

# APPROVAL DATA SHEET

## 客戶承認書

CUSTOMER : Maritex

APPLICATION : \_\_\_\_\_

PRODUCT : NTC THERMISTOR

CUSTOMER NO.: \_\_\_\_\_

PART NO. : 11S0603104JG

PROJECT NO. : \_\_\_\_\_

DATE : 2014/5/16

VERSION : Ver.1

R 25	:	<u>100,000</u>	ohms ±	<u>5.0%</u>
B 25 - 85	:	<u>3950</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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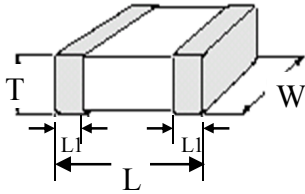
HST	SPECIFICATION	NTC THERMISTOR
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PART NO. : 11S0603104JG

## 1. APPEARANCE

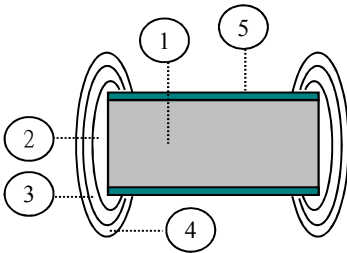
### 1-1 DIMENSIONS

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



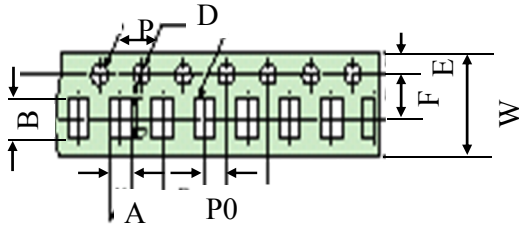
No.	Part Name	Materials	Remark
1	Element	Metal Oxide	
2	End Termination	Ag	
3	Ni plated	Ni	
4	Solder plated	Sn	Lead Free
5	Coating	Glass	

## 2. ELECTRICAL RATING

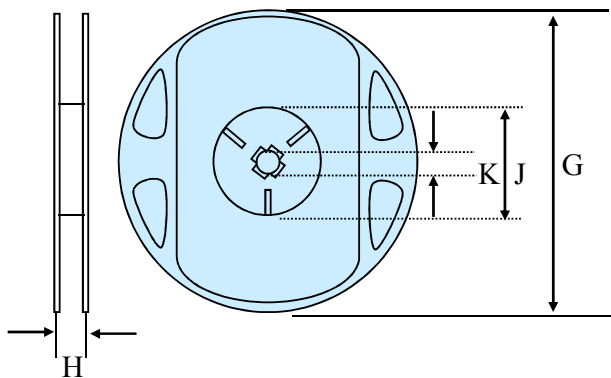
No.	Item	Symbol	Conditions	Min.	Nor.	Max.	Unit
1	Resistance at Ta	R <sub>25</sub>	Ta : 25 ± 0.1°C	95,000	100,000	105,000	ohms
2	B Constant	B	4099 Log(R <sub>25</sub> / R <sub>85</sub> )	3832	3950	4069	° K
3	Dissipation Constant	C	Ta : 25	-	3.5	-	mW/°C
4	Thermal Time Constant	t	Ta : 25	-	5	-	sec
5	Max. Rated Power	P <sub>max.</sub>	Ta : 25	-	-	350	mW
6	Operating Temperature	T		-40	-	125	°C

3. TAPING DIMENSIONS

unit : mm



Symbol	0603		0805	
	A	1.08	+0.05 -0.10	1.50
B	1.85	+0.05 -0.10	2.30	+0.05 -0.10
W	8.00	+0.05 -0.05	8.00	+0.05 -0.05
D	1.50	+0.10 -0.00	1.50	+0.10 -0.00
E	1.75	+0.05 -0.05	1.75	+0.05 -0.05
F	3.50	+0.05 -0.05	3.50	+0.05 -0.05
P	4.00	+0.05 -0.05	4.00	+0.05 -0.05
P0	2.00	+0.05 -0.05	2.00	+0.05 -0.05



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

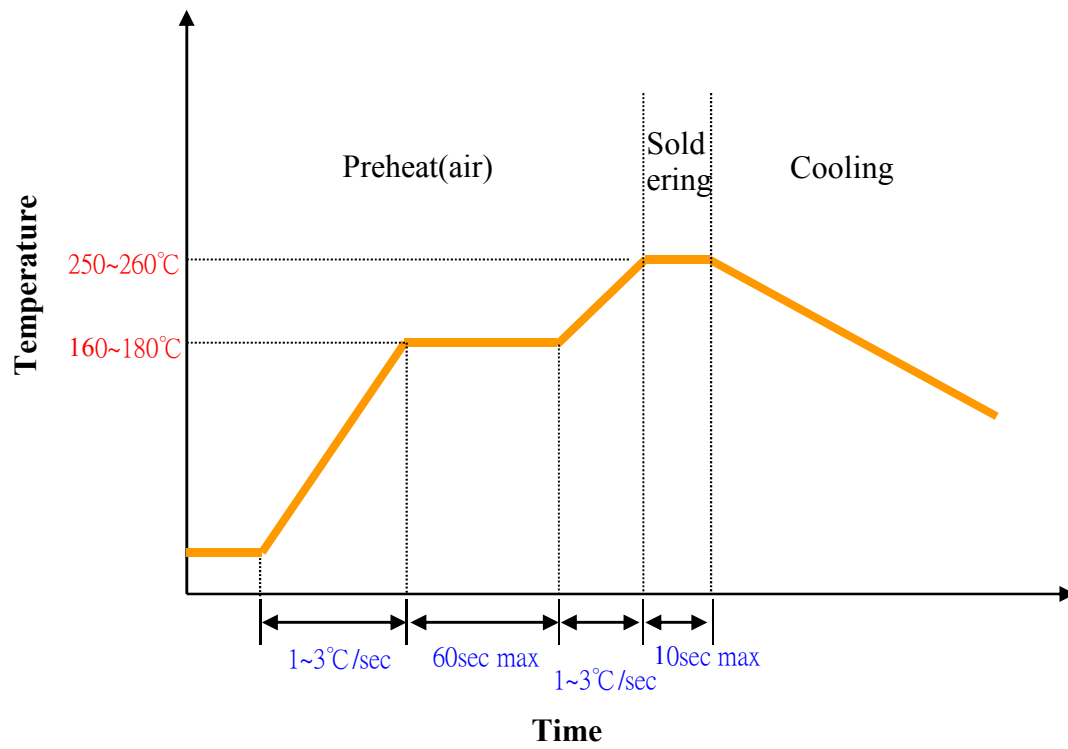
unit : mm

4,000 pcs/Reel

HST	SPECIFICATION		NTC THERMISTOR
PART NO. : <u>11S0603104JG</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. : 11S0603104JG

## 4. REFLOW SOLDERING PROFILE



**Part Number Code.****Example :**

<u>11</u>	<u>S</u>	<u>0603</u>	<u>104</u>	<u>J</u>	<u>G</u>
(1)	(2)	(3)	(4)	(5)	(6)

(1) 11 : NTC Thermistor ( Negative Temperature Coefficient Thermistor)

(2) S : Surface Mount

(3) Nominal Diameter :

0402 : SMD0402

0603 : SMD0603

0805 : SMD0805

1206 : SMD1206

(4) Resistance of 25°C

500 : 50Ω

101 : 100Ω

502 : 5KΩ

103 : 10KΩ

474 : 470KΩ

(5) Tolerance of Resistance

F : ± 1 %

G : ± 2 %

H : ± 3 %

J : ± 5 %

K : ± 10 %

(6) Beta code

HST	SPECIFICATION	NTC THERMISTOR
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**RESISTANCE-TEMPERATURE CHARACTERISTICS**

**PART NO.:** 11S0603104JG

R	<u>100,000</u>	ohms ±	<u>5%</u>
B	<u>3950</u>	°K ±	<u>3%</u>

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-40	3417243	4018597	4713961	-7.27	-14.96	17.30	-2.38	2.06
-39	3185612	3738081	4375397	-7.21	-14.78	17.05	-2.37	2.05
-38	2971456	3479289	4063727	-7.14	-14.60	16.80	-2.35	2.04
-37	2773333	3240382	3776621	-7.08	-14.41	16.55	-2.34	2.03
-36	2589926	3019692	3511971	-7.02	-14.23	16.30	-2.32	2.03
-35	2420040	2815701	3267860	-6.96	-14.05	16.06	-2.31	2.02
-34	2262581	2627027	3042550	-6.91	-13.87	15.82	-2.29	2.01
-33	2116554	2452413	2834462	-6.85	-13.70	15.58	-2.27	2.00
-32	1981048	2290711	2642158	-6.79	-13.52	15.34	-2.26	1.99
-31	1855230	2140879	2464331	-6.74	-13.34	15.11	-2.24	1.98
-30	1738343	2001960	2299791	-6.68	-13.17	14.88	-2.23	1.97
-29	1629688	1873085	2147453	-6.63	-12.99	14.65	-2.21	1.96
-28	1528630	1753459	2006327	-6.57	-12.82	14.42	-2.19	1.95
-27	1434585	1642353	1875512	-6.52	-12.65	14.20	-2.18	1.94
-26	1347018	1539103	1754184	-6.47	-12.48	13.97	-2.16	1.93
-25	1265438	1443100	1641589	-6.41	-12.31	13.75	-2.14	1.92
-24	1189396	1353784	1537040	-6.36	-12.14	13.54	-2.13	1.91
-23	1118478	1270646	1439907	-6.31	-11.98	13.32	-2.11	1.90
-22	1052303	1193215	1349614	-6.26	-11.81	13.11	-2.09	1.89
-21	990523	1121062	1265634	-6.21	-11.64	12.90	-2.08	1.87
-20	932816	1053792	1187481	-6.16	-11.48	12.69	-2.06	1.86
-19	878886	991041	1114714	-6.12	-11.32	12.48	-2.04	1.85
-18	828460	932475	1046925	-6.07	-11.15	12.27	-2.02	1.84
-17	781288	877788	983740	-6.02	-10.99	12.07	-2.01	1.83
-16	737139	826696	924817	-5.97	-10.83	11.87	-1.99	1.81
-15	695797	778941	869839	-5.93	-10.67	11.67	-1.97	1.80
-14	657067	734281	818516	-5.88	-10.52	11.47	-1.95	1.79
-13	620766	692496	770582	-5.84	-10.36	11.28	-1.93	1.77
-12	586726	653382	725791	-5.79	-10.20	11.08	-1.91	1.76
-11	554792	616751	683915	-5.75	-10.05	10.89	-1.89	1.75
-10	524818	582429	644747	-5.70	-9.89	10.70	-1.88	1.73
-9	496673	550255	608093	-5.66	-9.74	10.51	-1.86	1.72
-8	470233	520082	573777	-5.62	-9.58	10.32	-1.84	1.71
-7	445383	491771	541634	-5.58	-9.43	10.14	-1.82	1.69
-6	422019	465197	511512	-5.53	-9.28	9.96	-1.80	1.68
-5	400040	440241	483271	-5.49	-9.13	9.77	-1.78	1.66
-4	379357	416795	456782	-5.45	-8.98	9.59	-1.76	1.65
-3	359885	394757	431926	-5.41	-8.83	9.42	-1.74	1.63

HST	SPECIFICATION	NTC THERMISTOR
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**RESISTANCE-TEMPERATURE CHARACTERISTICS**

**PART NO.:** 11S0603104JG

R	<u>100,000</u>	ohms ±	<u>5%</u>
B	<u>3950</u>	°K ±	<u>3%</u>

Temperature (°C)	Resistance (Ω)			Temperture Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-2	341545	374034	408590	-5.37	-8.69	9.24	-1.72	1.62
-1	324264	354540	386674	-5.33	-8.54	9.06	-1.70	1.60
0	307975	336193	366080	-5.29	-8.39	8.89	-1.68	1.59
1	292614	318920	346722	-5.26	-8.25	8.72	-1.66	1.57
2	278122	302650	328517	-5.22	-8.10	8.55	-1.64	1.55
3	264446	287319	311390	-5.18	-7.96	8.38	-1.62	1.54
4	251533	272867	295269	-5.14	-7.82	8.21	-1.60	1.52
5	239338	259238	280091	-5.11	-7.68	8.04	-1.58	1.50
6	227814	246380	265793	-5.07	-7.54	7.88	-1.55	1.49
7	216922	234245	252319	-5.03	-7.40	7.72	-1.53	1.47
8	206623	222788	239617	-5.00	-7.26	7.55	-1.51	1.45
9	196880	211966	227638	-4.96	-7.12	7.39	-1.49	1.43
10	187661	201741	216336	-4.93	-6.98	7.23	-1.47	1.42
11	178934	192076	205668	-4.89	-6.84	7.08	-1.45	1.40
12	170670	182938	195597	-4.86	-6.71	6.92	-1.42	1.38
13	162841	174293	186083	-4.82	-6.57	6.76	-1.40	1.36
14	155423	166113	177094	-4.79	-6.44	6.61	-1.38	1.34
15	148390	158369	168597	-4.76	-6.30	6.46	-1.36	1.32
16	141721	151037	160562	-4.72	-6.17	6.31	-1.34	1.31
17	135394	144091	152962	-4.69	-6.04	6.16	-1.31	1.29
18	129391	137508	145770	-4.66	-5.90	6.01	-1.29	1.27
19	123692	131269	138962	-4.63	-5.77	5.86	-1.27	1.25
20	118280	125352	132515	-4.60	-5.64	5.71	-1.24	1.23
21	113140	119740	126408	-4.57	-5.51	5.57	-1.22	1.21
22	108255	114414	120621	-4.53	-5.38	5.43	-1.20	1.19
23	103613	109359	115136	-4.50	-5.25	5.28	-1.17	1.17
24	99198	104559	109934	-4.47	-5.13	5.14	-1.15	1.15
25	95000	100000	105000	-4.44	-5.00	5.00	-1.13	1.13
26	90764	95668	100585	-4.41	-5.13	5.14	-1.16	1.16
27	86743	91551	96383	-4.38	-5.25	5.28	-1.20	1.20
28	82926	87636	92383	-4.36	-5.38	5.42	-1.24	1.23
29	79300	83914	88574	-4.33	-5.50	5.55	-1.28	1.27
30	75854	80372	84946	-4.30	-5.62	5.69	-1.32	1.31
31	72580	77002	81488	-4.27	-5.74	5.83	-1.36	1.34
32	69467	73793	78193	-4.24	-5.86	5.96	-1.41	1.38
33	66507	70738	75051	-4.21	-5.98	6.10	-1.45	1.42
34	63691	67828	72054	-4.19	-6.10	6.23	-1.49	1.46
35	61011	65056	69196	-4.16	-6.22	6.36	-1.53	1.49



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**RESISTANCE-TEMPERATURE CHARACTERISTICS**

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R	<u>100,000</u>	ohms ±	<u>5%</u>
B	<u>3950</u>	°K ±	<u>3%</u>

Temperature (°C)	Resistance (Ω)			Temperture Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
36	58461	62414	66468	-4.13	-6.33	6.50	-1.57	1.53
37	56032	59895	63864	-4.11	-6.45	6.63	-1.61	1.57
38	53719	57493	61378	-4.08	-6.56	6.76	-1.66	1.61
39	51515	55202	59004	-4.05	-6.68	6.89	-1.70	1.65
40	49415	53015	56736	-4.03	-6.79	7.02	-1.74	1.69
41	47413	50929	54569	-4.00	-6.90	7.15	-1.79	1.72
42	45504	48937	52498	-3.98	-7.02	7.28	-1.83	1.76
43	43684	47035	50517	-3.95	-7.13	7.40	-1.87	1.80
44	41946	45218	48623	-3.93	-7.24	7.53	-1.92	1.84
45	40289	43482	46811	-3.90	-7.34	7.66	-1.96	1.88
46	38706	41823	45078	-3.88	-7.45	7.78	-2.01	1.92
47	37195	40237	43419	-3.85	-7.56	7.91	-2.05	1.96
48	35752	38721	41831	-3.83	-7.67	8.03	-2.10	2.00
49	34374	37270	40310	-3.81	-7.77	8.16	-2.14	2.04
50	33056	35883	38853	-3.78	-7.88	8.28	-2.19	2.08
51	31797	34555	37458	-3.76	-7.98	8.40	-2.23	2.12
52	30593	33284	36120	-3.74	-8.08	8.52	-2.28	2.16
53	29441	32067	34839	-3.71	-8.19	8.64	-2.33	2.20
54	28340	30901	33610	-3.69	-8.29	8.77	-2.37	2.25
55	27286	29785	32431	-3.67	-8.39	8.89	-2.42	2.29
56	26277	28715	31301	-3.65	-8.49	9.00	-2.47	2.33
57	25312	27690	30217	-3.62	-8.59	9.12	-2.52	2.37
58	24387	26708	29176	-3.60	-8.69	9.24	-2.57	2.41
59	23502	25766	28177	-3.58	-8.79	9.36	-2.61	2.45
60	22653	24862	27218	-3.56	-8.89	9.48	-2.66	2.50
61	21840	23995	26297	-3.54	-8.98	9.59	-2.71	2.54
62	21061	23164	25413	-3.52	-9.08	9.71	-2.76	2.58
63	20314	22366	24563	-3.50	-9.17	9.83	-2.81	2.62
64	19598	21600	23747	-3.48	-9.27	9.94	-2.86	2.67
65	18911	20864	22962	-3.45	-9.36	10.05	-2.91	2.71
66	18251	20158	22207	-3.43	-9.46	10.17	-2.96	2.75
67	17619	19479	21482	-3.41	-9.55	10.28	-3.01	2.80
68	17012	18827	20784	-3.39	-9.64	10.39	-3.06	2.84
69	16429	18201	20113	-3.37	-9.73	10.51	-3.11	2.88
70	15870	17599	19467	-3.35	-9.82	10.62	-3.17	2.93
71	15332	17020	18846	-3.34	-9.92	10.73	-3.22	2.97
72	14816	16463	18248	-3.32	-10.00	10.84	-3.27	3.02
73	14320	15928	17672	-3.30	-10.09	10.95	-3.32	3.06

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**RESISTANCE-TEMPERATURE CHARACTERISTICS**

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B	<u>3950</u>	°K ±	<u>3%</u>

Temperature (°C)	Resistance (Ω)			Temperture Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
74	13843	15413	17117	-3.28	-10.18	11.06	-3.37	3.11
75	13385	14917	16583	-3.26	-10.27	11.17	-3.43	3.15
76	12944	14440	16068	-3.24	-10.36	11.28	-3.48	3.20
77	12521	13981	15573	-3.22	-10.45	11.38	-3.53	3.24
78	12113	13539	15095	-3.20	-10.53	11.49	-3.59	3.29
79	11721	13113	14634	-3.19	-10.62	11.60	-3.64	3.33
80	11344	12703	14190	-3.17	-10.70	11.70	-3.70	3.38
81	10981	12308	13762	-3.15	-10.79	11.81	-3.75	3.42
82	10631	11928	13349	-3.13	-10.87	11.92	-3.80	3.47
83	10295	11561	12951	-3.11	-10.95	12.02	-3.86	3.52
84	9971	11208	12566	-3.10	-11.04	12.13	-3.92	3.56
85	9658	10867	12196	-3.08	-11.12	12.23	-3.97	3.61
86	9358	10538	11838	-3.06	-11.20	12.33	-4.03	3.66
87	9068	10221	11492	-3.05	-11.28	12.44	-4.08	3.70
88	8789	9915	11159	-3.03	-11.36	12.54	-4.14	3.75
89	8519	9620	10836	-3.01	-11.44	12.64	-4.20	3.80
90	8260	9336	10525	-3.00	-11.52	12.74	-4.25	3.85
91	8010	9061	10225	-2.98	-11.60	12.84	-4.31	3.89
92	7768	8796	9934	-2.96	-11.68	12.94	-4.37	3.94
93	7535	8540	9654	-2.95	-11.76	13.04	-4.43	3.99
94	7311	8292	9382	-2.93	-11.84	13.14	-4.49	4.04
95	7094	8054	9120	-2.91	-11.91	13.24	-4.54	4.09
96	6885	7823	8866	-2.90	-11.99	13.34	-4.60	4.14
97	6683	7600	8621	-2.88	-12.07	13.44	-4.66	4.19
98	6488	7384	8384	-2.87	-12.14	13.54	-4.72	4.23
99	6299	7176	8155	-2.85	-12.22	13.64	-4.78	4.28
100	6118	6975	7933	-2.84	-12.29	13.73	-4.84	4.33
101	5942	6780	7718	-2.82	-12.37	13.83	-4.90	4.38
102	5772	6592	7510	-2.81	-12.44	13.92	-4.96	4.43
103	5608	6410	7309	-2.79	-12.52	14.02	-5.02	4.48
104	5449	6234	7114	-2.78	-12.59	14.12	-5.08	4.53
105	5296	6064	6926	-2.76	-12.66	14.21	-5.14	4.58
106	5148	5899	6743	-2.75	-12.73	14.31	-5.21	4.63
107	5005	5740	6566	-2.73	-12.81	14.40	-5.27	4.68
108	4866	5585	6395	-2.72	-12.88	14.49	-5.33	4.74
109	4732	5436	6229	-2.71	-12.95	14.59	-5.39	4.79
110	4602	5291	6068	-2.69	-13.02	14.68	-5.45	4.84
111	4477	5151	5912	-2.68	-13.09	14.77	-5.52	4.89

