THINKING ELECTRONIC INDUSTRIAL CO., LTD.

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SPECIFICATION FOR APPROVAL

CUSTOMER	Ozdisan
CERTIFIED MODEL/TYPE	NTS(J)104
PART NO.	NTSE3104FZ137(RoHS)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Jan.27.2026
REV. NO.	1.0
REV. DATE	

FOR CUSTOMER APPROVAL	CHECKED BY
	Hu Feng
	APPROVED BY
	Hu Feng

THINKING ELECTRONIC INDUSTRIAL CO.,LTD

CUSTOMER: Ozdisan

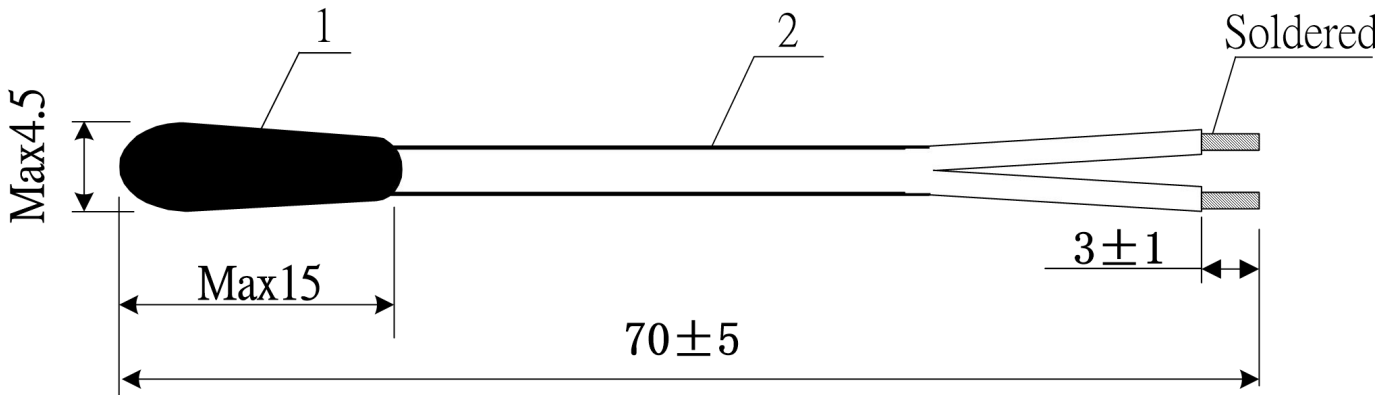
THINKING P/N:NTSE3104FZ137 CUSTOMER P/N:

REVISED RECORD SHEET

REV. NO	REV. DATE	REVISED CONTENT
1.0	2026/1/27	New Released

A. Material List		
NO.	ITEM	DESCRIPTION
1	COATING RESIN	BLACK EPOXY
2	LEAD WIRE	UL4413#24*2C TS White wire
*	ELEMENT	NTC Thermistor

B. Electrical Characteristic	
ITEM	VALUE
R25	100KΩ±1%
B25/85	4190K±1%



							Customer	Ozdisan
							Customer P/N	
							Thinking P/N	NTSE3104FZ137
							Drawing NO.	SE2601074
							Date	2026/1/27
							Tol: ±mm	Unit: mm / Scale:
1.0	2026/1/27	New Released		Chunlong Luo	Hu Feng	Hu Feng	*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:Ozdisan

THINKING P/N:NTSE3104FZ137 CUSTOMER P/N:

NO	PART NAME	PART P/N	Q'TY	UL FILE NO
1	COATING RESIN	BLACK EPOXY		
2	LEAD WIRE	UL4413#24*2C TS White wire	1	
*	ELEMENT	NTC Thermistor	1	
REMARK				

Approved by: Hu Feng Checked by: Hu Feng Designed by: Chunlong Luo

Specification of NTC Thermistor for Temperature Measurement and Control

PART NO . NTSE3104FZ137

CUSTOMER P/N . _____

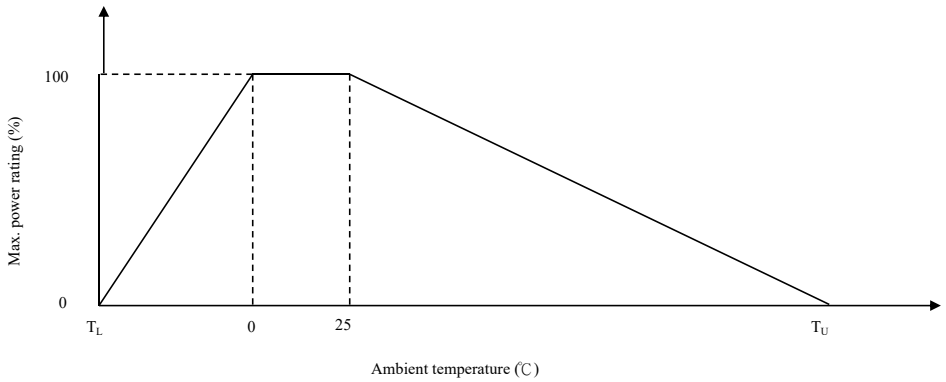
1. Electrial characteristics

	Parameter	Symbol	Test Conditions	Min.	Nor.	Max.	Unit.
a.	Resistance At 25℃	R_{25}	Ta=25℃±0.05℃ P_T≦0.02mW	99	100.0	101	KΩ
b.	B Constant	$B_{25/85}$	1779.707* Ln(R25/R85)	4148	4190	4232	K
c.	Thermal Dissipation Constant (in air)	δ	Ta=25℃	-----	Approx7.0	-----	mW/℃
d.	Thermal Time Constant (in water)	τ	25℃→85℃ T1=25+(85-25)*63.2%=62.92	-----	Approx30	-----	Sec
e.	Hi-Pot Test	-------	AC 3000V/60 sec	-----	-----	5	mA
f.	Insulation test	-------	500V DC 5 Sec	Min : 100 MΩ			

2.Maximun Ratings

	Parameter	Specification	Unit
a.	Operation Temperature Range	-40 ----- +125	℃
b.	Max' Power Rating (in air at 25℃)	150	m W

Maximum power rating (Pmax)



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

T_U = Maximum Temp. of Operating Temp. Range (℃)

3. Reliability Test

Item	Test Conditions	Variable
Temp. cycle test	-40 ℃ X 30min → +25 ℃ X 5min +125 ℃ X 30min → +25 ℃ X 5min } X 100Cycles	ΔB、ΔR25/ R25≤3%
Low temp.test	-40±5℃ X 1000±24 HRS	ΔB、ΔR25/ R25≤3%
High temp.test	125± 5℃ X 1000±24 HRS	ΔB、ΔR25/ R25≤3%
Humidity test	40± 2℃ 90 %~95% RH X 1000±24 HRS	ΔB、ΔR25/ R25≤3%

Install and use

1. Use this product within the specified temperature range.
2. Higher temperature may cause deterioration of the characteristics or the material quality of this product.
3. Do not melt the solder in resin head, when you solder this product. If you melt the solder in resin head, it has possibility that the break of wire, short and insulation damage.
4. Do not touch the resin head directly by solder iron. It may cause the melt of solder in resin head.
5. At least away from resin head 10mm above when lead dividing.
6. In case you cut the lead wire of this product less than 10mm from resin head, the heat of melted solder at lead wire edge is propagated easily to the resin head along the lead wire.
7. Radius of lead bending should be more than 1mm when lead bending. Holding element by side lead wire is recommended when lead wire is bent or cut.
8. Do not apply an excessive force to the lead. Otherwise, it may cause junction between lead and element to break or crack.
9. The ceramic element of this product is fragile, and care must be taken not to load an excessive press-force or not to give a shock at handling. Such forces may cause cracking or chipping.
10. If you mold by resin this product, please evaluate the quality of this product before you use it.

Warehouse Storage Conditions of Products

To keep solderability of product from declining, the following storage condition is recommended.

1. Storage condition:

Temperature -10℃ to +40℃

Humidity less than 75%RH (not dewing condition)

2. Storage term:

Use this product within 1 year after delivery by first-in and first-out stocking system.

3. Handling after unpacking:

After unpacking, reseal product promptly or store it in a sealed container with a drying agent.

4. Storage place:

Do not store this product in corrosive gas (Sulfuric acid gas, Chlorine gas, etc.) or in direct sunlight.

Warn and note item

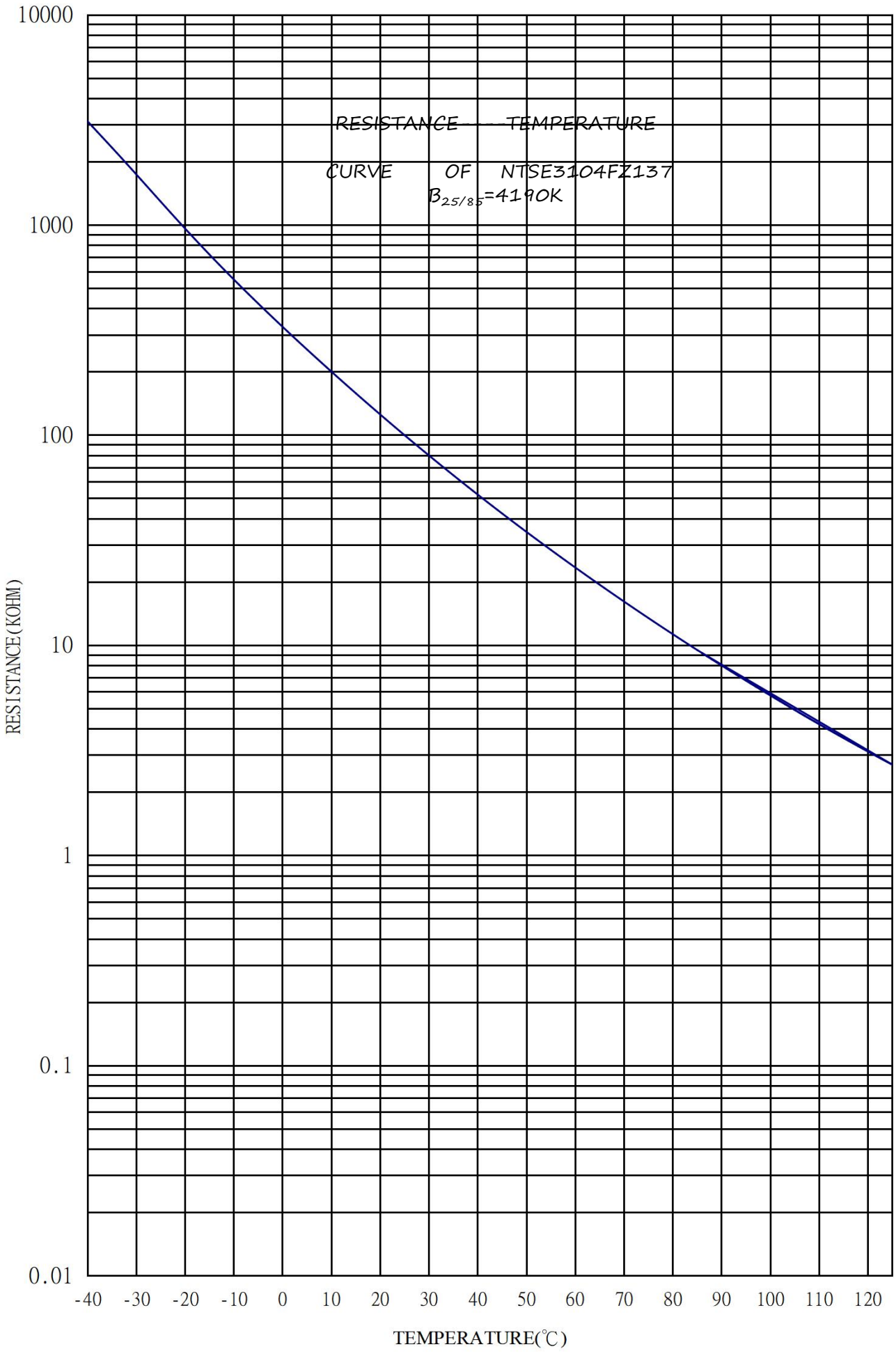
This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure).

Do not use under the following conditions because all of these factors can deteriorate the product characteristics or cause failures and burn-out.

1. Corrosive gas or deoxidizing gas (Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
2. Volatile or flammable gas
3. Dusty conditions
4. Under vacuum, or under high or low pressure
5. Wet or humid locations; soak in the liquid or wash with liquid
6. Places with salt water, oils, chemical liquids or organic solvents and do not use directly with quick-drying glue.
7. Strong vibrations
8. Other places where similar hazardous conditions exist
9. Be sure to provide an appropriate fail-safe function on your product to prevent secondary damages that may be caused by the abnormal function or the failure of our product.

Restriction of Weapon and Military End-Use

Thinking has established and implemented the fundamental policy on none of our product should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or goods or systems specially designed or intended for military end-use or utilization by military end-users.


RESISTANCE---TEMPERATURE
CURVE OF NTSE3104FZ137
B25/85=4190K
10000
1000
100
10
1
0.1
0.01
RESISTANCE(KOHM)
-40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90 100 110 120
TEMPERATURE(℃)

R - T Table

Part No. : NTSE3104FZ137

R25=100KΩ ±1%

B25/85 = 4190 K ± 1%

Temperature (℃)	Rmax. (KΩ)	Rnor. (KΩ)	Rmin. (KΩ)	Temperature Tol. (℃)	
-40	3261.92	3120.40	2984.71	-0.75	0.77
-39	3076.11	2944.36	2817.97	-0.75	0.77
-38	2902.26	2779.56	2661.77	-0.74	0.76
-37	2738.62	2624.34	2514.58	-0.74	0.75
-36	2583.96	2477.56	2375.30	-0.72	0.73
-35	2437.43	2338.41	2243.20	-0.71	0.72
-34	2298.45	2206.37	2117.76	-0.70	0.71
-33	2166.62	2081.03	1998.62	-0.68	0.69
-32	2041.61	1962.12	1885.53	-0.67	0.68
-31	1923.20	1849.41	1778.27	-0.65	0.67
-30	1811.18	1742.72	1676.68	-0.64	0.65
-29	1705.33	1641.85	1580.58	-0.63	0.64
-28	1605.46	1546.63	1489.80	-0.62	0.63
-27	1511.37	1456.85	1404.16	-0.61	0.62
-26	1422.82	1372.32	1323.47	-0.60	0.61
-25	1339.59	1292.81	1247.54	-0.59	0.61
-24	1261.44	1218.12	1176.16	-0.58	0.60
-23	1188.12	1147.99	1109.11	-0.57	0.59
-22	1119.37	1082.21	1046.17	-0.56	0.58
-21	1054.95	1020.52	987.117	-0.56	0.58
-20	994.600	962.702	931.735	-0.55	0.57
-19	938.141	908.580	879.862	-0.55	0.57
-18	885.266	857.864	831.226	-0.54	0.56
-17	835.742	810.335	785.621	-0.53	0.55
-16	789.347	765.783	742.848	-0.53	0.55
-15	745.869	724.009	702.719	-0.52	0.54
-14	705.109	684.824	665.057	-0.52	0.54
-13	666.880	648.052	629.694	-0.51	0.53
-12	631.006	613.527	596.473	-0.51	0.53
-11	597.324	581.094	565.248	-0.50	0.52
-10	565.682	550.608	535.882	-0.49	0.51
-9	535.938	521.935	508.248	-0.49	0.51
-8	507.962	494.953	482.229	-0.48	0.50
-7	481.632	469.545	457.715	-0.48	0.49
-6	456.837	445.605	434.606	-0.47	0.49
-5	433.473	423.036	412.808	-0.46	0.48
-4	411.445	401.745	392.235	-0.46	0.47
-3	390.664	381.650	372.807	-0.45	0.47
-2	371.049	362.673	354.450	-0.44	0.46
-1	352.525	344.741	337.096	-0.43	0.45
0	335.022	327.790	320.683	-0.43	0.44
1	318.477	311.758	305.151	-0.42	0.44
2	302.829	296.589	290.448	-0.41	0.43
3	288.024	282.228	276.522	-0.40	0.42
4	274.010	268.629	263.328	-0.40	0.41
5	260.741	255.746	250.822	-0.39	0.40

R - T Table

Part No. : NTSE3104FZ137

R25=100KΩ ±1%

B25/85 = 4190 K ± 1%

Temperature (℃)	Rmax. (KΩ)	Rnor. (KΩ)	Rmin. (KΩ)	Temperature Tol. (℃)	
6	248.171	243.537	238.965	-0.38	0.39
7	236.262	231.962	227.719	-0.37	0.39
8	224.973	220.986	217.049	-0.36	0.38
9	214.270	210.575	206.922	-0.35	0.37
10	204.120	200.696	197.309	-0.35	0.36
11	194.491	191.320	188.182	-0.34	0.35
12	185.354	182.419	179.513	-0.33	0.34
13	176.683	173.968	171.277	-0.32	0.34
14	168.452	165.941	163.452	-0.31	0.33
15	160.636	158.317	156.015	-0.30	0.32
16	153.214	151.072	148.946	-0.30	0.31
17	146.164	144.188	142.225	-0.29	0.30
18	139.466	137.645	135.834	-0.28	0.29
19	133.102	131.425	129.755	-0.27	0.28
20	127.054	125.511	123.973	-0.26	0.27
21	121.305	119.886	118.473	-0.25	0.26
22	115.840	114.537	113.238	-0.24	0.26
23	110.643	109.449	108.256	-0.23	0.25
24	105.701	104.607	103.514	-0.23	0.24
25	101.000	100.000	99.0000	-0.22	0.23
26	96.6146	95.6151	94.6165	-0.23	0.24
27	92.4382	91.4411	90.4457	-0.24	0.25
28	88.4601	87.4671	86.4766	-0.25	0.26
29	84.6704	83.6829	82.6986	-0.26	0.27
30	81.0595	80.0788	79.1021	-0.27	0.28
31	77.6183	76.6457	75.6777	-0.28	0.30
32	74.3383	73.3748	72.4165	-0.29	0.31
33	71.2114	70.2579	69.3103	-0.31	0.32
34	68.2299	67.2873	66.3510	-0.32	0.33
35	65.3865	64.4554	63.5312	-0.33	0.34
36	62.6744	61.7555	60.8439	-0.34	0.35
37	60.0868	59.1807	58.2823	-0.35	0.37
38	57.6178	56.7248	55.8401	-0.36	0.38
39	55.2613	54.3819	53.5111	-0.38	0.39
40	53.0119	52.1463	51.2898	-0.39	0.40
41	50.8641	50.0128	49.1708	-0.40	0.41
42	48.8131	47.9761	47.1488	-0.41	0.43
43	46.8540	46.0316	45.2191	-0.42	0.44
44	44.9824	44.1746	43.3770	-0.43	0.45
45	43.1940	42.4009	41.6183	-0.45	0.46
46	41.4847	40.7064	39.9388	-0.46	0.47
47	39.8507	39.0872	38.3345	-0.47	0.49
48	38.2883	37.5396	36.8019	-0.48	0.50
49	36.7942	36.0602	35.3373	-0.50	0.51
50	35.3650	34.6457	33.9376	-0.51	0.52
51	33.9976	33.2929	32.5994	-0.52	0.54

R - T Table

Part No. : NTSE3104FZ137

R25=100KΩ ±1%

B25/85 = 4190 K ± 1%

Temperature (℃)	Rmax. (KΩ)	Rnor. (KΩ)	Rmin. (KΩ)	Temperature Tol. (℃)	
52	32.6892	31.9988	31.3199	-0.53	0.55
53	31.4368	30.7607	30.0962	-0.55	0.56
54	30.2378	29.5759	28.9256	-0.56	0.57
55	29.0898	28.4419	27.8057	-0.57	0.59
56	27.9903	27.3562	26.7339	-0.58	0.60
57	26.9370	26.3167	25.7080	-0.60	0.61
58	25.9279	25.3210	24.7259	-0.61	0.62
59	24.9609	24.3673	23.7854	-0.62	0.64
60	24.0340	23.4535	22.8847	-0.64	0.65
61	23.1455	22.5778	22.0218	-0.65	0.66
62	22.2934	21.7384	21.1951	-0.66	0.68
63	21.4763	20.9338	20.4028	-0.67	0.69
64	20.6925	20.1622	19.6435	-0.69	0.70
65	19.9406	19.4222	18.9155	-0.70	0.71
66	19.2190	18.7124	18.2174	-0.71	0.73
67	18.5264	18.0315	17.5479	-0.73	0.74
68	17.8617	17.3780	16.9058	-0.74	0.75
69	17.2234	16.7509	16.2897	-0.75	0.77
70	16.6105	16.1489	15.6986	-0.77	0.78
71	16.0219	15.5710	15.1312	-0.78	0.79
72	15.4565	15.0160	14.5867	-0.79	0.81
73	14.9133	14.4831	14.0638	-0.81	0.82
74	14.3913	13.9711	13.5618	-0.82	0.83
75	13.8896	13.4793	13.0797	-0.83	0.85
76	13.4075	13.0067	12.6166	-0.85	0.86
77	12.9439	12.5525	12.1718	-0.86	0.87
78	12.4982	12.1160	11.7444	-0.88	0.89
79	12.0696	11.6964	11.3336	-0.89	0.90
80	11.6574	11.2930	10.9389	-0.90	0.91
81	11.2609	10.9051	10.5594	-0.92	0.93
82	10.8794	10.5320	10.1946	-0.93	0.94
83	10.5124	10.1731	9.84384	-0.95	0.95
84	10.1592	9.82793	9.50653	-0.96	0.97
85	9.81924	9.49580	9.18211	-0.97	0.98
86	9.49177	9.17598	8.86980	-0.99	0.99
87	9.17654	8.86821	8.56938	-1.00	1.01
88	8.87306	8.57201	8.28035	-1.02	1.02
89	8.58086	8.28692	8.00226	-1.03	1.04
90	8.29948	8.01248	7.73464	-1.05	1.05
91	8.02850	7.74827	7.47708	-1.06	1.07
92	7.76749	7.49387	7.22917	-1.08	1.08
93	7.51606	7.24889	6.99052	-1.09	1.10
94	7.27383	7.01295	6.76075	-1.11	1.11
95	7.04044	6.78570	6.53952	-1.12	1.12
96	6.81554	6.56678	6.32647	-1.14	1.14
97	6.59879	6.35587	6.12127	-1.15	1.15
98	6.38988	6.15264	5.92362	-1.17	1.17
99	6.18849	5.95680	5.73322	-1.18	1.18
100	5.99433	5.76805	5.54977	-1.20	1.20
101	5.80712	5.58612	5.37300	-1.21	1.22
102	5.62658	5.41073	5.20264	-1.23	1.23

R - T Table

Part No. : NTSE3104FZ137

R25=100KΩ ±1%

B25/85 = 4190 K ± 1%

Temperature (℃)	Rmax. (KΩ)	Rnor. (KΩ)	Rmin. (KΩ)	Temperature Tol. (℃)	
103	5.45247	5.24163	5.03844	-1.25	1.25
104	5.28452	5.07857	4.88016	-1.26	1.26
105	5.12250	4.92132	4.72756	-1.28	1.28
106	4.96618	4.76964	4.58042	-1.30	1.29
107	4.81533	4.62333	4.43853	-1.31	1.31
108	4.66975	4.48216	4.30168	-1.33	1.33
109	4.52924	4.34595	4.16966	-1.35	1.34
110	4.39359	4.21450	4.04230	-1.36	1.36
111	4.26262	4.08762	3.91940	-1.38	1.37
112	4.13615	3.96513	3.80081	-1.40	1.39
113	4.01401	3.84688	3.68633	-1.41	1.41
114	3.89603	3.73268	3.57583	-1.43	1.42
115	3.78205	3.62239	3.46913	-1.45	1.44
116	3.67192	3.51586	3.36610	-1.46	1.46
117	3.56548	3.41294	3.26659	-1.48	1.47
118	3.46261	3.31349	3.17047	-1.50	1.49
119	3.36316	3.21737	3.07759	-1.52	1.50
120	3.26700	3.12447	2.98785	-1.53	1.52
121	3.17401	3.03465	2.90111	-1.55	1.54
122	3.08407	2.94779	2.81726	-1.57	1.55
123	2.99705	2.86380	2.73619	-1.59	1.57
124	2.91286	2.78254	2.65780	-1.60	1.59
125	2.83137	2.70393	2.58197	-1.62	1.60

THINKING ELECTRONIC INDUSTRIAL CO.,LTD

THINKING P/N: NTSE3104FZ137

Safety Approvals (Certified Model/Type :NTS（J)104)

*UL 1434/cUL recognized (File # E138827)

Certificates

(1) ITAF 16949 certificate
(2) ISO 9001 certificate

Test Report

(1) RoHS test report