JEC ISO-9001

# 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-100KR-B3950-1%**

供应商料号
Part Number _____

日　期
**Date** **2024-08-13**

| 客户承认 | 供应商承认 |
| --- | --- |
| Customer Acknowledgement | Supplier Acknowledgement |
| | 东莞市智旭电子有限公司 品保部 |


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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-100KR-B3950-1%

## 3) RATING

3-1) Rated zero-power resistance $R_{25}$ : 100kΩ ±1 % (at 25℃)

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

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

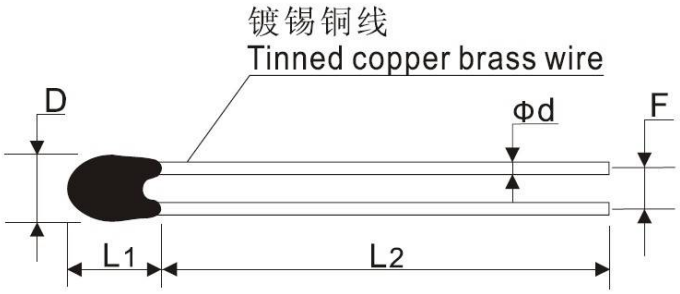
3-3) Dissipation factor. : ≥ 2 mW/℃(in air)

3-4) Thermal time constant. : ≤ 12 s (in air)

3-5) Maximum power rating. : ≤ 50 mW (at 25℃)

3-6) Category temperature range : -40 ~ 120 ℃
(=Operating temperature range)

## 4) DIMENSIONS UNIT: [mm]




| Dmax | Lmax | L2min | Φd±0.05 | F±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 ℃ for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ± 1% of the initial value.

5-2) Damp heat

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

5-3) Cold

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

5-4) Humidity load

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

5-5) Change of temperature

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

.Room ambient temperature.( Initial value)
.At -30℃, for 30 minutes.
.Room ambient temperature, for 3 minutes.
.At + 90℃, 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 ±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℃ for 1,000 hours, the change ratio of the rated zero-power resistance shall be within ±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℃ ±10% for 4 ±0.5 seconds, the change ratio of the rated zero-power resistance shall be within ±1% of the initial value.

## 7) R-T characteristics

**Resistance** **100k Ohms at 25deg. C**
**B Value** **3950K at 25/50 deg. C**

| Temp. (deg. C) | R (k Ohms) | Temp. (deg. C) | R (kOhms) | Temp. (deg. C) | R (kOhms) | Temp. (deg. C) | R (kOhms) |
|---|---|---|---|---|---|---|---|
| -20 | 975.8038 | 48 | 38.7539 | 116 | 4.1627 | 184 | 0.7975 |
| -19 | 920.5962 | 49 | 37.2876 | 117 | 4.0484 | 185 | 0.7808 |
| -18 | 868.8615 | 50 | 35.8842 | 118 | 3.9378 | 186 | 0.7646 |
| -17 | 820.3603 | 51 | 34.5405 | 119 | 3.8306 | 187 | 0.7487 |
| -16 | 774.8710 | 52 | 33.2538 | 120 | 3.7268 | 188 | 0.7332 |
| -15 | 732.1889 | 53 | 32.0214 | 121 | 3.6263 | 189 | 0.7181 |
| -14 | 692.1238 | 54 | 30.8408 | 122 | 3.5289 | 190 | 0.7034 |
| -13 | 654.4999 | 55 | 29.7096 | 123 | 3.4345 | 191 | 0.6890 |
| -12 | 619.1540 | 56 | 28.6253 | 124 | 3.3430 | 192 | 0.6749 |
| -11 | 585.9346 | 57 | 27.5860 | 125 | 3.2543 | 193 | 0.6612 |
| -10 | 554.7016 | 58 | 26.5895 | 126 | 3.1683 | 194 | 0.6479 |
| -9 | 525.3245 | 59 | 25.6338 | 127 | 3.0850 | 195 | 0.6348 |
| -8 | 497.6821 | 60 | 24.7171 | 128 | 3.0042 | 196 | 0.6221 |
| -7 | 471.6621 | 61 | 23.8376 | 129 | 2.9258 | 197 | 0.6096 |
| -6 | 447.1599 | 62 | 22.9937 | 130 | 2.8498 | 198 | 0.5975 |
| -5 | 424.0781 | 63 | 22.1836 | 131 | 2.7761 | 199 | 0.5856 |
| -4 | 402.3264 | 64 | 21.4061 | 132 | 2.7045 | 200 | 0.5740 |
| -3 | 381.8204 | 65 | 20.6594 | 133 | 2.6352 | 201 | 0.5627 |
| -2 | 362.4818 | 66 | 19.9424 | 134 | 2.5678 | 202 | 0.5517 |
| -1 | 344.2375 | 67 | 19.2537 | 135 | 2.5025 | 203 | 0.5409 |
| 0 | 327.0195 | 68 | 18.5920 | 136 | 2.4391 | 204 | 0.5303 |
| 1 | 310.7640 | 69 | 17.9562 | 137 | 2.3775 | 205 | 0.5200 |
| 2 | 295.4121 | 70 | 17.3452 | 138 | 2.3178 | 206 | 0.5099 |
| 3 | 280.9084 | 71 | 16.7578 | 139 | 2.2598 | 207 | 0.5001 |
| 4 | 267.2014 | 72 | 16.1930 | 140 | 2.2034 | 208 | 0.4905 |
| 5 | 254.2428 | 73 | 15.6499 | 141 | 2.1487 | 209 | 0.4811 |
| 6 | 241.9877 | 74 | 15.1276 | 142 | 2.0956 | 210 | 0.4719 |
| 7 | 230.3940 | 75 | 14.6251 | 143 | 2.0440 | 211 | 0.4630 |
| 8 | 219.4224 | 76 | 14.1417 | 144 | 1.9939 | 212 | 0.4542 |
| 9 | 209.0361 | 77 | 13.6764 | 145 | 1.9452 | 213 | 0.4456 |
| 10 | 199.2007 | 78 | 13.2286 | 146 | 1.8978 | 214 | 0.4372 |
| 11 | 189.8841 | 79 | 12.7976 | 147 | 1.8518 | 215 | 0.4290 |
| 12 | 181.0559 | 80 | 12.3825 | 148 | 1.8071 | 216 | 0.4210 |
| 13 | 172.6881 | 81 | 11.9828 | 149 | 1.7637 | 217 | 0.4132 |
| 14 | 164.7540 | 82 | 11.5978 | 150 | 1.7215 | 218 | 0.4055 |

| 15 | 157.2290 | 83 | 11.2270 | 151 | 1.6804 | 219 | 0.3980 |
|---|---|---|---|---|---|---|---|
| 16 | 150.0898 | 84 | 10.8697 | 152 | 1.6405 | 220 | 0.3907 |
| 17 | 143.3144 | 85 | 10.5254 | 153 | 1.6017 | 221 | 0.3836 |
| 18 | 136.8825 | 86 | 10.1935 | 154 | 1.5640 | 222 | 0.3765 |
| 19 | 130.7749 | 87 | 9.8736 | 155 | 1.5273 | 223 | 0.3697 |
| 20 | 124.9734 | 88 | 9.5652 | 156 | 1.4915 | 224 | 0.3630 |
| 21 | 119.4612 | 89 | 9.2678 | 157 | 1.4568 | 225 | 0.3564 |
| 22 | 114.2223 | 90 | 8.9809 | 158 | 1.4230 | 226 | 0.3500 |
| 23 | 109.2417 | 91 | 8.7042 | 159 | 1.3901 | 227 | 0.3437 |
| 24 | 104.5053 | 92 | 8.4373 | 160 | 1.3582 | 228 | 0.3376 |
| 25 | 100.0000 | 93 | 8.1797 | 161 | 1.3270 | 229 | 0.3315 |
| 26 | 95.7132 | 94 | 7.9312 | 162 | 1.2967 | 230 | 0.3257 |
| 27 | 91.6333 | 95 | 7.6912 | 163 | 1.2672 | 231 | 0.3199 |
| 28 | 87.7492 | 96 | 7.4596 | 164 | 1.2385 | 232 | 0.3142 |
| 29 | 84.0505 | 97 | 7.2360 | 165 | 1.2106 | 233 | 0.3087 |
| 30 | 80.5274 | 98 | 7.0201 | 166 | 1.1833 | 234 | 0.3033 |
| 31 | 77.1707 | 99 | 6.8115 | 167 | 1.1568 | 235 | 0.2980 |
| 32 | 73.9717 | 100 | 6.6101 | 168 | 1.1310 | 236 | 0.2928 |
| 33 | 70.9222 | 101 | 6.4155 | 169 | 1.1059 | 237 | 0.2878 |
| 34 | 68.0144 | 102 | 6.2274 | 170 | 1.0814 | 238 | 0.2828 |
| 35 | 65.2411 | 103 | 6.0457 | 171 | 1.0576 | 239 | 0.2779 |
| 36 | 62.5954 | 104 | 5.8701 | 172 | 1.0343 | 240 | 0.2732 |
| 37 | 60.0707 | 105 | 5.7003 | 173 | 1.0117 | 241 | 0.2685 |
| 38 | 57.6610 | 106 | 5.5362 | 174 | 0.9896 | 242 | 0.2639 |
| 39 | 55.3604 | 107 | 5.3775 | 175 | 0.9681 | 243 | 0.2594 |
| 40 | 53.1635 | 108 | 5.2240 | 176 | 0.9472 | 244 | 0.2550 |
| 41 | 51.0651 | 109 | 5.0755 | 177 | 0.9268 | 245 | 0.2507 |
| 42 | 49.0602 | 110 | 4.9319 | 178 | 0.9069 | 246 | 0.2465 |
| 43 | 47.1443 | 111 | 4.7930 | 179 | 0.8875 | 247 | 0.2424 |
| 44 | 45.3130 | 112 | 4.6586 | 180 | 0.8686 | 248 | 0.2384 |
| 45 | 43.5621 | 113 | 4.5285 | 181 | 0.8501 | 249 | 0.2344 |
| 46 | 41.8878 | 114 | 4.4026 | 182 | 0.8321 | 250 | 0.2305 |
| 47 | 40.2862 | 115 | 4.2807 | 183 | 0.8146 | | |