

THINKING ELECTRONIC INDUSTRIAL CO., LTD.

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**SPECIFICATION FOR APPROVAL**

CUSTOMER

CERTIFIED

MODEL/TYPE

PART NO.

APPLICATION

CUSTOMER P/N

ISSUE DATE

REV. NO

REV. DATE

NTSE0103

NTSE0103HZ182(ROHS)

Jan.13.2006

1.2

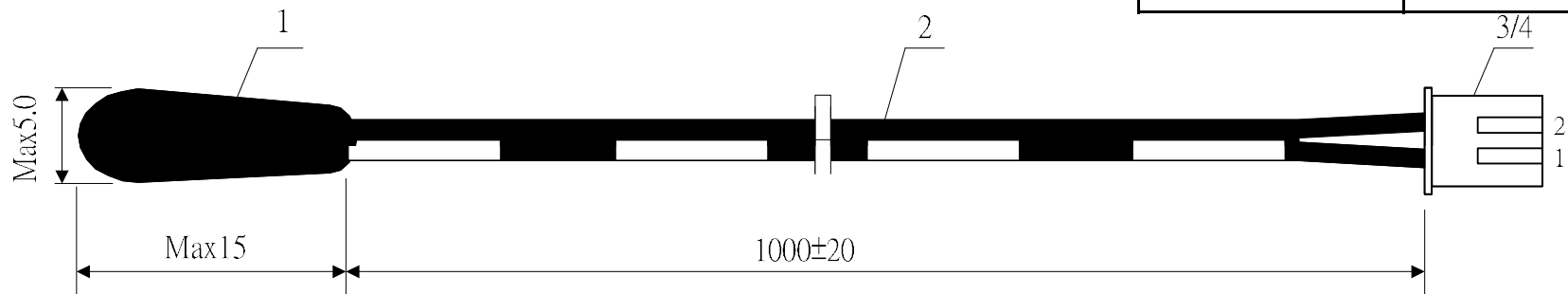
Feb.13.2008

FOR CUSTOMER APPROVAL	CHECKED BY
	WangJun
	APPROVED BY
	Guanxu Liu



REV. NO	REV. DATE	REVISED CONTENT
1.0	2006/1/13	New released
1.1	2007/1/15	Wire length 500mm change to 1000mm
1.2	2008/2/13	Changed Coating Resin length from 12mm to 15mm

A. Material List		
NO.	ITEM	DESCRIPTION
1	COATING RESIN	BLACK EPOXY
2	LEAD WIRE	UL2651#26*2C TS Black wire(black/white)
3	HOUSING(white)	P2-I25002(WST)
4	TERMINAL	I25002PS-2(WST)
B. Electrical Characteristics		
ITEM		VALUE
R _{25°C}		10KΩ ±3%
B _{25°C/85°C}		3435K±2%



							Customer	
							Customer P/N	
							Thinking P/N	NTSE0103HZ182
							Drawing NO.	SE2008045
1.2	2008/2/13	Changed Coating Resin length from 12mm to 15mm		Wen Xianme	WangJun	Guanxu Liu	Date	2008/2/13
1.1	2007/1/15	Wire length 500mm change to 1000mm		Tian Shuangchui	WangJun	FM CHU	Tol: ±mm	Unit:
1.0	2006/1/13	New released		KITTY	MATT	FM CHU	THINKING ELECTRONIC INDUSTRIAL CO.,LTD	
Rev.	Date	Subjects of Change	ECN.NO	Designed by	Checked by	Approved by		



THINKING ELECTRONIC INDUSTRIAL CO.,LTD

SUBJECT: CERTIFICATION OF MATERIALS

CUSTOMER:

THINKING P/N: NTSE0103HZ182

NO	PART NAME	PART P/N	Q'TY	MANUFACTURER OF MATERIAL	FLAMMABILITY SOLID BURNING CLASS	UL FILE NO
1	COATING RESIN	BLACK EPOXY		SOMAR		
2	WIRE	UL2651#26×2C TS BLACK (BLACK/WHITE)	1		VW-1	UL APPROVED
3	HOUSING (white)	P2-I25002	1		UL94V-0	UL APPROVED
4	TERMINAL	I25002PS-2	2		PHOS BRONZE	
REMARK						

Approved by: Guanxu Liu Checked by: WangJun Designed by: Wen Xianmei

Specification of NTC Thermistor for Temperature Measurement and Control

PART NO . NTSE0103HZ182

CUSTOMER P/N .

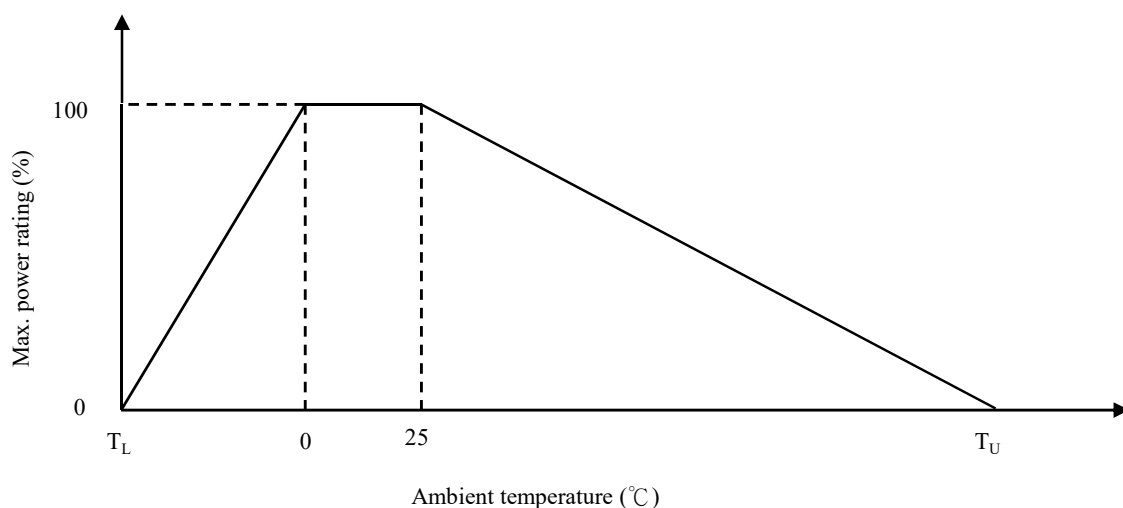
1. Electrical characteristics

	Parameter	Symbol	Test Conditions	Min.	Nor.	Max.	Unit.
a.	Resistance At 25°C	$R_{25^{\circ}\text{C}}$	$T_a=25^{\circ}\text{C}\pm 0.05^{\circ}\text{C}$ $P_T\leq 0.1\text{mW}$	9.7	10.0	10.3	KOHM
b.	Resistance At 85°C	$R_{85^{\circ}\text{C}}$	$T_a=85^{\circ}\text{C}\pm 0.05^{\circ}\text{C}$ $P_T\leq 0.1\text{mW}$	-----	1.451	-----	KOHM
c.	$R_{25^{\circ}\text{C}}/R_{85^{\circ}\text{C}}$	K	-----	-----	6.890	-----	-----
d.	B Constant	$B_{25^{\circ}\text{C}/85^{\circ}\text{C}}$	$(1779.707* \ln K)$	3366	3435	3504	K
e.	Thermal Dissipation Constant	δ	$T_a=25^{\circ}\text{C}\pm 0.5^{\circ}\text{C}$	5	-----	-----	mW/°C
f.	Thermal Time Constant	τ	$T_a=25^{\circ}\text{C}\pm 0.5^{\circ}\text{C}$	-----	-----	30	Sec
g.	Hi-Pot Test	-----	1500V AC 1 min	-----	-----	10	mA

2. Maximum Ratings

	Parameter	Specification	Unit
a.	Operation Temperature Range	-40 ----- +85	°C
b.	Max' Power Rating (in air at 25°C)	210	m W

Maximum power rating (Pmax)



Note: T_L = Minimum Temp. of Operating Temp. Range (°C)

T_U = Maximum Temp. of Operating Temp. Range (°C)

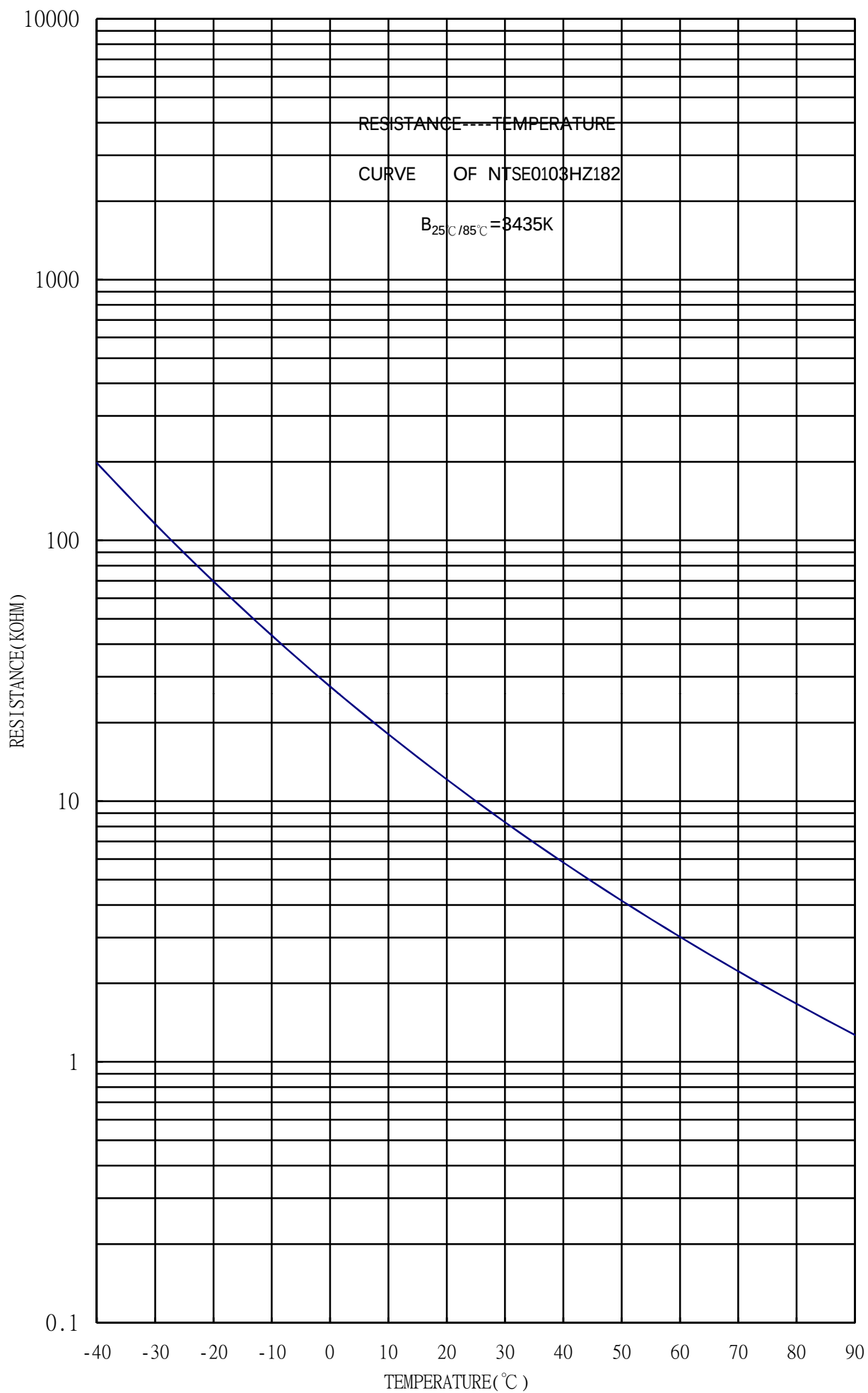
3. Mechanical Characteristics

3-1. Leads Terminal Tensile Strength

Conditions	Test Result	
Fasten body with a Load Applied to each lead 1.0 kg for 10 sec.	No break out and damage	OK

4. Reliability Test

Item	Test Conditions	Variable
Temp. cycle test	-40 °C X 30min → +25 °C X 5min +85 °C X 30min → +25 °C X 5min X 5Cycles	Within ± 3 %
Humidity test	40 °C 95 % RH X 1000 HRS	Within ± 3 %
Insulation test	DC 500 V	MIN: 100 MOHM



THINKING ELECTRONIC INDUSTRIAL CO., LTD.

R-T TABLE

Part No:NTSE0103HZ182

$R_{25^{\circ}\text{C}}=10\text{K}\Omega\pm3\%$

$B_{25^{\circ}\text{C}/85^{\circ}\text{C}}=3435\text{K}\pm2\%$

T	Rmax.	Rnor.	Rmin.	Temp. Tolerance	
(°C)	(KΩ)	(KΩ)	(KΩ)	(°C)	
-40	211.224	193.278	176.697	-1.68	1.62
-39	199.815	183.037	167.518	-1.64	1.60
-38	188.989	173.310	158.788	-1.61	1.58
-37	178.769	164.116	150.529	-1.59	1.57
-36	169.149	155.454	142.738	-1.58	1.56
-35	160.107	147.302	135.399	-1.57	1.55
-34	151.611	139.635	128.489	-1.56	1.55
-33	143.627	132.422	121.981	-1.55	1.54
-32	136.119	125.631	115.848	-1.54	1.53
-31	129.052	119.234	110.064	-1.53	1.52
-30	122.397	113.203	104.605	-1.52	1.51
-29	116.123	107.511	99.4478	-1.51	1.50
-28	110.205	102.136	94.5733	-1.50	1.49
-27	104.619	97.0582	89.9628	-1.49	1.48
-26	99.3433	92.2575	85.5999	-1.48	1.47
-25	94.3591	87.7173	81.4695	-1.46	1.45
-24	89.6487	83.4221	77.5581	-1.45	1.44
-23	85.1959	79.3578	73.8533	-1.44	1.43
-22	80.9860	75.5114	70.3435	-1.42	1.42
-21	77.0050	71.8705	67.0180	-1.41	1.41
-20	73.2402	68.4240	63.8669	-1.40	1.40
-19	69.6795	65.1611	60.8808	-1.38	1.39
-18	66.3115	62.0717	58.0507	-1.37	1.37
-17	63.1254	59.1464	55.3683	-1.36	1.36
-16	60.1110	56.3761	52.8257	-1.35	1.35
-15	57.2587	53.7522	50.4151	-1.34	1.34
-14	54.5593	51.2666	48.1293	-1.32	1.33
-13	52.0040	48.9116	45.9616	-1.31	1.32
-12	49.5847	46.6797	43.9053	-1.30	1.31
-11	47.2934	44.5640	41.9542	-1.29	1.30
-10	45.1228	42.5578	40.1025	-1.28	1.29
-9	43.0659	40.6550	38.3445	-1.27	1.28
-8	41.1160	38.8495	36.6750	-1.26	1.27
-7	39.2669	37.1359	35.0889	-1.24	1.26
-6	37.5128	35.5088	33.5815	-1.23	1.25
-5	35.8481	33.9632	32.1485	-1.22	1.24
-4	34.2676	32.4946	30.7855	-1.21	1.22
-3	32.7665	31.0984	29.4887	-1.19	1.21
-2	31.3402	29.7707	28.2544	-1.18	1.20
-1	29.9845	28.5076	27.0790	-1.17	1.19
0	28.6952	27.3053	25.9594	-1.16	1.18
1	27.4688	26.1607	24.8924	-1.14	1.16

2	26.3015	25.0704	23.8753	-1.13	1.15
3	25.1903	24.0315	22.9053	-1.12	1.14
4	24.1319	23.0412	21.9799	-1.10	1.12
5	23.1236	22.0969	21.0968	-1.09	1.11
6	22.1626	21.1962	20.2537	-1.07	1.10
7	21.2464	20.3368	19.4486	-1.06	1.08
8	20.3727	19.5165	18.6795	-1.04	1.07
9	19.5392	18.7334	17.9447	-1.03	1.05
10	18.7438	17.9855	17.2423	-1.01	1.04
11	17.9847	17.2710	16.5708	-1.00	1.03
12	17.2599	16.5884	15.9287	-0.98	1.01
13	16.5677	15.9360	15.3145	-0.97	1.00
14	15.9066	15.3123	14.7269	-0.95	0.98
15	15.2750	14.7160	14.1646	-0.94	0.97
16	14.6715	14.1457	13.6265	-0.92	0.95
17	14.0946	13.6002	13.1113	-0.91	0.94
18	13.5432	13.0783	12.6181	-0.89	0.92
19	13.0159	12.5790	12.1457	-0.88	0.91
20	12.5117	12.1010	11.6933	-0.86	0.89
21	12.0294	11.6436	11.2600	-0.84	0.88
22	11.5681	11.2056	10.8447	-0.83	0.86
23	11.1267	10.7863	10.4469	-0.81	0.85
24	10.7043	10.3847	10.0655	-0.80	0.83
25	10.3000	10.0000	9.70000	-0.78	0.81
26	9.92790	9.63150	9.33555	-0.80	0.84
27	9.57112	9.27844	8.98662	-0.83	0.86
28	9.22897	8.94011	8.65250	-0.85	0.89
29	8.90081	8.61585	8.33251	-0.88	0.91
30	8.58600	8.30502	8.02600	-0.90	0.94
31	8.28396	8.00701	7.73235	-0.93	0.96
32	7.99413	7.72125	7.45098	-0.95	0.99
33	7.71597	7.44720	7.18132	-0.98	1.01
34	7.44895	7.18432	6.92285	-1.01	1.04
35	7.19259	6.93211	6.67505	-1.03	1.06
36	6.94642	6.69010	6.43744	-1.06	1.09
37	6.71000	6.45784	6.20956	-1.09	1.11
38	6.48289	6.23488	5.99096	-1.11	1.14
39	6.26470	6.02082	5.78124	-1.14	1.17
40	6.05502	5.81527	5.57998	-1.17	1.19
41	5.85349	5.61783	5.38681	-1.19	1.22
42	5.65975	5.42816	5.20137	-1.22	1.24
43	5.47346	5.24592	5.02331	-1.25	1.27
44	5.29431	5.07077	4.85229	-1.28	1.30
45	5.12198	4.90240	4.68801	-1.30	1.32
46	4.95618	4.74053	4.53017	-1.33	1.35
47	4.79663	4.58486	4.37849	-1.36	1.38
48	4.64306	4.43512	4.23268	-1.39	1.41
49	4.49522	4.29106	4.09249	-1.42	1.43
50	4.35285	4.15243	3.95768	-1.45	1.46
51	4.21574	4.01901	3.82801	-1.47	1.49
52	4.08365	3.89056	3.70326	-1.50	1.51
53	3.95638	3.76687	3.58321	-1.53	1.54
54	3.83373	3.64774	3.46766	-1.56	1.57

55	3.71549	3.53299	3.35642	-1.59	1.60
56	3.60150	3.42241	3.24931	-1.62	1.62
57	3.49157	3.31585	3.14614	-1.65	1.65
58	3.38553	3.21313	3.04676	-1.68	1.68
59	3.28324	3.11409	2.95101	-1.71	1.71
60	3.18453	3.01859	2.85872	-1.74	1.74
61	3.08926	2.92647	2.76976	-1.77	1.76
62	2.99730	2.83760	2.68400	-1.80	1.79
63	2.90850	2.75185	2.60129	-1.83	1.82
64	2.82275	2.66909	2.52152	-1.86	1.85
65	2.73993	2.58920	2.44456	-1.89	1.88
66	2.65992	2.51208	2.37031	-1.92	1.90
67	2.58262	2.43760	2.29865	-1.95	1.93
68	2.50791	2.36567	2.22948	-1.98	1.96
69	2.43570	2.29618	2.16271	-2.01	1.99
70	2.36589	2.22905	2.09823	-2.04	2.02
71	2.29839	2.16418	2.03596	-2.07	2.04
72	2.23312	2.10148	1.97582	-2.10	2.07
73	2.16999	2.04088	1.91772	-2.13	2.10
74	2.10892	1.98229	1.86158	-2.16	2.13
75	2.04984	1.92564	1.80733	-2.19	2.16
76	1.99268	1.87086	1.75490	-2.22	2.19
77	1.93735	1.81787	1.70422	-2.26	2.22
78	1.88381	1.76662	1.65522	-2.29	2.25
79	1.83198	1.71703	1.60785	-2.32	2.28
80	1.78180	1.66906	1.56204	-2.35	2.31
81	1.73321	1.62263	1.51773	-2.38	2.33
82	1.68617	1.57770	1.47488	-2.41	2.36
83	1.64060	1.53421	1.43342	-2.45	2.39
84	1.59647	1.49211	1.39331	-2.48	2.42
85	1.55372	1.45135	1.35450	-2.51	2.45