



# THINKING ELECTRONIC INDUSTRIAL CO., LTD.

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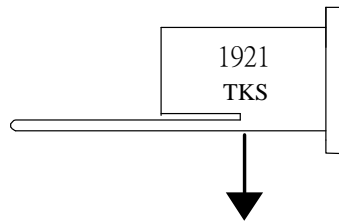
## SPECIFICATION FOR APPROVAL

CUSTOMER	Ozdisan-Baff Technic
CERTIFIED MODEL/TYPE	NTSF0103
PART NO.	NTSF0103XZ740A(RoHS)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	May.17.2021
REV. NO.	1.0
REV. DATE	

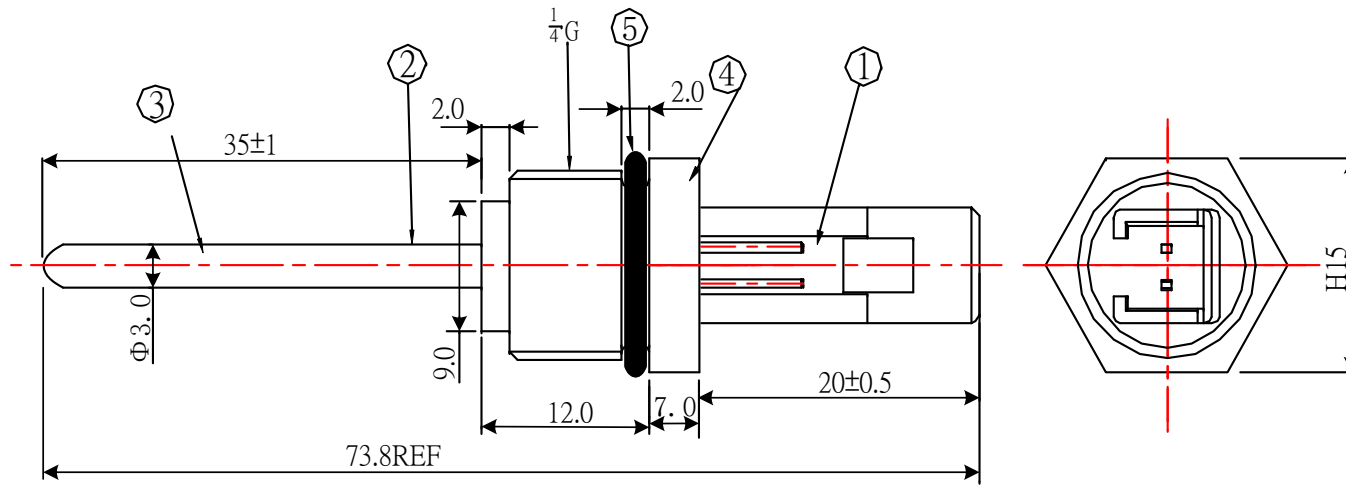
FOR CUSTOMER APPROVAL	CHECKED BY
	HuFeng
	APPROVED BY
	FMChu







Date Code 1921: 19 represents week 19 while  
21 refers to year 2021



### A. Material List

NO.	ITEM	DESCRIPTION
1	CONNECTOR	PA66+30% GF(WHITE)
2	CAP	Φ3.0 Stainless steel(316L)
3	FILLING	SILICON
4	SCREW	PPX630 GF30 OR PA66+25% GF (BLACK)
5	O-RING	E7001Z59 (EPDM shore 70±5 BLACK)(10.82±0.18 x 1.78±0.08 ) This is compliant to Italian maker, Daimar EP856 specification.
*	ELEMENT	NTC Thermistor

### B. Electrical Characteristic

ITEM	VALUE
R <sub>25°C</sub>	10KΩ±3.8%
B <sub>25/85°C</sub>	3435K±1.5%

							Customer	Ozdisan-Baff Technic
							Customer P/N	
							Thinking P/N	NTSF0103XXZ740A
							Drawing NO.	SF1305021
							Date	2021/5/17
							.= ± 0.5mm .0= ± 0.3mm .00=±0.2mm	Unit: mm      Scale:
1.0	2021/5/17	NEW RELEASED		RuanDong	HuFeng	FM Chu	<i>THINKING ELECTRONIC INDUSTRIAL CO.,LTD</i>	
Rev.	Date	Subjects of Change	ECN.NO	Designed by	Checked by	Approved by		

**SUBJECT: CERTIFICATION OF MATERIALS**

CUSTOMER: Ozdisan-Baff Technic

THINKING P/N: NTSF0103XZ740A

NO	PART NAME	PART P/N	Q'TY	FLAMMABILITY SOLID BURNING CLASS	UL FILE NO
1	CONNECTOR	PA66+30% GF (WHITE)	1		
2	CAP	Φ3.0 Stainless steel(316L)	1		
3	FILLING	SILICON			
4	SCREW	PPX630 GF30 OR PA66+25% GF (BLACK)	1		
5	O-RING	E7001Z59 (EPDM shore 70±5 BLACK)(10.82±0.18 x 1.78±0.08 ) This is compliant to Italian maker, Daimar EP856 specification.	1		
*	ELEMENT	NTC Thermistor	1		
REMARK					

Approved by: FMChu

Checked by: HuFeng

Designed by: RuanDong

# Specification of NTC Thermistor for Temperature Measurement and Control

PART NO. NTSF0103XZ740A

CUSTOMER P/N. \_\_\_\_\_

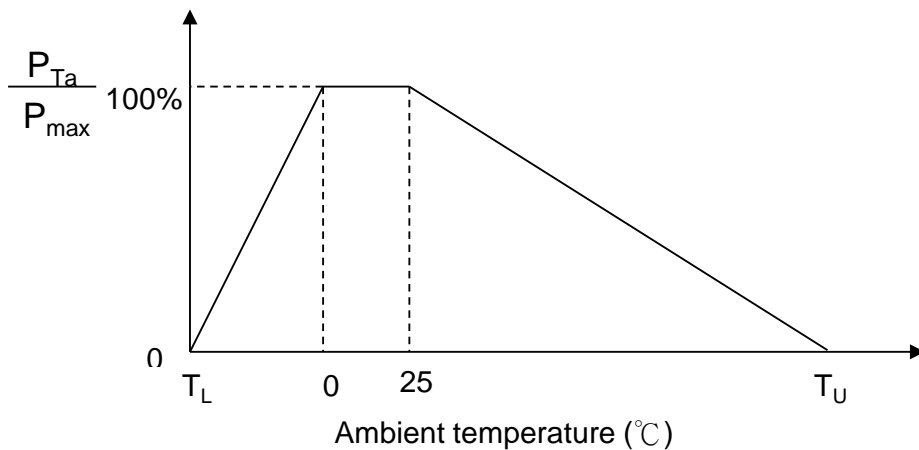
## 1. Electrical characteristics

	Parameter	Symbol	Test Conditions	Min.	Nor.	Max.	Unit.
a.	Resistance At 25°C	R <sub>25</sub>	T <sub>a</sub> =25°C±0.05°C P <sub>T</sub> ≤0.1mW	9.620	10.000	10.380	KΩ
b.	B Constant	B <sub>25/85</sub>	1779.707* Ln(R <sub>25</sub> /R <sub>85</sub> )	3383	3435	3487	K
c.	Thermal Dissipation Constant(in air)	δ	T <sub>a</sub> =25°C	-----	Approx5	-----	mW/°C
d.	Thermal Time Constant(in water)	τ	25°C→85°C T <sub>1</sub> =25+(85-25)*63.2%=62.9°C	-----	-----	3	Sec
e.	Hi-Pot test	-----	500V AC 2sec	-----	0.5	-----	mA

## 2. Maximum Ratings

	Parameter	Specification	Unit
a.	Operation Temperature Range	-40----- +150	°C
b.	Max. Power Dissipation at 25°C	4	m W

### Max. Power Dissipation Derating Curve



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

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

## 3. Reliability Test

Item	Test Conditions	Variable
Temp. cycle test	-40°C x 30min → +25 °C x 5min +150°C x 30min → +25 °C x 5min } X 5Cycles	Within ± 3 %
Low temp.test	-40± 3°C X 1000 HRS	Within ± 3 %
High temp.test	150± 3°C X 1000 HRS	Within ± 3 %
Humidity test	40 °C 95 % RH x 1000 HRS	Within ± 3 %

\*This product is made by high temperature resistant glass which contains lead.

## **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°C to +40°C

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:

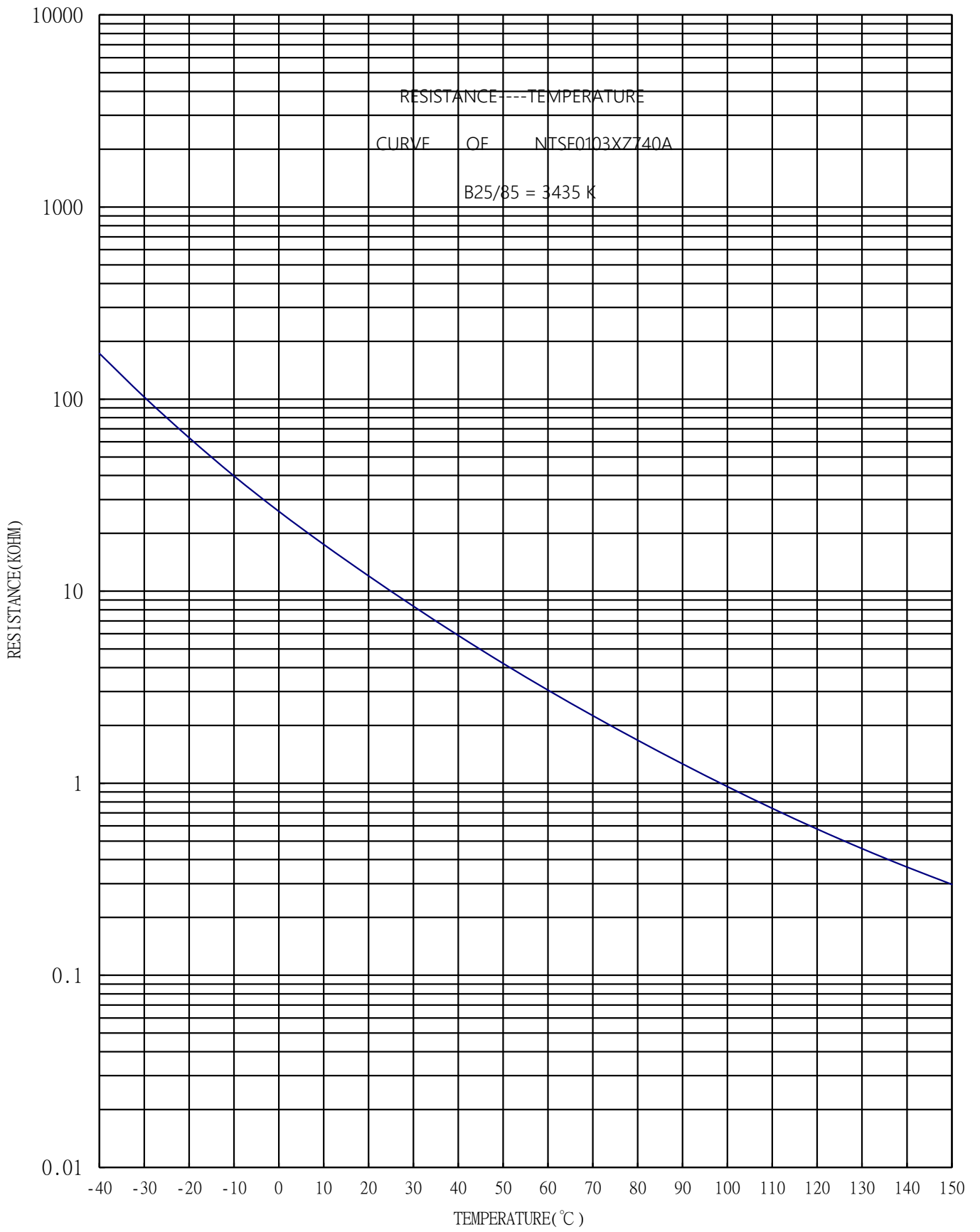
Do not store this product in corrosive gas (Sulfuric acid gas, Chlorine gas, etc.) or in direct sunlight.

## **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.





## R - T Table

Part No. : NTSF0103XZ740A

R25 = 10 K $\Omega$   $\pm$  3.8%

B25/85 = 3435 K  $\pm$  1.5%

Temperature (°C)	Rmax. (K $\Omega$ )	Rnor. (K $\Omega$ )	Rmin. (K $\Omega$ )	Temperature Tol. (°C)	
-40	187.49	173.07	159.52	-1.47	1.47
-39	177.37	163.86	151.15	-1.47	1.47
-38	167.88	155.22	143.30	-1.47	1.47
-37	159.00	147.12	135.94	-1.47	1.47
-36	150.66	139.52	129.02	-1.47	1.47
-35	142.84	132.38	122.51	-1.47	1.47
-34	135.50	125.67	116.40	-1.46	1.47
-33	128.59	119.36	110.63	-1.46	1.47
-32	122.09	113.42	105.20	-1.46	1.46
-31	115.97	107.81	100.08	-1.46	1.46
-30	110.19	102.52	95.238	-1.45	1.46
-29	104.74	97.518	90.662	-1.44	1.45
-28	99.591	92.792	86.332	-1.44	1.44
-27	94.722	88.321	82.233	-1.43	1.44
-26	90.116	84.088	78.350	-1.42	1.43
-25	85.757	80.079	74.669	-1.42	1.42
-24	81.631	76.282	71.180	-1.41	1.42
-23	77.723	72.682	67.871	-1.40	1.41
-22	74.021	69.271	64.732	-1.39	1.40
-21	70.515	66.037	61.754	-1.38	1.40
-20	67.193	62.971	58.929	-1.38	1.39
-19	64.045	60.064	56.248	-1.37	1.38
-18	61.063	57.307	53.705	-1.36	1.38
-17	58.237	54.694	51.291	-1.36	1.37
-16	55.560	52.215	49.001	-1.35	1.37
-15	53.022	49.865	46.828	-1.34	1.36
-14	50.618	47.636	44.765	-1.34	1.36
-13	48.339	45.522	42.808	-1.33	1.35
-12	46.178	43.517	40.950	-1.33	1.35
-11	44.130	41.615	39.186	-1.32	1.35
-10	42.188	39.810	37.511	-1.32	1.34
-9	40.345	38.096	35.921	-1.31	1.34
-8	38.597	36.469	34.409	-1.31	1.33
-7	36.938	34.924	32.973	-1.30	1.33
-6	35.363	33.456	31.607	-1.30	1.33
-5	33.866	32.061	30.308	-1.29	1.32
-4	32.444	30.734	29.073	-1.29	1.32
-3	31.092	29.472	27.896	-1.28	1.31
-2	29.806	28.271	26.776	-1.28	1.31
-1	28.583	27.127	25.709	-1.27	1.30
0	27.418	26.037	24.691	-1.27	1.30





## R - T Table

Part No. : NTSF0103XZ740A

R25 = 10 K $\Omega$   $\pm$  3.8%

B25/85 = 3435 K  $\pm$  1.5%

Temperature (°C)	Rmax. (K $\Omega$ )	Rnor. (K $\Omega$ )	Rmin. (K $\Omega$ )	Temperature Tol. (°C)	
1	26.308	24.999	23.721	-1.26	1.29
2	25.250	24.008	22.794	-1.25	1.28
3	24.241	23.063	21.910	-1.25	1.28
4	23.279	22.160	21.065	-1.24	1.27
5	22.360	21.299	20.258	-1.23	1.26
6	21.483	20.475	19.486	-1.22	1.26
7	20.644	19.687	18.748	-1.22	1.25
8	19.843	18.934	18.041	-1.21	1.24
9	19.076	18.213	17.364	-1.20	1.23
10	18.343	17.523	16.716	-1.19	1.22
11	17.641	16.863	16.095	-1.18	1.21
12	16.969	16.229	15.500	-1.17	1.20
13	16.325	15.623	14.929	-1.16	1.19
14	15.708	15.041	14.381	-1.15	1.18
15	15.117	14.483	13.856	-1.14	1.17
16	14.551	13.948	13.351	-1.13	1.16
17	14.007	13.435	12.867	-1.11	1.15
18	13.486	12.942	12.402	-1.10	1.14
19	12.986	12.469	11.955	-1.09	1.13
20	12.506	12.015	11.526	-1.08	1.12
21	12.045	11.579	11.114	-1.07	1.11
22	11.603	11.160	10.718	-1.06	1.10
23	11.179	10.758	10.338	-1.05	1.09
24	10.771	10.371	9.9717	-1.04	1.08
25	10.380	10.000	9.6200	-1.02	1.07
26	10.015	9.6433	9.2718	-1.04	1.08
27	9.6644	9.3004	8.9373	-1.06	1.10
28	9.3271	8.9710	8.6160	-1.08	1.12
29	9.0027	8.6543	8.3075	-1.10	1.14
30	8.6908	8.3500	8.0110	-1.12	1.16
31	8.3908	8.0574	7.7262	-1.14	1.18
32	8.1022	7.7762	7.4525	-1.16	1.20
33	7.8246	7.5058	7.1896	-1.18	1.22
34	7.5576	7.2458	6.9369	-1.20	1.24
35	7.3007	6.9958	6.6940	-1.22	1.26
36	7.0535	6.7555	6.4606	-1.24	1.28
37	6.8157	6.5243	6.2363	-1.26	1.30
38	6.5869	6.3019	6.0206	-1.28	1.32
39	6.3666	6.0881	5.8133	-1.30	1.34
40	6.1547	5.8824	5.6140	-1.32	1.36
41	5.9507	5.6845	5.4223	-1.35	1.38



## R - T Table

Part No. : NTSF0103XZ740A

R25 = 10 K $\Omega$   $\pm$  3.8%

B25/85 = 3435 K  $\pm$  1.5%

Temperature ( $^{\circ}$ C)	Rmax. (K $\Omega$ )	Rnor. (K $\Omega$ )	Rmin. (K $\Omega$ )	Temperature Tol. ( $^{\circ}$ C)	
42	5.7543	5.4940	5.2380	-1.37	1.40
43	5.5652	5.3108	5.0607	-1.39	1.42
44	5.3831	5.1345	4.8902	-1.41	1.44
45	5.2078	4.9648	4.7262	-1.43	1.46
46	5.0390	4.8014	4.5684	-1.45	1.48
47	4.8764	4.6441	4.4165	-1.48	1.50
48	4.7197	4.4927	4.2704	-1.50	1.52
49	4.5688	4.3469	4.1298	-1.52	1.55
50	4.4234	4.2064	3.9944	-1.54	1.57
51	4.2832	4.0711	3.8640	-1.57	1.59
52	4.1481	3.9408	3.7384	-1.59	1.61
53	4.0178	3.8152	3.6175	-1.61	1.63
54	3.8922	3.6941	3.5011	-1.64	1.65
55	3.7711	3.5775	3.3889	-1.66	1.68
56	3.6543	3.4650	3.2807	-1.68	1.70
57	3.5416	3.3565	3.1765	-1.71	1.72
58	3.4329	3.2519	3.0761	-1.73	1.74
59	3.3279	3.1510	2.9792	-1.75	1.77
60	3.2267	3.0537	2.8859	-1.78	1.79
61	3.1289	2.9598	2.7958	-1.80	1.81
62	3.0345	2.8692	2.7089	-1.82	1.83
63	2.9433	2.7817	2.6251	-1.85	1.85
64	2.8553	2.6972	2.5442	-1.87	1.88
65	2.7702	2.6157	2.4661	-1.90	1.90
66	2.6880	2.5369	2.3908	-1.92	1.92
67	2.6086	2.4608	2.3180	-1.94	1.94
68	2.5319	2.3873	2.2478	-1.97	1.96
69	2.4577	2.3163	2.1799	-1.99	1.99
70	2.3859	2.2477	2.1144	-2.01	2.01
71	2.3165	2.1813	2.0511	-2.04	2.03
72	2.2495	2.1172	1.9899	-2.06	2.05
73	2.1846	2.0552	1.9308	-2.09	2.08
74	2.1218	1.9953	1.8736	-2.11	2.10
75	2.0610	1.9373	1.8184	-2.13	2.12
76	2.0023	1.8812	1.7649	-2.16	2.14
77	1.9454	1.8270	1.7133	-2.18	2.17
78	1.8903	1.7745	1.6633	-2.21	2.19
79	1.8370	1.7237	1.6150	-2.23	2.21
80	1.7854	1.6745	1.5683	-2.26	2.23
81	1.7354	1.6269	1.5231	-2.28	2.26
82	1.6870	1.5809	1.4793	-2.30	2.28



## R - T Table

Part No. : NTSF0103XZ740A

R25 = 10 K $\Omega$   $\pm$  3.8%

B25/85 = 3435 K  $\pm$  1.5%

Temperature (°C)	Rmax. (K $\Omega$ )	Rnor. (K $\Omega$ )	Rmin. (K $\Omega$ )	Temperature Tol. (°C)	
83	1.6401	1.5363	1.4370	-2.33	2.30
84	1.5947	1.4931	1.3960	-2.35	2.32
85	1.5508	1.4513	1.3564	-2.38	2.35
86	1.5081	1.4109	1.3180	-2.40	2.37
87	1.4669	1.3717	1.2808	-2.43	2.39
88	1.4269	1.3337	1.2448	-2.45	2.42
89	1.3881	1.2969	1.2100	-2.48	2.44
90	1.3505	1.2613	1.1763	-2.50	2.46
91	1.3141	1.2268	1.1436	-2.53	2.49
92	1.2788	1.1933	1.1120	-2.56	2.51
93	1.2446	1.1609	1.0813	-2.58	2.54
94	1.2114	1.1295	1.0516	-2.61	2.56
95	1.1793	1.0991	1.0229	-2.64	2.58
96	1.1481	1.0696	0.99505	-2.66	2.61
97	1.1179	1.0410	0.96806	-2.69	2.63
98	1.0886	1.0133	0.94192	-2.72	2.66
99	1.0602	0.98648	0.91659	-2.74	2.68
100	1.0326	0.96045	0.89205	-2.77	2.71
101	1.0059	0.93522	0.86826	-2.80	2.74
102	0.97995	0.91075	0.84521	-2.83	2.76
103	0.95481	0.88703	0.82287	-2.86	2.79
104	0.93042	0.86403	0.80122	-2.89	2.82
105	0.90676	0.84173	0.78023	-2.92	2.84
106	0.88381	0.82010	0.75989	-2.95	2.87
107	0.86154	0.79913	0.74017	-2.98	2.90
108	0.83994	0.77879	0.72105	-3.01	2.93
109	0.81898	0.75907	0.70252	-3.04	2.96
110	0.79864	0.73993	0.68455	-3.07	2.98
111	0.77891	0.72137	0.66713	-3.10	3.01
112	0.75976	0.70337	0.65023	-3.13	3.04
113	0.74117	0.68591	0.63385	-3.16	3.07
114	0.72314	0.66897	0.61796	-3.20	3.10
115	0.70563	0.65253	0.60255	-3.23	3.13
116	0.68864	0.63658	0.58760	-3.26	3.16
117	0.67214	0.62110	0.57310	-3.30	3.20
118	0.65613	0.60608	0.55904	-3.33	3.23
119	0.64058	0.59151	0.54540	-3.37	3.26
120	0.62549	0.57736	0.53216	-3.40	3.29
121	0.61084	0.56363	0.51932	-3.44	3.32
122	0.59660	0.55030	0.50685	-3.47	3.36
123	0.58278	0.53736	0.49476	-3.51	3.39



## R - T Table

Part No. : NTSF0103XZ740A

R25 = 10 K $\Omega$   $\pm$  3.8%

B25/85 = 3435 K  $\pm$  1.5%

Temperature ( $^{\circ}$ C)	Rmax. (K $\Omega$ )	Rnor. (K $\Omega$ )	Rmin. (K $\Omega$ )	Temperature Tol. ( $^{\circ}$ C)	
124	0.56936	0.52480	0.48302	-3.55	3.42
125	0.55632	0.51260	0.47163	-3.58	3.46
126	0.54366	0.50075	0.46057	-3.62	3.49
127	0.53136	0.48925	0.44983	-3.66	3.53
128	0.51940	0.47808	0.43941	-3.70	3.56
129	0.50779	0.46723	0.42929	-3.74	3.60
130	0.49650	0.45669	0.41946	-3.78	3.64
131	0.48553	0.44645	0.40991	-3.82	3.67
132	0.47487	0.43650	0.40064	-3.86	3.71
133	0.46451	0.42683	0.39163	-3.90	3.75
134	0.45444	0.41743	0.38288	-3.94	3.78
135	0.44464	0.40830	0.37438	-3.98	3.82
136	0.43511	0.39942	0.36612	-4.02	3.86
137	0.42585	0.39079	0.35809	-4.06	3.90
138	0.41684	0.38239	0.35029	-4.10	3.93
139	0.40808	0.37423	0.34270	-4.15	3.97
140	0.39955	0.36629	0.33532	-4.19	4.01
141	0.39125	0.35857	0.32815	-4.23	4.05
142	0.38317	0.35106	0.32117	-4.28	4.09
143	0.37531	0.34375	0.31438	-4.32	4.13
144	0.36766	0.33664	0.30778	-4.36	4.17
145	0.36021	0.32971	0.30136	-4.41	4.21
146	0.35296	0.32297	0.29511	-4.45	4.25
147	0.34590	0.31641	0.28902	-4.49	4.29
148	0.33901	0.31002	0.28310	-4.54	4.33
149	0.33231	0.30380	0.27733	-4.58	4.37
150	0.32578	0.29774	0.27172	-4.63	4.41



PACKING

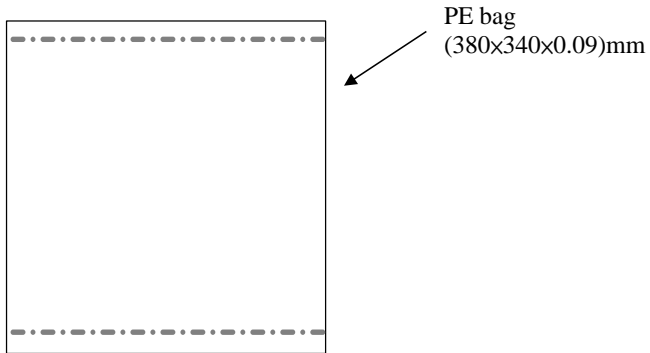
CUSTOMER: Ozdisan-Baff Technic

THINKING P/N:NTSF0103XZ740A

1.Wrapping and packing specification

a.Packing quantity: 250pcs/bag × 1bag/box x 4boxes/carton=1000pcs / carton

b. Method and shape.



2.INNER BOX (1BAG/BOX)



Inner box  
(300\*130\*110)mm

Label 1

Model No. 型号		<b>RoHS</b>
Part No. 料号		
Lot No. 批号		
Quantity 数量	Pcs	
Date 日期		
THINKING ELECTRONIC INDUSTRIAL CO., LTD 兴能电子工业股份有限公司		



250pcs/box

Approved by: FMChu

Checked by: HuFeng

Designed by: RuanDong



THINKING ELECTRONIC INDUSTRIAL CO.,LTD

**PACKING**

CUSTOMER: Ozdisan-Baff Technic

THINKING P/N:NTSF0103XZ740A

3.OUTER CARTON

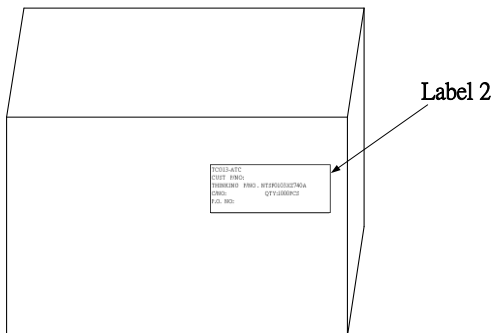
SENSOR →  
250pcs per bag and inner box.  
4 inner boxes per mastercarton.  
1000pcs/carton.



Outer carton  
(325\*285\*260)mm



sheet material  
(310x270) mm



Approved by: FMChu

Checked by: HuFeng

Designed by: RuanDong



THINKING ELECTRONIC INDUSTRIAL CO.,LTD

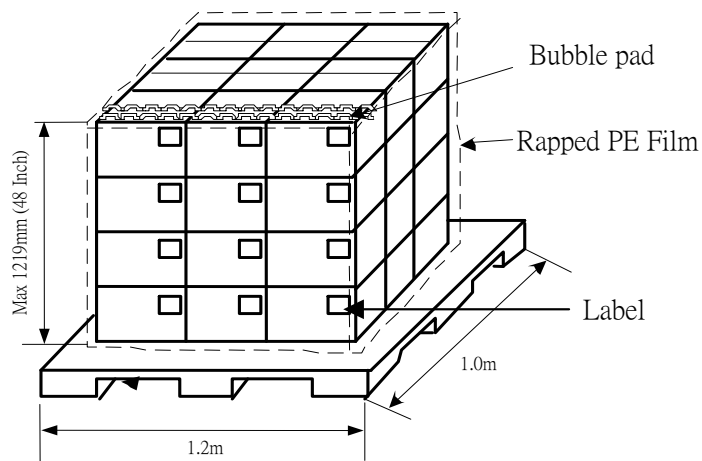
**PACKING**

CUSTOMER: Ozdisan-Baff Technic

THINKING P/N:NTSF0103XZ740A

4.Pallet

1000PCS/carton  
9 cartons/layer  
4 layers/pallet  
36000PCS/pallet



Approved by: FMChu

Checked by: HuFeng

Designed by: RuanDong