

南京时恒电子科技有限公司
Nanjing Shiheng Electronics Co.,Ltd.
规格承认书

APPROVAL SHEET

客户名称 CUSTOMER : _____
产品名称 PART NAME : MF11 补偿型 NTC 热敏电阻器
MF11 Compensation NTC Thermistor
产品规格 PART NUMBER : MF11-154J
产品编号 PRODUCTCODE: _____
版次 REV.NO: B0
日期 DATE: 2022-8-31

确认
CONFIRM

| 客户 CLIENT | | 供货商/制造商 MANUFACTOR | |
|-------------------------|--|---------------------------|-----|
| 品保部 Quality Dep. | | 规格书制作 Design | 吴迎丽 |
| 制造部 Production Dep. | | 业务部审核 Checked by sales | |
| 工程部 Engineering Dep. | | 技术部审核 Checked by R&D | 程鹏 |
| | | 品质部审核 Checked by QA | 李少媛 |

南京时恒电子科技有限公司

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变更记录表

REVISED RECORD SHEET

| 版次 REV. NO | 变更日期 REV.DATE | 变更内容 CHANGE CONTENT | 申请人 APPLICATION | 批准人 APPROVED |
|---------------|------------------|--|--------------------|-----------------|
| A0 | 2015/10/11 | 版本制定。 Version formulation | 鞠晓丽 | 李少媛 |
| B0 | 2022/4/1 | 更新规格书版本格式，增加版次管控，细化规格纸。 Update for version form of datasheet,add to management and control for number of edition,refine to PN and draw. | 王月婷 | 李少媛 |
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1、产品型号说明 Product model specification


MF11 **154** **J**
 ① ② ③ ④

①  : 时恒品牌

② MF11: 补偿型 NTC 热敏电阻


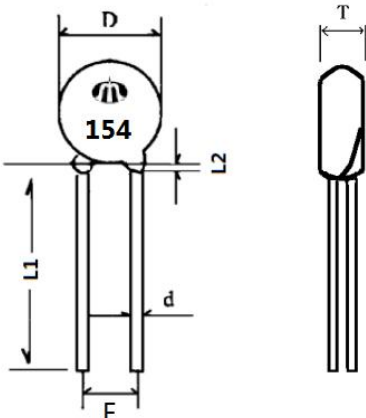
③ 154: 25℃的零功率电阻值 150K Ω

④ J: 阻值精度代码 J-±5% K-±10% M-±20%

2、电气性能 Electrical Characteristics

| No. | 项目 Item | 符号 Symbol | 测试条件 Test conditions | 单位 Unit | 性能要求 Requirements |
|------|---|--------------------|--|------------|----------------------|
| 2.1 | 25℃的零功率电阻值 Zero Power Resistance at 25℃ | R _{25℃} | T _a =25±0.5℃ (测试功率 ≤0.1mW 空气中测试) Test Power≤0.1mW, in air) | K Ω | 150K Ω ±5% |
| 2.2 | B 值 B-value | B _{25/50} | $B = [(T_a \times T_b) / (T_b - T_a)] \times \ln(R_a / R_b)$ T _a =25±0.01℃ T _b =50℃±0.01℃ | K | 4500±10% |
| 2.3 | 耗散系数 Thermal dissipation Coefficient | δ | 静止空气中 In still air | mW/℃ | 约 4.5 |
| 2.4 | 时间常数 Thermal time constant | τ | 静止空气中 In still air | sec | 约 20 |
| 2.5 | 绝缘电阻 Insulation resistance | / | 1000V/DC 1min | M Ω | ≥500 |
| 2.9 | 工作温度范围 Operating temperature range | / | / | ℃ | -30 ~ 125 |
| 2.10 | 最大额定功率 Maximum rated power | P _{max} | / | mW | 450 |

3、产品图纸 Product drawing

| | | | | | | |
|--|------------------|--|----------------|------------------|-----------------|--|
|  产品图纸 Product drawing | | 客户 确认 Customer confirm | 客户名称 Customer: | | | |
| | | | 确认 Confirm | | 日期 DATE | |
| 产品型号 MODEL NO. | MF11 154J | 审核 Approve: | | 日期 DATE | | |
| 尺寸 Dimensions: (Unit: mm) | | | | | | |
|  | | | | | | |
| D±0.5 | L1 | L2 | F±0.5 | T | d±0.05 | |
| 5.2 | Min25 | Max2.5 | 3.5 | Max4.0 | 0.45 | |
| 技术要求 Technical requirements: | | | | | | |
| 1) 零功率阻值: R25: 150K Ω ±5% (Zero Power Resistance: R25: 150kΩ±5%); 2) B25/50 数值: 4500K ±10% (B-value: B25/50: 4500K±10%); 3) 线材: 镀锡铜包钢线 (tinned copper-weld steel wire); 4) 封装: 绿色环氧树脂 (Green Epoxy resin); 5) 符合 RoHS 环保要求 (Meet environmental protection requirements:RoHS)。 | | | | | | |
| 更新履历 Revised record sheet | | | | | | |
| 版本 REV. NO | 更新时间 REV.DATE | 更新内容 Change content | | 申请人 Applicant | 批准人 Approved | |
| A0 | 2015. 4. 10 | 版本制定。 Version formulation | | 王月婷 | 李少媛 | |
| B0 | 2022. 4. 1 | 更新规格书版本格式, 增加版次管控 Update for version form of datasheet, add to management and control for number of edition | | 王月婷 | 李少媛 | |
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4、可靠性 Reliability

| No. | 项目 Item | 试验标准 | 试验条件及方法 Test conditions and methods | 性能要求 Requirements |
|-----|--|---------------|--|---|
| 4.1 | 引出端强度 Terminal strength | IEC60068-2-21 | 线径 <u>拉力(N)</u> lead diameter(mm) <u>Pull strength(N)</u> 0.35<d≤0.5 5 0.5<d≤0.8 10 时间: 10±1 秒 time: 10±1 sec | 无可见性损伤 No obvious damage R ₂₅ ΔR/R≤±3% |
| 4.2 | 可焊性 Solderability | IEC60068-2-20 | 温度 245±5℃ 时间 2-3 秒 temperature : 245±5℃ for 2-3sec | 着锡面积≥95% Coverage area ≥ 95%. |
| 4.3 | 耐焊接热 Withstand weiling temp | IEC60068-2-20 | 锡锅温度: 260±5℃, 浸入深度距电阻体 6mm, 时间 10±1 秒 Temperature of tin pot: 260±5℃, insert depth from body of resistance 6mm, time 10±1 seconds | R ₂₅ ΔR/R≤±3% |
| 4.4 | 稳态湿热 Steady humidity and heat | IEC60068-2-78 | 温度: 40℃±2℃, 湿度: 93±2%, 时间: 500 小时 Temp: 40℃±2℃, humidity: 93±2%, Time : 500hrs | R ₂₅ ΔR/R≤±3% |
| 4.5 | 温度快速变化 Rapid changes in temperature | IEC60068-2-14 | -30℃ 30min→25℃ 5min→125℃ 30min→25℃ 5min, 5cycles | R ₂₅ ΔR/R≤±3% |
| 4.6 | 高温储存 High temperature storage | IEC60068-2-2 | 温度: 125℃±5℃ 时间: 1000 小时 Temp : 125℃±5℃, Time : 1000hrs | R ₂₅ ΔR/R≤±5% |
| 4.7 | 低温储存 Low temperature storage | IEC60539-1 | 温度: -30℃±5℃ 时间: 1000 小时 Temp : -30℃±5℃, Time : 1000hrs | R ₂₅ ΔR/R≤±5% |

▲注: 1) 稳态湿热及温度快速变化试验结束后, 样品需在常温环境下静置 2 小时后再做性能测试;

▲Note: 1) After the test of steady-state humid heat and rapid temperature change, the sample should be kept for 2 hours at room temperature before performance test ;

2) 高温/低温存储结束后, 需随测试环境自然恢复至常温, 再取出做性能测试。

2) After the test of high/low-temperature storage is complete, and then take it out for performance test when the test environment naturally regain to normal temperature.

5、产品包装 Product packaging

5.1 包装方式 Packing Type

■ 散装方式 Bulk Type □ 编带方式 Reel Type

5.2 包装规格 Packing specification

| No. | 包装规格 Packing specification | 包装材料、尺寸 Packing material, size | 产品数量 Quantity |
|-----|-------------------------------|---|------------------|
| 1 | 包装袋 Packing bag | 自封口袋(self sealing bag) W×H=11mm×12mm | 1000 |
| 2 | 编带带包装盒 reel packing box | 包装盒 packing box W×G×H=335mm×240mm×50mm | 1000 |

6、安装&使用注意事项 Installation & Use precautions

6.1 本产品的用途：用于温度补偿；

Purpose of product: Be used for temperature compensation;

6.2 烙铁焊接时，焊接处距包封头部距离至少 2mm，焊接温度应低于 360℃，焊接时间 < 3ses;

When welded by soldering iron, weld spot should be 2mm at least from head, weld temperature should be under 360℃, time < 3ses

6.3 储存温度：-10℃ ~ 40℃；储存湿度：≤75% RH；

storage temp: -10℃ ~ 40℃；storage humidity: ≤75% RH

6.4 避免存放在具有腐蚀性气体及光照的环境下；

To avoid of leaving with such environment as corrosive gases and illumination

6.5 包装打开后需重新密封保存，贮存期 1 年，超过贮存期，可按本标准规定的项目重新检验，如符合要求仍可使用；

The packing need to be resealed since opened, storage period 1 year. once valid, it should be retest according to regulated of criterion and can be still used if meet the requirement.

7、产品认证 Product certification

| No. | 项目 Projects | 产品认证 Product certification |
|-----|--|---|
| 7.1 | 质量管理体系认证 Quality Management System Certification | ISO9001:2015 |
| | | IATF16949: 2016 |
| 7.2 | 环境管理体系认证 Environmental Management System Certification | ISO14001:2015 |
| 7.3 | 环保检测报告 Environmental test report | RoHS 2.0 |
| 7.4 | CQC 认证 CQC certificate |  |
| 7.5 | TUV 认证 TUV certificate | R50245892 |
| 7.6 | 江苏省高新技术产品认证 High-tech product certificate in Jiangsu Province |  |
| | | |



时恒电子(电阻温度表)

R25=150KΩ

B25/50=4500K

| T | R | T | R | T | R | T | R | T | R | T | R |
|-----|---------|----|---------|----|---------|----|--------|----|--------|-----|-------|
| -30 | 3943.5 | -4 | 724.816 | 22 | 174.682 | 48 | 50.165 | 74 | 17.47 | 100 | 7.5 |
| -29 | 3678.2 | -3 | 683.329 | 23 | 165.994 | 49 | 47.983 | 75 | 16.853 | 101 | 7.539 |
| -28 | 3430.86 | -2 | 644.485 | 24 | 157.776 | 50 | 45.908 | 76 | 16.263 | 102 | 7.347 |
| -27 | 3200.53 | -1 | 608.093 | 25 | 150 | 51 | 43.936 | 77 | 15.699 | 103 | 7.163 |
| -26 | 2986.24 | 0 | 577.5 | 26 | 142.64 | 52 | 42.061 | 78 | 15.161 | 104 | 6.986 |
| -25 | 2787 | 1 | 541.989 | 27 | 135.674 | 53 | 40.278 | 79 | 14.646 | 105 | 6.815 |
| -24 | 2601.85 | 2 | 511.97 | 28 | 129.078 | 54 | 38.582 | 80 | 14.155 | 106 | 6.652 |
| -23 | 2429.86 | 3 | 483.787 | 29 | 122.832 | 55 | 36.969 | 81 | 13.684 | 107 | 6.495 |
| -22 | 2270.14 | 4 | 457.315 | 30 | 116.916 | 56 | 35.434 | 82 | 13.235 | 108 | 6.344 |
| -21 | 2121.81 | 5 | 432.438 | 31 | 111.311 | 57 | 33.973 | 83 | 12.805 | 109 | 6.199 |
| -20 | 1984.07 | 6 | 409.049 | 32 | 106 | 58 | 32.583 | 84 | 12.393 | 110 | 6.059 |
| -19 | 1856.13 | 7 | 387.048 | 33 | 100.967 | 59 | 31.26 | 85 | 12 | 111 | 5.925 |
| -18 | 1737.29 | 8 | 366.346 | 34 | 96.195 | 60 | 30 | 86 | 11.623 | 112 | 5.796 |
| -17 | 1626.87 | 9 | 346.856 | 35 | 91.672 | 61 | 28.8 | 87 | 11.262 | 113 | 5.672 |
| -16 | 1524.23 | 10 | 328.5 | 36 | 87.383 | 62 | 27.657 | 88 | 10.917 | 114 | 5.552 |
| -15 | 1428.79 | 11 | 311.205 | 37 | 83.315 | 63 | 26.568 | 89 | 10.586 | 115 | 5.437 |
| -14 | 1340.01 | 12 | 294.903 | 38 | 79.456 | 64 | 25.531 | 90 | 10.269 | 116 | 5.327 |
| -13 | 1257.39 | 13 | 279.533 | 39 | 75.795 | 65 | 24.542 | 91 | 9.965 | 117 | 5.22 |
| -12 | 1180.45 | 14 | 265.035 | 40 | 72.321 | 66 | 23.599 | 92 | 9.675 | 118 | 5.118 |
| -11 | 1108.78 | 15 | 251.355 | 41 | 69.024 | 67 | 22.701 | 93 | 9.396 | 119 | 5.019 |
| -10 | 1041.98 | 16 | 238.444 | 42 | 65.895 | 68 | 21.844 | 94 | 9.128 | 120 | 4.924 |
| -9 | 979.677 | 17 | 226.253 | 43 | 62.924 | 69 | 21.027 | 95 | 8.872 | 121 | 4.833 |
| -8 | 921.539 | 18 | 214.74 | 44 | 60.103 | 70 | 20.248 | 96 | 8.626 | 122 | 4.745 |
| -7 | 867.258 | 19 | 203.863 | 45 | 57.424 | 71 | 19.504 | 97 | 8.391 | 123 | 4.66 |
| -6 | 816.548 | 20 | 193.584 | 46 | 54.879 | 72 | 18.794 | 98 | 8.164 | 124 | 4.578 |
| -5 | 769.148 | 21 | 183.868 | 47 | 52.462 | 73 | 18.117 | 99 | 7.947 | 125 | 4.5 |

