



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-3KR-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-3KR-B3950-1%

3) RATING

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

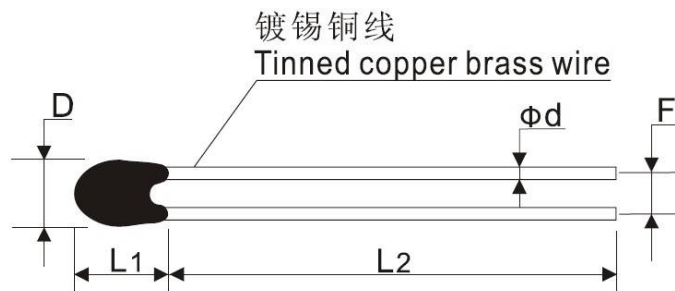
3-4) Thermal time constant. $\leq 12 \text{ s}$ (in air)

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 ± 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 **3k Ohms at 25deg. C**

Resistance Tolerance **+ / -1%**

B Value **3950K at 25/50deg. C**

B Value Tolerance **+ / - 1 %**

Temp. (deg. C)	Rmax (k Ohms)	Rnor (k Ohms)	Rmin (k Ohms)
-40	116.3899	111.1492	106.1338
-39	108.4939	103.6808	99.0712
-38	101.1894	96.7671	92.5287
-37	94.4282	90.3632	86.4646
-36	88.1663	84.4282	80.8405
-35	82.3635	78.9246	75.6218
-34	76.9831	73.8183	70.7764
-33	71.9917	69.0778	66.2753
-32	67.3584	64.6747	62.0917
-31	63.0554	60.5827	58.2012
-30	59.0569	56.7778	54.5812
-29	55.3394	53.2381	51.2114
-28	51.8814	49.9432	48.0727
-27	48.6630	46.8748	45.1478
-26	45.6662	44.0158	42.4208
-25	42.8742	41.3505	39.8770
-24	40.2717	38.8646	37.5030
-23	37.8448	36.5450	35.2863
-22	35.5804	34.3793	33.2155
-21	33.4666	32.3565	31.2802
-20	31.4925	30.4663	29.4705
-19	29.6480	28.6990	27.7776
-18	27.9237	27.0460	26.1932
-17	26.3111	25.4991	24.7096
-16	24.8023	24.0508	23.3198
-15	23.3899	22.6944	22.0174
-14	22.0671	21.4233	20.7962
-13	20.8278	20.2318	19.6508
-12	19.6662	19.1142	18.5759
-11	18.5769	18.0657	17.5668
-10	17.5549	17.0814	16.6190
-9	16.5958	16.1572	15.7285
-8	15.6953	15.2888	14.8915
-7	14.8493	14.4728	14.1043
-6	14.0544	13.7055	13.3638

-5	13.3071	12.9837	12.6670
-4	12.6043	12.3046	12.0108
-3	11.9431	11.6653	11.3929
-2	11.3207	11.0633	10.8106
-1	10.7347	10.4961	10.2618
0	10.1827	9.9616	9.7443
1	9.6625	9.4576	9.2561
2	9.1721	8.9823	8.7955
3	8.7097	8.5338	8.3606
4	8.2735	8.1105	7.9500
5	7.8619	7.7109	7.5620
6	7.4732	7.3334	7.1954
7	7.1062	6.9767	6.8489
8	6.7594	6.6395	6.5211
9	6.4317	6.3208	6.2111
10	6.1219	6.0192	5.9177
11	5.8289	5.7339	5.6399
12	5.5517	5.4639	5.3769
13	5.2894	5.2082	5.1277
14	5.0410	4.9660	4.8916
15	4.8058	4.7366	4.6678
16	4.5830	4.5191	4.4556
17	4.3719	4.3129	4.2543
18	4.1717	4.1174	4.0633
19	3.9820	3.9319	3.8821
20	3.8019	3.7558	3.7099
21	3.6311	3.5887	3.5465
22	3.4690	3.4301	3.3912
23	3.3151	3.2793	3.2436
24	3.1689	3.1361	3.1034
25	3.0300	3.0000	2.9700
26	2.9006	2.8706	2.8406
27	2.7774	2.7475	2.7177
28	2.6603	2.6305	2.6007
29	2.5487	2.5191	2.4895
30	2.4425	2.4130	2.3837
31	2.3413	2.3121	2.2830
32	2.2449	2.2159	2.1871
33	2.1530	2.1243	2.0958
34	2.0654	2.0371	2.0089
35	1.9819	1.9539	1.9261
36	1.9022	1.8746	1.8471
37	1.8262	1.7989	1.7718

38	1.7537	1.7268	1.7001
39	1.6845	1.6579	1.6316
40	1.6183	1.5922	1.5663
41	1.5552	1.5295	1.5040
42	1.4949	1.4696	1.4445
43	1.4373	1.4123	1.3877
44	1.3822	1.3577	1.3335
45	1.3295	1.3054	1.2817
46	1.2791	1.2555	1.2322
47	1.2310	1.2077	1.1848
48	1.1849	1.1621	1.1396
49	1.1408	1.1184	1.0963
50	1.0986	1.0766	1.0550
51	1.0581	1.0366	1.0154
52	1.0194	0.9983	0.9775
53	0.9824	0.9616	0.9412
54	0.9468	0.9265	0.9065
55	0.9128	0.8929	0.8733
56	0.8802	0.8606	0.8415
57	0.8489	0.8297	0.8110
58	0.8189	0.8001	0.7817
59	0.7901	0.7717	0.7537
60	0.7625	0.7445	0.7269
61	0.7360	0.7184	0.7011
62	0.7106	0.6933	0.6764
63	0.6862	0.6693	0.6527
64	0.6628	0.6462	0.6300
65	0.6402	0.6240	0.6082
66	0.6186	0.6027	0.5872
67	0.5978	0.5823	0.5671
68	0.5779	0.5627	0.5478
69	0.5587	0.5438	0.5292
70	0.5402	0.5257	0.5114
71	0.5225	0.5082	0.4943
72	0.5054	0.4915	0.4778
73	0.4890	0.4753	0.4620
74	0.4732	0.4598	0.4468
75	0.4580	0.4449	0.4321
76	0.4434	0.4306	0.4181
77	0.4293	0.4168	0.4045
78	0.4158	0.4035	0.3915
79	0.4027	0.3907	0.3790
80	0.3901	0.3783	0.3669

81	0.3780	0.3665	0.3553
82	0.3663	0.3550	0.3441
83	0.3551	0.3440	0.3333
84	0.3442	0.3334	0.3229
85	0.3337	0.3232	0.3129
86	0.3237	0.3133	0.3032
87	0.3139	0.3038	0.2939
88	0.3045	0.2946	0.2850
89	0.2955	0.2858	0.2763
90	0.2867	0.2772	0.2680
91	0.2783	0.2690	0.2599
92	0.2702	0.2610	0.2522
93	0.2623	0.2534	0.2447
94	0.2547	0.2459	0.2375
95	0.2474	0.2388	0.2305
96	0.2403	0.2319	0.2238
97	0.2334	0.2252	0.2173
98	0.2268	0.2188	0.2110
99	0.2204	0.2125	0.2049
100	0.2142	0.2065	0.1991
101	0.2083	0.2007	0.1934
102	0.2025	0.1951	0.1879
103	0.1969	0.1896	0.1826
104	0.1915	0.1844	0.1775
105	0.1863	0.1793	0.1726
106	0.1812	0.1744	0.1678
107	0.1763	0.1696	0.1632
108	0.1716	0.1650	0.1587
109	0.1670	0.1606	0.1544
110	0.1626	0.1563	0.1502
111	0.1583	0.1521	0.1462
112	0.1541	0.1481	0.1422
113	0.1501	0.1441	0.1384
114	0.1462	0.1404	0.1348
115	0.1424	0.1367	0.1312
116	0.1387	0.1331	0.1278
117	0.1352	0.1297	0.1244
118	0.1317	0.1263	0.1212
119	0.1284	0.1231	0.1181
120	0.1251	0.1200	0.1150
121	0.1220	0.1169	0.1121
122	0.1190	0.1140	0.1092
123	0.1160	0.1111	0.1065
124	0.1131	0.1084	0.1038
125	0.1104	0.1057	0.1012