



東莞市智旭電子有限公司  
**JYH HSU (JEC) ELECTRONICS LTD.,**

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承 認 書

**SPECIFICATION FOR APPROVAL**

客户名称  
 Customer \_\_\_\_\_


品 名  
 Part Name \_\_\_\_\_ NTC Thermistor \_\_\_\_\_

客户料号  
 Customer Part No: \_\_\_\_\_

承認規格  
 Approve Item \_\_\_\_\_ MF52A-1KR-B3950-1% \_\_\_\_\_

供应商料号  
 Part Number \_\_\_\_\_

日 期  
 Date \_\_\_\_\_ 2024-08-13 \_\_\_\_\_

客户承认 Customer Acknowledgement	供应商承认 Supplier Acknowledgement 
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# THERMISTOR SPECIFICATIONS

## 1) SCOPE

This specifications define ratings, dimension, insulation, climatic sequence and mechanical characteristics for thermistor.

**2) PART NO. : MF52A-1KR-B3950-1%**

## 3) RATING

3-1) Rated zero-power resistance  $R_{25} : 1k\Omega \pm 1\%$  (at 25°C)

3-2) B value.  $B_{25/50} : 3,950K \pm 1\%$

\*The B value is calculated using the zero-power resistance values measured at 25°C and 50°C.

3-3) Dissipation factor.  $\geq 2 \text{ mW/}^\circ\text{C}$  (in air)

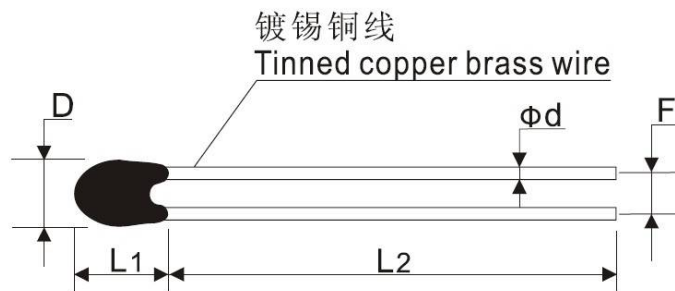
3-4) Thermal time constant.  $\leq 12 \text{ s}$  (in air)

3-5) Maximum power rating.  $\leq 50 \text{ mW}$  (at 25°C)

3-6) Category temperature range :  $-40 \sim 120 \text{ }^\circ\text{C}$

(=Operating temperature range)

## 4) DIMENSIONS UNIT: [mm]



Dmax	Lmax	L2min	$\Phi d \pm 0.05$	$F \pm 0.05$
2.4	3.2	25	0.33	2.0

## 5) Climatic test

### 5-1) Dry Heat

After the test samples were exposed in air at 110 °C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

### 5-2) Damp heat

After the test samples were exposed in the humidity of 95% at 40 °C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

### 5-3) Cold

After the test samples were exposed in air at -30 °C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

### 5-4) Humidity load

After DC 1mA current was applied to the test samples in the temperature of 40 °C and the humidity of 95% for 1,000 hours, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

### 5-5) Change of temperature

One cycle of the change of temperature shall be carried out in the order of the following conditions.

.Room ambient temperature.( Initial value)

.At -30 °C, for 30 minutes.

.Room ambient temperature, for 3 minutes.

.At + 90 °C, for 30 minutes.

.Room ambient temperature, for 3 minutes.

After 100 cycles of change of temperature, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

### 5-6) High temperature load

After DC 1mA current was applied to the test samples in the temperature of 110 °C for 1,000 hours, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

## **6) Mechanical characteristics**

### 6-1) Robustness of terminations

Ua: Tensile

After 2N loading weight for 3 seconds was applied to the wire terminations, there shall be no visible damage.

### 6-2) Free fall

After one time natural fall to a maple board from 1m high, there shall be no visible damage.

### 6-3) Resistance to soldering heat

After lead wire of the test samples were dipped on time within 8.5 mm from end of lead wire in solder bath at  $260^{\circ}\text{C} \pm 10\%$  for  $4 \pm 0.5$  seconds, the change ratio of the rated zero-power resistance shall be within  $\pm 1\%$  of the initial value.

## 7) R-T characteristics

resistance                    1k Ohms at 25deg. C

Resistance Tolerance        + / - 1 %

B Value                        3950K at 25/50 deg. C

B Value Tolerance            + / - 1%

Temp. (deg. C)	Rmax (k Ohms)	Rnor (k Ohms)	Rmin (k Ohms)
-40	38.5656	36.8312	35.1714
-39	35.9472	34.3545	32.8291
-38	33.5255	32.0623	30.6598
-37	31.2844	29.9395	28.6495
-36	29.2091	27.9724	26.7854
-35	27.2863	26.1486	25.0559
-34	25.5038	24.4567	23.4504
-33	23.8503	22.8863	21.9592
-32	22.3156	21.4278	20.5733
-31	20.8906	20.0726	19.2847
-30	19.5665	18.8125	18.0858
-29	18.3355	17.6403	16.9698
-28	17.1906	16.5494	15.9305
-27	16.1251	15.5334	14.9620
-26	15.1330	14.5869	14.0591
-25	14.2087	13.7045	13.2170
-24	13.3472	12.8816	12.4310
-23	12.5439	12.1137	11.6972
-22	11.7944	11.3969	11.0116
-21	11.0947	10.7273	10.3710
-20	10.4412	10.1015	9.7719
-19	9.8307	9.5165	9.2115
-18	9.2599	8.9693	8.6869
-17	8.7261	8.4572	8.1958
-16	8.2266	7.9778	7.7357
-15	7.7591	7.5287	7.3045
-14	7.3212	7.1079	6.9002
-13	6.9108	6.7134	6.5209
-12	6.5262	6.3433	6.1649
-11	6.1655	5.9961	5.8308
-10	5.8271	5.6702	5.5169
-9	5.5095	5.3641	5.2220
-8	5.2112	5.0765	4.9447
-7	4.9310	4.8061	4.6840
-6	4.6677	4.5520	4.4387
-5	4.4201	4.3128	4.2078

-4	4.1872	4.0878	3.9903
-3	3.9681	3.8760	3.7856
-2	3.7619	3.6764	3.5926
-1	3.5676	3.4884	3.4107
0	3.3846	3.3112	3.2391
1	3.2122	3.1441	3.0773
2	3.0496	2.9865	2.9245
3	2.8962	2.8378	2.7803
4	2.7516	2.6974	2.6441
5	2.6150	2.5648	2.5154
6	2.4861	2.4396	2.3938
7	2.3643	2.3212	2.2788
8	2.2492	2.2094	2.1700
9	2.1404	2.1035	2.0671
10	2.0376	2.0034	1.9697
11	1.9403	1.9087	1.8775
12	1.8483	1.8190	1.7901
13	1.7611	1.7341	1.7074
14	1.6786	1.6537	1.6289
15	1.6005	1.5774	1.5546
16	1.5265	1.5052	1.4840
17	1.4563	1.4367	1.4171
18	1.3898	1.3717	1.3537
19	1.3267	1.3100	1.2934
20	1.2668	1.2515	1.2362
21	1.2100	1.1959	1.1818
22	1.1561	1.1431	1.1302
23	1.1049	1.0930	1.0811
24	1.0562	1.0453	1.0344
25	1.0100	1.0000	0.9900
26	0.9669	0.9569	0.9469
27	0.9259	0.9160	0.9060
28	0.8869	0.8770	0.8671
29	0.8498	0.8399	0.8300
30	0.8144	0.8046	0.7948
31	0.7807	0.7709	0.7612
32	0.7485	0.7389	0.7293
33	0.7179	0.7084	0.6989
34	0.6887	0.6793	0.6699
35	0.6609	0.6516	0.6423
36	0.6343	0.6251	0.6160
37	0.6090	0.5999	0.5909
38	0.5848	0.5758	0.5669

39	0.5617	0.5529	0.5441
40	0.5396	0.5309	0.5223
41	0.5186	0.5100	0.5015
42	0.4985	0.4900	0.4817
43	0.4792	0.4709	0.4627
44	0.4608	0.4527	0.4446
45	0.4432	0.4352	0.4273
46	0.4264	0.4185	0.4108
47	0.4103	0.4026	0.3950
48	0.3949	0.3873	0.3798
49	0.3802	0.3727	0.3654
50	0.3661	0.3588	0.3516
51	0.3526	0.3454	0.3383
52	0.3397	0.3326	0.3257
53	0.3273	0.3204	0.3136
54	0.3154	0.3086	0.3020
55	0.3040	0.2974	0.2909
56	0.2931	0.2866	0.2802
57	0.2826	0.2763	0.2700
58	0.2726	0.2664	0.2602
59	0.2630	0.2569	0.2509
60	0.2538	0.2478	0.2419
61	0.2449	0.2390	0.2333
62	0.2364	0.2306	0.2250
63	0.2282	0.2226	0.2171
64	0.2204	0.2149	0.2095
65	0.2128	0.2074	0.2022
66	0.2056	0.2003	0.1952
67	0.1987	0.1935	0.1884
68	0.1920	0.1869	0.1820
69	0.1855	0.1806	0.1758
70	0.1794	0.1745	0.1698
71	0.1734	0.1687	0.1641
72	0.1677	0.1631	0.1585
73	0.1622	0.1577	0.1532
74	0.1569	0.1525	0.1481
75	0.1518	0.1475	0.1432
76	0.1469	0.1427	0.1385
77	0.1422	0.1381	0.1340
78	0.1377	0.1336	0.1296
79	0.1333	0.1293	0.1254
80	0.1291	0.1252	0.1214
81	0.1250	0.1212	0.1175

82	0.1211	0.1174	0.1137
83	0.1174	0.1137	0.1101
84	0.1137	0.1101	0.1067
85	0.1102	0.1067	0.1033
86	0.1068	0.1034	0.1001
87	0.1036	0.1002	0.0970
88	0.1004	0.0971	0.0940
89	0.0974	0.0942	0.0911
90	0.0945	0.0913	0.0883
91	0.0916	0.0886	0.0856
92	0.0889	0.0859	0.0830
93	0.0863	0.0833	0.0805
94	0.0837	0.0808	0.0781
95	0.0813	0.0785	0.0757
96	0.0789	0.0761	0.0735
97	0.0766	0.0739	0.0713
98	0.0744	0.0717	0.0692
99	0.0723	0.0697	0.0672
100	0.0702	0.0677	0.0652
101	0.0682	0.0657	0.0633
102	0.0663	0.0638	0.0615
103	0.0644	0.0620	0.0597
104	0.0626	0.0602	0.0580
105	0.0608	0.0585	0.0563
106	0.0591	0.0569	0.0547
107	0.0575	0.0553	0.0532
108	0.0559	0.0538	0.0517
109	0.0544	0.0523	0.0503
110	0.0529	0.0508	0.0489
111	0.0515	0.0494	0.0475
112	0.0501	0.0481	0.0462
113	0.0487	0.0468	0.0449
114	0.0474	0.0455	0.0437
115	0.0462	0.0443	0.0425
116	0.0449	0.0431	0.0414
117	0.0437	0.0420	0.0402
118	0.0426	0.0408	0.0392
119	0.0415	0.0398	0.0381
120	0.0404	0.0387	0.0371
121	0.0393	0.0377	0.0361
122	0.0383	0.0367	0.0352
123	0.0373	0.0358	0.0342
124	0.0364	0.0348	0.0334
125	0.0355	0.0339	0.0325