

|            |   |   |  |   |
|------------|---|---|--|---|
| 制作<br>Make | 工程审核<br>Engineering Audit   | 品质审核<br>Quality Audit   | 市场审核<br>Market Audit   | 批准<br>Approval  |
| 罗文杰        |  |  |  |  |

# 产品承认书

## SPECIFICATION FOR APPROVAL

本承认书提供了本公司 NTC 热敏电阻和温度传感器产品的性能，试验条件，使用要求，结构尺寸等详细参数，请客户确认。确认合格请回传，不回传视为默认。如有特殊要求请联系我们。

This book provides the company admitted that the NTC thermistor and temperature sensor product performance, test conditions, requirements, structure, size and other detailed parameters , please confirm the customer. Please confirm qualified return, not return as the default. If you have special requirements, please contact us

产品认证 Product Certification :  ROHS  无卤  芯片 UL:E356449  CQC

|                          |                      |
|--------------------------|----------------------|
| 客户名称 CUSTOMER:           | 顺赢（深圳）科技有限公司         |
| 产品名称 PRODUCT ITEM:       | NTC 温度传感器            |
| 规格型号 PART NO. :          | CWF1 10KF3950-B1-500 |
| 客户料号 CUSTOMER PART NO. : |                      |
| 产品编号 Product ID:         |                      |
| 日期 DATE:                 | 2023-4-7             |

深圳市科敏传感器有限公司

电话: 0755-27493813 传真: 0755-27493754

地址: 深圳宝安区福永街道白石厦新开发区怡达一路科敏传感科技园 20-21 栋

杭州科美特传感器有限公司

电话: 0751-87750960

地址: 杭州市下沙经济开发区 25 号大街 339 号能可爱心厂区三楼

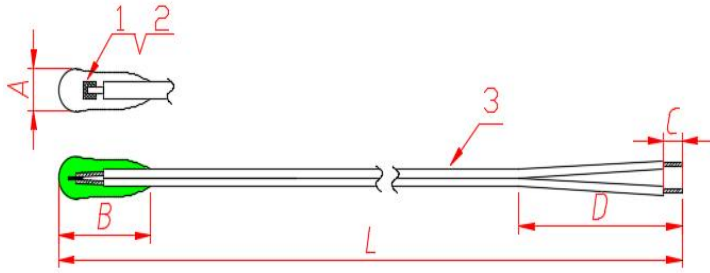
山东科敏传感器有限公司

电话:

地址: 山东省菏泽市曹县普连集镇晏庄村智能家居产业园 16、17 号厂房

|                               |  |
|-------------------------------|--|
| 客户确认<br>Customer acknowledges |  |
|-------------------------------|--|

尺寸说明 Size Description: 单位 Unit (MM)



| 1      | 2     | 3             |
|--------|-------|---------------|
| NTC 芯片 | 黑色包封料 | 30# 3656 黑色并线 |

| A       | B     | C   | D    | L      |
|---------|-------|-----|------|--------|
| Max 2.5 | Max 6 | 3±1 | 12±3 | 500±10 |

性能参数 Performance Parameters:

| 项目     | 代码   | 性能参数                           | 测试条件           | 单位   |
|--------|--|--------------------------------|----------------|------|
| 标准阻值   | R25  | 10K±1%                         | ±0.05℃         | KΩ   |
| B 值参数※ | B25/50   | 3950±1%                        | ±0.05℃         | K    |
| 热时间常数  | τ  | ≤15                            | 25℃/85℃±0.05℃  | s    |
| 耗散系数   | δ  | ≈1.8                           | 25℃±0.5℃       | mW/℃ |
| 温度范围   | ℃  | -40~125                        |                | ℃    |
| 焊接温度   | ℃  | 280±20℃/2 秒 热源距离芯片 B 尺寸 9mm 以上 |                | ℃    |
| ◎耐电压   | /  | 室温 AC500V / 1mA / 3s           |                | /    |
| 试验项目   | 试验条件   |                                | 要求             |      |
| 可焊性    | 引线浸在 280±5℃ 的锡液里, 时间≥3 秒   |                                | 焊锡涂布面积在 80%以上  |      |
| 耐焊性    | 焊接热源距离电阻头 B 距离≥9MM, 280±20℃, 时间≤2 秒                                    |                                | ΔR≤±1%, ΔB≤±1% |      |
| 高温储存   | 空气中 80±5℃ 放置 300 小时  |                                | ΔR≤±3%, ΔB≤±1% |      |
| 低温储存   | 空气中-10±5℃ 放置 300 小时  |                                | ΔR≤±3%, ΔB≤±1% |      |
| 冷热冲击   | -10±5℃/5 分钟 ↔ 100±5℃/5 分钟 循环 30 次                                      |                                | ΔR≤±1%, ΔB≤±1% |      |
| 稳态湿热   | 湿度 85±5%, 85±5℃ 放置 24 小时   |                                | ΔR≤±1%, ΔB≤±1% |      |
| 跌落测试   | 1 米高处自由跌落 3 次  |                                | 无可见损伤 ΔR≤±1%   |      |
| 拉力测试   | 固定电阻本体, 引线端水平逐渐施加 10N 的拉力, 3 秒   |                                | ΔR≤±1%, ΔB≤±1% |      |
| 弯曲测试   | 电阻引脚弯曲 90 度, 恢复到初始位置, 反复 3 次   |                                | ΔR≤±1%, ΔB≤±1% |      |
| 压力测试   | 压力计压住 A、B 尺寸位置施加 5N 的压力, 3 秒   |                                | ΔR≤±1%, ΔB≤±1% |      |
| 保存/期限  | (原包装状态) 避免阳光照射, 远离腐蚀、磁场环境<br>温度: -10 至 35℃ 湿度: 45%至 75% 保存期: 1 年 (零负载) |                                | ΔR≤±1%, ΔB≤±1% |      |

注: 1、试验后需要在常温零功率状态恢复 4 小时后, 再进行电阻值测试。试验后的产品不可再使用。

2、◎为抽检项目检验后的产品不可再使用

3、※ B1=B25/50、B2=B25/85、B3=B100/200、B4=B0/100、B5=B25/100, BT 表示除以上几种以外的 B 值类型。

4、不可直接使用中或长期使用在潮湿环境, 如使用在潮湿环境需要进行防水处理。

修订履历 Biographical revised

| 版本 Version | 修订日期 Revision Date | 修订内容 Amendments |
|------------|--------------------|-----------------|
|            |                    |                 |

客户确认

Customer acknowledges

### 热敏电阻 R-T 表

R25=10±1% B25/50=3950±1% B25/85=3990±1% (ID:647-3-1)

| T(°C) | R ↓ (%) | Rmin (KΩ) | Rcen (KΩ) | Rmax (KΩ) | R ↑ (%) |
|-------|---------|-----------|-----------|-----------|---------|
| -40   | -4.368  | 294.1372  | 307.5723  | 321.3684  | 4.485   |
| -39   | -4.307  | 276.3523  | 288.7911  | 301.5566  | 4.42    |
| -38   | -4.247  | 259.7477  | 271.2675  | 283.0828  | 4.356   |
| -37   | -4.186  | 244.238   | 254.9097  | 265.8487  | 4.291   |
| -36   | -4.127  | 229.7451  | 239.6338  | 249.7644  | 4.228   |
| -35   | -4.067  | 216.196   | 225.3617  | 234.7461  | 4.164   |
| -34   | -4.008  | 203.5242  | 212.0219  | 220.7174  | 4.101   |
| -33   | -3.949  | 191.6675  | 199.5479  | 207.6071  | 4.039   |
| -32   | -3.891  | 180.5695  | 187.8791  | 195.3504  | 3.977   |
| -31   | -3.832  | 170.1767  | 176.9585  | 183.8864  | 3.915   |
| -30   | -3.775  | 160.4408  | 166.7343  | 173.1599  | 3.854   |
| -29   | -3.717  | 151.34    | 157.1828  | 163.1449  | 3.793   |
| -28   | -3.66   | 142.8054  | 148.2309  | 153.7642  | 3.733   |
| -27   | -3.603  | 134.7986  | 139.8375  | 144.9737  | 3.673   |
| -26   | -3.547  | 127.2841  | 131.9648  | 136.7334  | 3.614   |
| -25   | -3.491  | 120.2289  | 124.5777  | 129.0057  | 3.554   |
| -24   | -3.435  | 113.6026  | 117.6436  | 121.7561  | 3.496   |
| -23   | -3.379  | 107.3767  | 111.1323  | 114.9523  | 3.437   |
| -22   | -3.324  | 101.5251  | 105.0159  | 108.5648  | 3.379   |
| -21   | -3.269  | 96.023    | 99.2682   | 102.5657  | 3.322   |
| -20   | -3.214  | 90.848    | 93.8652   | 96.9295   | 3.265   |
| -19   | -3.161  | 86.0358   | 88.8438   | 91.6942   | 3.208   |
| -18   | -3.107  | 81.5007   | 84.1142   | 86.7658   | 3.152   |
| -17   | -3.054  | 77.2256   | 79.6582   | 82.1251   | 3.097   |
| -16   | -3.001  | 73.1945   | 75.4588   | 77.7539   | 3.042   |
| -15   | -2.948  | 69.3921   | 71.4998   | 73.6352   | 2.987   |
| -14   | -2.895  | 65.8045   | 67.7665   | 69.7534   | 2.932   |
| -13   | -2.843  | 62.4186   | 64.245    | 66.0937   | 2.878   |
| -12   | -2.791  | 59.2219   | 60.9221   | 62.6422   | 2.823   |
| -11   | -2.739  | 56.2032   | 57.7859   | 59.3864   | 2.77    |
| -10   | -2.687  | 53.3518   | 54.825    | 56.3141   | 2.716   |
| -9    | -2.637  | 50.735    | 52.1092   | 53.4976   | 2.664   |
| -8    | -2.587  | 48.2536   | 49.5353   | 50.8296   | 2.613   |
| -7    | -2.538  | 45.9001   | 47.0952   | 48.3016   | 2.562   |
| -6    | -2.488  | 43.6674   | 44.7816   | 45.9058   | 2.511   |
| -5    | -2.439  | 41.5491   | 42.5876   | 43.6351   | 2.46    |
| -4    | -2.389  | 39.5389   | 40.5067   | 41.4824   | 2.409   |
| -3    | -2.34   | 37.6312   | 38.5328   | 39.4414   | 2.358   |
| -2    | -2.291  | 35.8201   | 36.6599   | 37.5059   | 2.308   |
| -1    | -2.242  | 34.1009   | 34.8828   | 35.6702   | 2.257   |

|    |        |         |         |         |       |
|----|--------|---------|---------|---------|-------|
| 0  | -2.193 | 32.4683 | 33.1962 | 33.9289 | 2.207 |
| 1  | -2.141 | 30.8389 | 31.5137 | 32.1926 | 2.154 |
| 2  | -2.09  | 29.3019 | 29.9274 | 30.5565 | 2.102 |
| 3  | -2.039 | 27.8513 | 28.4311 | 29.014  | 2.05  |
| 4  | -1.989 | 26.4818 | 27.0192 | 27.5593 | 1.999 |
| 5  | -1.939 | 25.1884 | 25.6864 | 26.1867 | 1.948 |
| 6  | -1.889 | 23.9665 | 24.428  | 24.8914 | 1.897 |
| 7  | -1.84  | 22.8115 | 23.239  | 23.6682 | 1.847 |
| 8  | -1.791 | 21.7196 | 22.1156 | 22.513  | 1.797 |
| 9  | -1.742 | 20.6867 | 21.0534 | 21.4213 | 1.747 |
| 10 | -1.693 | 19.7095 | 20.049  | 20.3894 | 1.698 |
| 11 | -1.645 | 18.7846 | 19.0988 | 19.4138 | 1.649 |
| 12 | -1.597 | 17.9089 | 18.1995 | 18.4908 | 1.601 |
| 13 | -1.549 | 17.0794 | 17.3482 | 17.6175 | 1.552 |
| 14 | -1.502 | 16.2935 | 16.542  | 16.7909 | 1.505 |
| 15 | -1.455 | 15.5487 | 15.7783 | 16.0082 | 1.457 |
| 16 | -1.408 | 14.8425 | 15.0545 | 15.2668 | 1.41  |
| 17 | -1.362 | 14.1726 | 14.3683 | 14.5642 | 1.363 |
| 18 | -1.316 | 13.5371 | 13.7176 | 13.8982 | 1.317 |
| 19 | -1.27  | 12.9341 | 13.1004 | 13.2668 | 1.27  |
| 20 | -1.224 | 12.3615 | 12.5147 | 12.668  | 1.225 |
| 21 | -1.179 | 11.8176 | 11.9586 | 12.0996 | 1.179 |
| 22 | -1.134 | 11.3011 | 11.4307 | 11.5603 | 1.134 |
| 23 | -1.089 | 10.8102 | 10.9292 | 11.0482 | 1.089 |
| 24 | -1.044 | 10.3437 | 10.4529 | 10.5621 | 1.044 |
| 25 | -1     | 9.9     | 10      | 10.1    | 1     |
| 26 | -1.044 | 9.4695  | 9.5694  | 9.6693  | 1.044 |
| 27 | -1.088 | 9.059   | 9.1586  | 9.2582  | 1.088 |
| 28 | -1.131 | 8.6685  | 8.7677  | 8.8669  | 1.132 |
| 29 | -1.175 | 8.2975  | 8.3961  | 8.4948  | 1.175 |
| 30 | -1.218 | 7.9447  | 8.0426  | 8.1406  | 1.218 |
| 31 | -1.26  | 7.609   | 7.7061  | 7.8033  | 1.261 |
| 32 | -1.303 | 7.2896  | 7.3858  | 7.4821  | 1.303 |
| 33 | -1.345 | 6.9855  | 7.0807  | 7.176   | 1.346 |
| 34 | -1.386 | 6.696   | 6.7901  | 6.8843  | 1.388 |
| 35 | -1.428 | 6.4202  | 6.5132  | 6.6063  | 1.43  |
| 36 | -1.469 | 6.1575  | 6.2493  | 6.3412  | 1.471 |
| 37 | -1.51  | 5.9071  | 5.9977  | 6.0884  | 1.513 |
| 38 | -1.551 | 5.6684  | 5.7577  | 5.8472  | 1.554 |
| 39 | -1.591 | 5.4408  | 5.5288  | 5.6169  | 1.594 |
| 40 | -1.631 | 5.2238  | 5.3104  | 5.3972  | 1.635 |
| 41 | -1.671 | 5.0166  | 5.1018  | 5.1873  | 1.675 |
| 42 | -1.71  | 4.819   | 4.9028  | 4.9869  | 1.715 |
| 43 | -1.75  | 4.6303  | 4.7127  | 4.7954  | 1.755 |
| 44 | -1.788 | 4.4501  | 4.5311  | 4.6124  | 1.795 |

|    |        |        |        |        |       |
|----|--------|--------|--------|--------|-------|
| 45 | -1.827 | 4.278  | 4.3576 | 4.4375 | 1.834 |
| 46 | -1.866 | 4.1135 | 4.1917 | 4.2702 | 1.873 |
| 47 | -1.904 | 3.9563 | 4.0331 | 4.1102 | 1.912 |
| 48 | -1.942 | 3.8061 | 3.8815 | 3.9572 | 1.951 |
| 49 | -1.98  | 3.6625 | 3.7365 | 3.8108 | 1.989 |
| 50 | -2.017 | 3.5252 | 3.5978 | 3.6707 | 2.028 |
| 51 | -2.055 | 3.3924 | 3.4636 | 3.5352 | 2.066 |
| 52 | -2.092 | 3.2655 | 3.3353 | 3.4055 | 2.104 |
| 53 | -2.129 | 3.1438 | 3.2122 | 3.281  | 2.142 |
| 54 | -2.166 | 3.0274 | 3.0944 | 3.1619 | 2.18  |
| 55 | -2.203 | 2.9157 | 2.9814 | 3.0475 | 2.218 |
| 56 | -2.239 | 2.8089 | 2.8732 | 2.938  | 2.255 |
| 57 | -2.276 | 2.7065 | 2.7695 | 2.833  | 2.292 |
| 58 | -2.312 | 2.6082 | 2.6699 | 2.7321 | 2.329 |
| 59 | -2.348 | 2.5141 | 2.5745 | 2.6354 | 2.366 |
| 60 | -2.383 | 2.4237 | 2.4829 | 2.5426 | 2.403 |
| 61 | -2.419 | 2.3372 | 2.3951 | 2.4535 | 2.439 |
| 62 | -2.454 | 2.2541 | 2.3108 | 2.368  | 2.476 |
| 63 | -2.489 | 2.1743 | 2.2298 | 2.2858 | 2.512 |
| 64 | -2.524 | 2.0978 | 2.1521 | 2.2069 | 2.548 |
| 65 | -2.559 | 2.0243 | 2.0775 | 2.1312 | 2.584 |
| 66 | -2.594 | 1.9539 | 2.0059 | 2.0584 | 2.619 |
| 67 | -2.628 | 1.8861 | 1.937  | 1.9884 | 2.655 |
| 68 | -2.662 | 1.8211 | 1.8709 | 1.9212 | 2.69  |
| 69 | -2.696 | 1.7586 | 1.8073 | 1.8566 | 2.725 |
| 70 | -2.73  | 1.6986 | 1.7463 | 1.7945 | 2.76  |
| 71 | -2.764 | 1.6409 | 1.6875 | 1.7347 | 2.795 |
| 72 | -2.797 | 1.5854 | 1.631  | 1.6772 | 2.83  |
| 73 | -2.83  | 1.5321 | 1.5767 | 1.6219 | 2.864 |
| 74 | -2.863 | 1.4807 | 1.5243 | 1.5685 | 2.899 |
| 75 | -2.896 | 1.4313 | 1.474  | 1.5172 | 2.933 |
| 76 | -2.929 | 1.3838 | 1.4256 | 1.4679 | 2.967 |
| 77 | -2.962 | 1.3384 | 1.3792 | 1.4206 | 3.001 |
| 78 | -2.994 | 1.2944 | 1.3343 | 1.3748 | 3.035 |
| 79 | -3.026 | 1.252  | 1.2911 | 1.3307 | 3.068 |
| 80 | -3.058 | 1.2113 | 1.2495 | 1.2883 | 3.102 |
| 81 | -3.09  | 1.1721 | 1.2095 | 1.2474 | 3.135 |
| 82 | -3.122 | 1.1343 | 1.1709 | 1.208  | 3.168 |
| 83 | -3.154 | 1.0979 | 1.1337 | 1.17   | 3.201 |
| 84 | -3.185 | 1.0629 | 1.0979 | 1.1334 | 3.234 |
| 85 | -3.216 | 1.0292 | 1.0634 | 1.0981 | 3.266 |
| 86 | -3.247 | 0.9966 | 1.0301 | 1.0641 | 3.299 |
| 87 | -3.278 | 0.9655 | 0.9982 | 1.0315 | 3.331 |
| 88 | -3.309 | 0.9353 | 0.9673 | 0.9998 | 3.363 |
| 89 | -3.339 | 0.9062 | 0.9375 | 0.9693 | 3.395 |

|     |        |        |        |        |       |
|-----|--------|--------|--------|--------|-------|
| 90  | -3.37  | 0.8782 | 0.9088 | 0.9399 | 3.427 |
| 91  | -3.4   | 0.8511 | 0.8811 | 0.9116 | 3.459 |
| 92  | -3.43  | 0.8251 | 0.8544 | 0.8842 | 3.49  |
| 93  | -3.46  | 0.7999 | 0.8286 | 0.8578 | 3.522 |
| 94  | -3.49  | 0.7757 | 0.8037 | 0.8323 | 3.553 |
| 95  | -3.519 | 0.7522 | 0.7796 | 0.8075 | 3.584 |
| 96  | -3.549 | 0.7296 | 0.7564 | 0.7837 | 3.615 |
| 97  | -3.578 | 0.7077 | 0.734  | 0.7608 | 3.646 |
| 98  | -3.607 | 0.6866 | 0.7123 | 0.7385 | 3.677 |
| 99  | -3.636 | 0.6663 | 0.6914 | 0.717  | 3.708 |
| 100 | -3.665 | 0.6466 | 0.6712 | 0.6963 | 3.738 |
| 101 | -3.694 | 0.6276 | 0.6517 | 0.6763 | 3.768 |
| 102 | -3.722 | 0.6092 | 0.6328 | 0.6568 | 3.799 |
| 103 | -3.751 | 0.5915 | 0.6145 | 0.638  | 3.829 |
| 104 | -3.779 | 0.5742 | 0.5968 | 0.6198 | 3.859 |
| 105 | -3.807 | 0.5577 | 0.5798 | 0.6023 | 3.889 |
| 106 | -3.836 | 0.5417 | 0.5633 | 0.5854 | 3.918 |
| 107 | -3.863 | 0.5263 | 0.5474 | 0.569  | 3.948 |
| 108 | -3.891 | 0.5114 | 0.5321 | 0.5533 | 3.977 |
| 109 | -3.918 | 0.4969 | 0.5172 | 0.5379 | 4.006 |
| 110 | -3.946 | 0.4831 | 0.5029 | 0.5232 | 4.035 |
| 111 | -3.973 | 0.4696 | 0.489  | 0.5089 | 4.064 |
| 112 | -4     | 0.4564 | 0.4754 | 0.4949 | 4.093 |
| 113 | -4.027 | 0.4439 | 0.4625 | 0.4816 | 4.121 |
| 114 | -4.054 | 0.4316 | 0.4498 | 0.4685 | 4.15  |
| 115 | -4.081 | 0.4197 | 0.4376 | 0.4559 | 4.179 |
| 116 | -4.107 | 0.4082 | 0.4257 | 0.4436 | 4.207 |
| 117 | -4.134 | 0.3972 | 0.4143 | 0.4318 | 4.235 |
| 118 | -4.16  | 0.3865 | 0.4033 | 0.4205 | 4.263 |
| 119 | -4.186 | 0.376  | 0.3924 | 0.4092 | 4.291 |
| 120 | -4.212 | 0.3659 | 0.382  | 0.3985 | 4.319 |
| 121 | -4.238 | 0.3561 | 0.3719 | 0.3881 | 4.346 |
| 122 | -4.264 | 0.3467 | 0.3621 | 0.3779 | 4.374 |
| 123 | -4.29  | 0.3375 | 0.3526 | 0.3681 | 4.402 |
| 124 | -4.315 | 0.3286 | 0.3434 | 0.3586 | 4.429 |
| 125 | -4.341 | 0.32   | 0.3345 | 0.3494 | 4.456 |