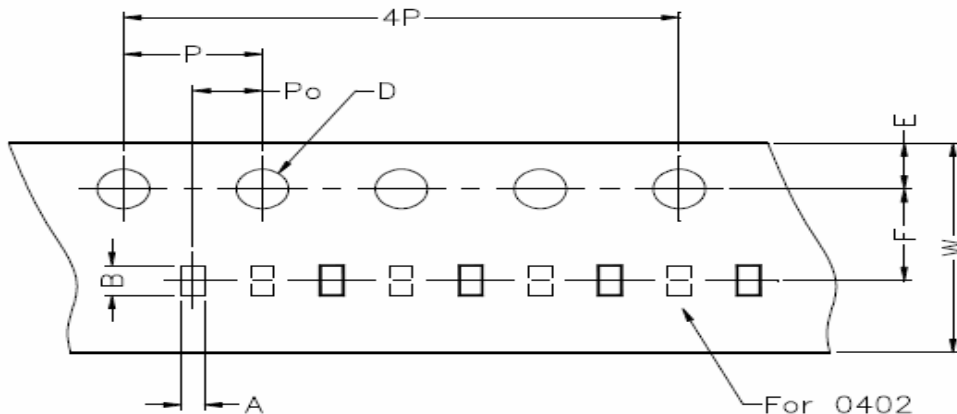
No.	Part Name	Materials	Remark
1	Element	Metal Oxide	
2	End Termination	Ag	
3	Ni plated	Ni	
4	Solder plated	Sn	Lead Free
5	Coating	Glass	

2. ELECTRICAL RATING

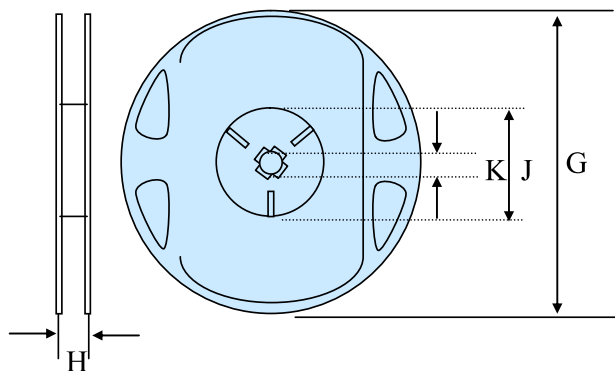
No.	Item	Symbol	Conditions	Min.	Nor.	Max.	Unit
1	Resistance at Ta	R ₂₅	Ta : 25 ±0.1°C	950	1,000	1,050	ohms
2	B Constant	B	4099 Log(R ₂₅ /R ₈₅)	2862	2950	3039	° K
3	Dissipation Constant	C	Ta : 25	-	3.5	-	mW/°C
4	Thermal Time Constant	t	Ta : 25	-	5	-	sec
5	Max. Rated Power	P _{max}	Ta : 25	-	-	350	mW
6	Operating Temperature	T		-40	-	125	°C

3. TAPING DIMENSIONS

unit : mm



Symbol	0402		0603		0805		1206	
	Value	Tolerance	Value	Tolerance	Value	Tolerance	Value	Tolerance
A	0.66	±0.03	1.08	±0.05	1.50	±0.05	2.00	±0.05
B	1.15	±0.03	1.85	±0.05	2.30	±0.05	3.57	±0.05
W	8.00	±0.05	8.00	±0.05	8.00	±0.05	8.00	±0.02
D	1.50	±0.10	1.50	±0.10	1.50	±0.10	1.55	±0.05
E	1.75	±0.05	1.75	±0.05	1.75	±0.05	1.75	±0.10
F	3.50	±0.05	3.50	±0.05	3.50	±0.05	3.50	±0.05
P	4.00	±0.05	4.00	±0.05	4.00	±0.05	4.00	±0.10
P0	2.00	±0.05	2.00	±0.05	2.00	±0.05	2.00	±0.05
4P	16.00	±0.05	16.00	±0.05	16.00	±0.05	16.00	±0.05



Symbol	Dimensios	
G	178	±2.0
J	60	±1.5
H	9	±0.3
K	13	±0.2

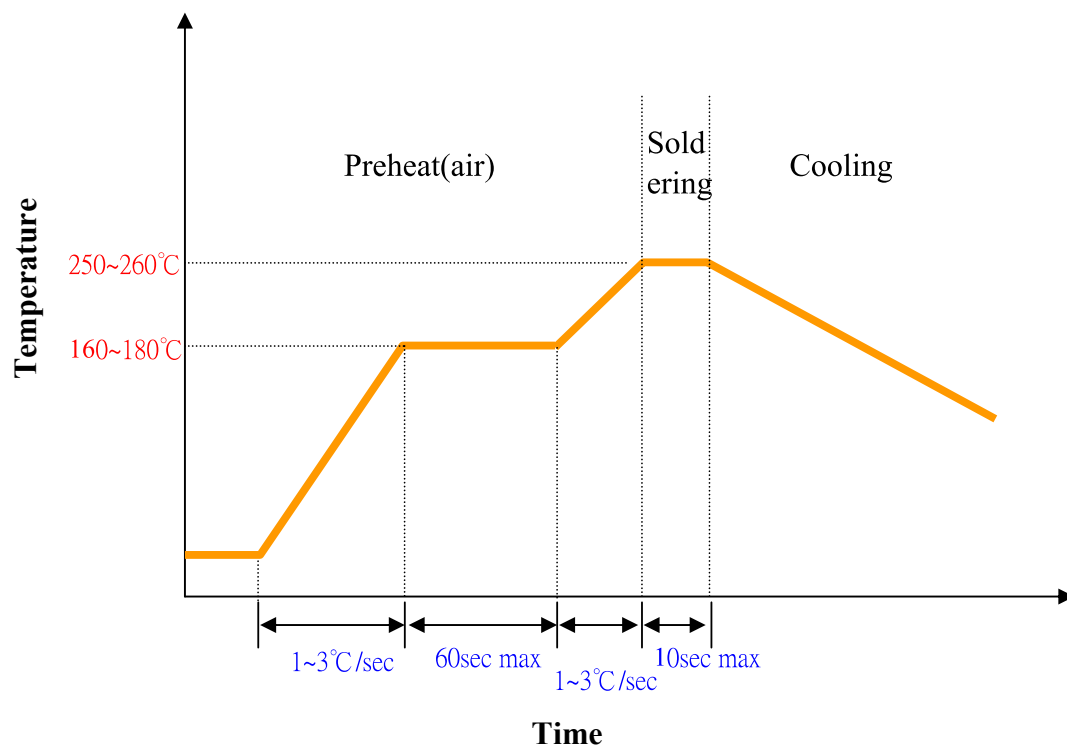
unit : mm

4,000 pcs/Reel

HST	SPECIFICATION	NTC THERMISTOR	
PART NO. : <u>11S0603102JAE</u>			
3. ENVIRONMENTAL RATING			
No.	Item	Condition and Test Method	Rated Value
1	Life	125°C x 1000Hrs, NTCWV intermittent MIL-STD-202F, Method 108A	Within ±5%
2	Humidity (Steady State)	40°C, 95%R.H. x 1000Hrs MIL-STD-202F, Method 103B	Within ±5%
3	Temperature Cycle	(-40°C -> 125°C) x 10 cycle MIL-STD-202F, Method 107	Within ±5%
4	Solderability	230°C for 5 sec. MIL-STD-202F, Method 208	95% min. coverage
5	Resistance to Soldering Heat	Soldered to test board at 260°C for 10 sec. MIL-R-55342D, Para 4.7.7	Within ±5%
6	Bending Strength	Pressurizing rod at a rate 1mm/sec. for 1mm. JIS C 5202 5.7	No break out and damage
7	Resistance to Flexure of Substrate	Pressurizing force shall be 3kg (min.) JIS C 5202 5.7	Within ±5%

PART NO. : 11S0603102JAE

4. REFLOW SOLDERING PROFILE



RESISTANCE-TEMPERATURE CHARACTERISTICS

PART NO.: 11S0603102JAE

R	1,000	ohms ±	5%
B	2950	°K ±	3%

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-40	12591	14356	16328	-5.12	-12.30	13.74	-2.68	2.40
-39	11983	13642	15492	-5.08	-12.16	13.56	-2.67	2.39
-38	11409	12969	14705	-5.04	-12.03	13.39	-2.66	2.39
-37	10866	12333	13964	-5.01	-11.90	13.22	-2.64	2.38
-36	10353	11733	13265	-4.97	-11.76	13.05	-2.63	2.37
-35	9868	11167	12605	-4.93	-11.63	12.88	-2.61	2.36
-34	9409	10632	11983	-4.89	-11.50	12.72	-2.60	2.35
-33	8974	10126	11397	-4.86	-11.37	12.55	-2.58	2.34
-32	8562	9647	10842	-4.82	-11.25	12.39	-2.57	2.33
-31	8173	9195	10319	-4.79	-11.12	12.23	-2.55	2.32
-30	7803	8767	9825	-4.75	-10.99	12.07	-2.54	2.31
-29	7453	8361	9357	-4.72	-10.86	11.91	-2.52	2.30
-28	7121	7978	8915	-4.68	-10.74	11.75	-2.51	2.29
-27	6806	7614	8497	-4.65	-10.61	11.59	-2.49	2.28
-26	6507	7270	8101	-4.61	-10.49	11.44	-2.48	2.27
-25	6223	6943	7726	-4.58	-10.37	11.28	-2.46	2.26
-24	5954	6633	7372	-4.55	-10.24	11.13	-2.45	2.25
-23	5698	6339	7036	-4.51	-10.12	10.98	-2.43	2.24
-22	5455	6061	6717	-4.48	-10.00	10.83	-2.42	2.23
-21	5223	5796	6415	-4.45	-9.88	10.68	-2.40	2.22
-20	5003	5544	6129	-4.42	-9.76	10.54	-2.38	2.21
-19	4794	5306	5857	-4.39	-9.64	10.39	-2.37	2.20
-18	4595	5079	5599	-4.36	-9.52	10.25	-2.35	2.19
-17	4406	4863	5354	-4.33	-9.40	10.10	-2.34	2.17
-16	4225	4658	5122	-4.30	-9.29	9.96	-2.32	2.16
-15	4054	4463	4901	-4.27	-9.17	9.82	-2.30	2.15
-14	3890	4277	4691	-4.24	-9.05	9.68	-2.29	2.14
-13	3734	4100	4491	-4.21	-8.94	9.54	-2.27	2.13
-12	3585	3932	4302	-4.18	-8.82	9.40	-2.25	2.11
-11	3443	3772	4121	-4.15	-8.71	9.27	-2.23	2.10
-10	3308	3619	3949	-4.12	-8.60	9.13	-2.22	2.09
-9	3179	3473	3786	-4.09	-8.48	9.00	-2.20	2.07
-8	3055	3335	3630	-4.06	-8.37	8.86	-2.18	2.06
-7	2938	3202	3482	-4.04	-8.26	8.73	-2.16	2.05
-6	2825	3076	3341	-4.01	-8.15	8.60	-2.15	2.03
-5	2718	2956	3206	-3.98	-8.04	8.47	-2.13	2.02
-4	2615	2841	3078	-3.95	-7.93	8.34	-2.11	2.01
-3	2517	2731	2955	-3.93	-7.82	8.21	-2.09	1.99
-2	2424	2626	2838	-3.90	-7.71	8.09	-2.07	1.98
-1	2334	2526	2727	-3.87	-7.60	7.96	-2.05	1.96
0	2248	2430	2621	-3.85	-7.50	7.83	-2.04	1.95
1	2166	2339	2519	-3.82	-7.39	7.71	-2.02	1.93
2	2087	2251	2422	-3.80	-7.28	7.59	-2.00	1.92

RESISTANCE-TEMPERATURE CHARACTERISTICS

PART NO.: 11S0603102JAE

R	<u>1,000</u>	ohms ±	<u>5%</u>
B	<u>2950</u>	°K ±	<u>3%</u>

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
3	2012	2168	2330	-3.77	-7.18	7.47	-1.98	1.90
4	1940	2088	2241	-3.75	-7.07	7.34	-1.96	1.89
5	1871	2011	2156	-3.72	-6.97	7.22	-1.94	1.87
6	1805	1938	2076	-3.70	-6.87	7.10	-1.92	1.86
7	1741	1868	1998	-3.68	-6.76	6.99	-1.90	1.84
8	1681	1801	1924	-3.65	-6.66	6.87	-1.88	1.82
9	1622	1736	1853	-3.63	-6.56	6.75	-1.86	1.81
10	1566	1675	1786	-3.60	-6.46	6.64	-1.84	1.79
11	1513	1615	1721	-3.58	-6.36	6.52	-1.82	1.78
12	1461	1559	1659	-3.56	-6.26	6.41	-1.80	1.76
13	1412	1505	1599	-3.53	-6.16	6.29	-1.78	1.74
14	1364	1452	1542	-3.51	-6.06	6.18	-1.76	1.72
15	1319	1402	1488	-3.49	-5.96	6.07	-1.74	1.71
16	1275	1354	1435	-3.47	-5.86	5.96	-1.72	1.69
17	1233	1308	1385	-3.45	-5.76	5.85	-1.70	1.67
18	1193	1264	1337	-3.42	-5.67	5.74	-1.68	1.65
19	1154	1222	1291	-3.40	-5.57	5.63	-1.66	1.64
20	1116	1181	1246	-3.38	-5.47	5.53	-1.63	1.62
21	1081	1142	1204	-3.36	-5.38	5.42	-1.61	1.60
22	1046	1104	1163	-3.34	-5.28	5.31	-1.59	1.58
23	1013	1068	1124	-3.32	-5.19	5.21	-1.57	1.56
24	981	1033	1086	-3.30	-5.09	5.10	-1.55	1.54
25	950	1000	1050	-3.28	-5.00	5.00	-1.53	1.53
26	919	968	1017	-3.26	-5.09	5.10	-1.57	1.56
27	888	937	986	-3.24	-5.19	5.21	-1.61	1.60
28	859	907	955	-3.22	-5.28	5.31	-1.65	1.64
29	831	879	926	-3.20	-5.37	5.41	-1.69	1.68
30	805	851	898	-3.18	-5.46	5.51	-1.73	1.72
31	779	824	871	-3.16	-5.55	5.61	-1.78	1.76
32	754	799	844	-3.14	-5.64	5.71	-1.82	1.80
33	730	774	819	-3.12	-5.73	5.81	-1.86	1.83
34	707	751	795	-3.10	-5.81	5.91	-1.90	1.87
35	685	728	771	-3.08	-5.90	6.01	-1.95	1.91
36	663	706	749	-3.07	-5.99	6.10	-1.99	1.95
37	643	684	727	-3.05	-6.07	6.20	-2.04	1.99
38	623	664	706	-3.03	-6.16	6.30	-2.08	2.03
39	604	644	685	-3.01	-6.25	6.39	-2.12	2.07
40	586	625	666	-2.99	-6.33	6.49	-2.17	2.11
41	568	607	647	-2.98	-6.41	6.59	-2.21	2.16
42	551	589	628	-2.96	-6.50	6.68	-2.26	2.20
43	534	572	611	-2.94	-6.58	6.78	-2.30	2.24
44	518	555	594	-2.92	-6.66	6.87	-2.35	2.28
45	503	539	577	-2.91	-6.74	6.96	-2.40	2.32

RESISTANCE-TEMPERATURE CHARACTERISTICS

PART NO.: 11S0603102JAE

R	1,000	ohms ±	5%
B	2950	°K ±	3%

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
46	488	524	561	-2.89	-6.82	7.06	-2.44	2.36
47	474	509	546	-2.87	-6.90	7.15	-2.49	2.40
48	460	495	531	-2.86	-6.98	7.24	-2.54	2.45
49	447	481	516	-2.84	-7.06	7.33	-2.58	2.49
50	434	467	502	-2.82	-7.14	7.42	-2.63	2.53
51	422	454	489	-2.81	-7.22	7.51	-2.68	2.57
52	410	442	476	-2.79	-7.30	7.60	-2.72	2.62
53	398	430	463	-2.77	-7.38	7.69	-2.77	2.66
54	387	418	451	-2.76	-7.45	7.78	-2.82	2.70
55	376	407	439	-2.74	-7.53	7.87	-2.87	2.74
56	366	396	427	-2.73	-7.61	7.96	-2.92	2.79
57	356	385	416	-2.71	-7.68	8.05	-2.97	2.83
58	346	375	405	-2.70	-7.76	8.14	-3.02	2.88
59	336	365	395	-2.68	-7.83	8.22	-3.07	2.92
60	327	355	385	-2.67	-7.90	8.31	-3.12	2.96
61	318	346	375	-2.65	-7.98	8.40	-3.17	3.01
62	310	337	365	-2.64	-8.05	8.48	-3.22	3.05
63	302	328	356	-2.62	-8.12	8.57	-3.27	3.10
64	293	320	347	-2.61	-8.20	8.65	-3.32	3.14
65	286	311	339	-2.59	-8.27	8.74	-3.37	3.19
66	278	304	330	-2.58	-8.34	8.82	-3.42	3.23
67	271	296	322	-2.57	-8.41	8.91	-3.47	3.28
68	264	288	314	-2.55	-8.48	8.99	-3.52	3.32
69	257	281	307	-2.54	-8.55	9.07	-3.58	3.37
70	250	274	299	-2.52	-8.62	9.16	-3.63	3.41
71	244	267	292	-2.51	-8.69	9.24	-3.68	3.46
72	238	261	285	-2.50	-8.76	9.32	-3.73	3.51
73	232	254	278	-2.48	-8.82	9.40	-3.79	3.55
74	226	248	272	-2.47	-8.89	9.48	-3.84	3.60
75	220	242	265	-2.46	-8.96	9.57	-3.89	3.65
76	215	236	259	-2.44	-9.03	9.65	-3.95	3.69
77	210	230	253	-2.43	-9.09	9.73	-4.00	3.74
78	204	225	247	-2.42	-9.16	9.81	-4.06	3.79
79	199	220	241	-2.40	-9.22	9.89	-4.11	3.84
80	194	214	236	-2.39	-9.29	9.96	-4.17	3.88
81	190	209	230	-2.38	-9.35	10.04	-4.22	3.93
82	185	204	225	-2.37	-9.42	10.12	-4.28	3.98
83	181	200	220	-2.35	-9.48	10.20	-4.33	4.03
84	176	195	215	-2.34	-9.55	10.28	-4.39	4.08
85	172	191	210	-2.33	-9.61	10.35	-4.45	4.13
86	168	186	206	-2.32	-9.67	10.43	-4.50	4.17
87	164	182	201	-2.30	-9.74	10.51	-4.56	4.22
88	160	178	197	-2.29	-9.80	10.58	-4.62	4.27

HST	SPECIFICATION	NTC THERMISTOR
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RESISTANCE-TEMPERATURE CHARACTERISTICS

PART NO.: 11S0603102JAE

R	1,000	ohms ±	5%
B	2950	°K ±	3%

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
89	157	174	192	-2.28	-9.86	10.66	-4.67	4.32
90	153	170	188	-2.27	-9.92	10.74	-4.73	4.37
91	149	166	184	-2.26	-9.98	10.81	-4.79	4.42
92	146	162	180	-2.25	-10.04	10.89	-4.85	4.47
93	143	159	176	-2.23	-10.10	10.96	-4.91	4.52
94	139	155	172	-2.22	-10.16	11.03	-4.96	4.57
95	136	152	169	-2.21	-10.22	11.11	-5.02	4.62
96	133	149	165	-2.20	-10.28	11.18	-5.08	4.67
97	130	145	162	-2.19	-10.34	11.26	-5.14	4.72
98	127	142	158	-2.18	-10.40	11.33	-5.20	4.78
99	125	139	155	-2.17	-10.46	11.40	-5.26	4.83
100	122	136	152	-2.16	-10.52	11.47	-5.32	4.88
101	119	133	149	-2.15	-10.57	11.55	-5.38	4.93
102	117	130	146	-2.13	-10.63	11.62	-5.44	4.98
103	114	128	143	-2.12	-10.69	11.69	-5.50	5.03
104	112	125	140	-2.11	-10.75	11.76	-5.57	5.09
105	109	122	137	-2.10	-10.80	11.83	-5.63	5.14
106	107	120	134	-2.09	-10.86	11.90	-5.69	5.19
107	105	117	131	-2.08	-10.91	11.97	-5.75	5.24
108	102	115	129	-2.07	-10.97	12.04	-5.81	5.30
109	100	113	126	-2.06	-11.02	12.11	-5.88	5.35
110	98	110	124	-2.05	-11.08	12.18	-5.94	5.40
111	96	108	121	-2.04	-11.13	12.25	-6.00	5.46
112	94	106	119	-2.03	-11.19	12.32	-6.06	5.51
113	92	104	117	-2.02	-11.24	12.38	-6.13	5.56
114	90	102	114	-2.01	-11.30	12.45	-6.19	5.62
115	88	100	112	-2.00	-11.35	12.52	-6.26	5.67
116	87	98	110	-1.99	-11.40	12.59	-6.32	5.73
117	85	96	108	-1.98	-11.45	12.65	-6.39	5.78
118	83	94	106	-1.97	-11.51	12.72	-6.45	5.83
119	81	92	104	-1.96	-11.56	12.79	-6.52	5.89
120	80	90	102	-1.95	-11.61	12.85	-6.58	5.94
121	78	89	100	-1.94	-11.66	12.92	-6.65	6.00
122	77	87	98	-1.93	-11.71	12.99	-6.71	6.06
123	75	85	96	-1.93	-11.77	13.05	-6.78	6.11
124	74	84	95	-1.92	-11.82	13.12	-6.85	6.17
125	72	82	93	-1.91	-11.87	13.18	-6.91	6.22