**8D报告（8D Report）**

报告编号Report NO.：20210407001 版本Version NO.：A0

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **问题来源Problem sources：**  客户Customer 终端市场Market 外部审核External scrutiny 其它Other： | | | | | | | | | | | | | | | | | | | | | |
| **D1：小组成立Use team approach** | | | | | | | | | | | | | | | | | | | | | |
| **组长Leader**（负责8D全过程的推进和关闭Responsible for the whole process of 8D promotion and closure） | | | | | | | | | | | | | | | | | | | | | |
| 周闯 | | | | | | | | | | | | | | | | | | | | | |
| **组员Members**（具备解决相应8D问题的能力Ability to solve 8D problems is required） | | | | | | | | | | | | | | | | | | | | | |
| **部门Department：** | | | | | 制造中心 | | 研发部 | | 品质部 | | 品质部 | 市场部 | | | |  | | | |  | / |
| **岗位Position：** | | | | | 部长 | | 工程师 | | 工程师 | | 经理 | 销售 | | | |  | | | |  | / |
| **姓名Name：** | | | | | 冯刚涛 | | 王丹 | | 洪关莲 | | 李陈建 | 罗家兴 | | | |  | | | |  | / |
| **D2：问题描述 Problem description** | | | | | | | | | | | | | | | | | | | | | |
| **客户**  **Customer** | | | | J113 | | | | **出货数量**  **Shipping QTY** | | | 128pcs | | **出货日期**  **Shipping date** | | | | | 2021/03/17 | | | |
| **产品类型**  **Product type** | | | | OCXO | | | | **不良数量**  **Defect QTY** | | | 3pcs | | **反馈日期**  **Feedback date** | | | | | 2021/04/07 | | | |
| **产品型号**  **Product model** | | | | O11A-P326-10.00MHz-A | | | | **不良类型**  **Defect type** | | | 2pcs无输出  1pcs电流大 | | **回复日期**  **Reply date** | | | | | 2021/04/13 | | | |
| **问题描述Problem description**  （以5W2H方式，对上述描述不足之处加以说明 Use 5W2H method to explain the deficiencies of the above description） | | | | | | | | | | | | | | | | | | | | | |
| 2021年4月7日收到客户反馈我司出货的O11A-P326-10.00MHz-A产品，在测试过程中发现2pcs无输出、1pcs电流大，并将样品退回DAPU分析； | | | | | | | | | | | | | | | | | | | | | |
| **佐证evidence**（通过照片，草图或者数据来描述问题Photo, sketch or data describing the issue） | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **D3：临时措施 Develop interim containment actions** | | | | | | | | | | | | | | | | | | | | | |
| 对所涉及的材料、半制品、成品、已出货产品的处理方案  Treatment of the materials, semi-finished products, finished products and products shipped | | | | | | | | | | | | | | | | | | | | | |
| **NO.** | **内容**  **Content** | | | | | | | | | | | | | | **责任人**  **Who** | | | | **执行日期**  **When** | | |
| 1 | 库存和在制品：24pcs隔离筛选； | | | | | | | | | | | | | | 洪关莲 | | | | 2021/04/12 | | |
| 2 |  | | | | | | | | | | | | | |  | | | |  | | |
| **D4：原因分析 Define and verify root cause** | | | | | | | | | | | | | | | | | | | | | |
| **分析阶段Analysis Stage**(以5WHY、故障树、鱼骨图等分析方法找出问题发生的真正原因和流出原因Analysis methods such as 5WHY, fault tree and fishbone diagram were used to find out the real cause of the problem and the cause of outflow) | | | | | | | | | | | | | | | | | | | | | |
| * 1. **样品复测：外观检查、性能复测**   4.1.1 外观检查  产品退回后进行外观检查：壳体未发现明显碰撞、变形等明显痕迹，产品外观如下图所示：   |  |  |  | | --- | --- | --- | |  |  |  | | 1# | 2# | 3# |   4.1.2 性能复测  对3pcs样品进行常规指标复测，1#样品复测无电流（7.6mA，正常启动电流是400mA左右）；2#样品频率输出正常，启动/工作电流正常；3#样品无频率输出，启动/工作电流正常；   |  |  |  | | --- | --- | --- | |  |  |  | | 1#样品/无电流 | 2#样品/输出正常 | 3#样品/无输出 |   将2#样品放入温箱中通电测试产品的温度特性，温度范围：-42℃~77℃，测试结果如下：   |  | | --- | |  | | 温度特性/合格 |   2#样品温度特性测试合格；下一步对2#样品进行60H上电测试，输出频率正常。   |  | | --- | |  | | 连续输出频率/合格 |   从上述测试结果中可知，1#样品启动电流不良，2#频率输出正常，未发现无输出现象，3#启动/工作电流正常，无输出；  **4.2原因分析：**  1#样品分析：  使用剪钳把上盖去掉，用显微镜检查PCBA元器件，发现R8、R9电容鼓包烧坏，图片如下：   |  |  | | --- | --- | |  |  | | PCBA和电容鼓包图片 | |   3#样品分析：  下面主要针对产品无输出的问题进行分析，导致该产品无输出主要有以下原因，使用故障树分析如下：  为进一步分析3#产品失效原因，对产品进行拆壳分析，在40X显微镜下对拆壳后的PCBA上各器件焊点及连接处焊点进行焊点质量检查，未发现产品存在焊点虚焊等焊接不良现象。  产品拆解后的PCBA如下图所示：   |  | | --- | |  | | 3#样品 |   电路功能检查：根据晶振的电路原理，逐步排查相关电路性能是否异常，确认电源模块、振荡模块、加热模块电路均正常；  晶体异常确认：使用烙铁将产品晶体引脚断开，晶体放入W2200晶体测试仪进行测试晶体指标，发现3#样品晶体RR、Q、DLD2测试不合格，如下表所示：   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | TEMP | FL | C0 | RR | C1 | Q | DLD2 | FL | | ¡ãC | ppm | pF | Ohms | fF | k | Ohms | Hz | | max | -1 | 2.2 | 120 | 0.149 |  | 7 |  | | min | -5 | 1.8 |  | 0.111 | 800 |  |  | | 复测结果 | -2.723 | 1.905 | 221.4< | 0.131 | 548.865< | 86.910< | 9999972.77 |   从晶体测试数据来看，3#产品晶体指标不合格是导致晶体无输出的主要原因，为进一步确认，将产品外挂1pcs性能OK的晶体，产品频率输出正常，确认是晶体本体不良导致产品无输出；  下一步将晶体寄给厂商分析，预计5月15日完成； | | | | | | | | | | | | | | | | | | | | | |
| **验证阶段Authenticate stage**(对分析原因进行验证，以确认分析原因的准确性Verify the analysis reason to confirm the accuracy of analysis reason) | | | | | | | | | | | | | | | | | | | | | |
| 使用1pcs好的产品，模拟产品插反的情况上电测试，启动电流为2.77A，再把产品正常上电，产品出现无输出，确定产品上电插反向的情况会出现大电流；   |  |  |  | | --- | --- | --- | |  |  |  | | 正常启动电流/正常 | 插反时启动电流/大电流 | 插反通电后在正常测试启动电流 | | | | | | | | | | | | | | | | | | | | | | |
| **总结阶段Conclusion stage** | | | | | | | | | | | | | | | | | | | | | |
| **发生原因**  **True cause** | | 1#样品大电流是产品插反向导致；  2#样品复测输出正常，未发现无输出的现象；  3#样品无输出是晶体本体不良，不良晶体寄给厂商做具体失效分析； | | | | | | | | | | | | | | | | | | | |
| **D5：选择永久改善措施 Choose permanent corrective action** | | | | | | | | | | | | | | | | | | | | | |
| (措施需要与D4原因相对应 Measures need to correspond to D4 causes) | | | | | | | | | | | | | | | | | | | | | |
| **类型**  **Type** | | **内容**  **Content** | | | | | | | | | | | | | | | **责任人**  **Who** | | | **执行日期**  **When** | |
| **纠正措施**  **Corrective measures** | | 1.制作产品Pin脚示意图，请客户给员工宣导，产品使用注意事项；    2.晶体不良带厂商回复分析报告后拟定措施； | | | | | | | | | | | | | | | 周闯 | | |  | |
| **D6：实施并验证永久措施 Implement & Validate permanent corrective action** | | | | | | | | | | | | | | | | | | | | | |
| (对措施的落实情况和效果进行确认，若不能达到改善效果，依PDCA原则重新拟定 The implementation and effect of the measures shall be confirmed. If the improvement effect cannot be achieved, it shall be reformulated according to the PDCA principle) | | | | | | | | | | | | | | | | | | | | | |
| **类型**  **Type** | | | **跟进结果**  **Follow result** | | | | | | | | | | | | | | **责任人**  **Who** | | | **跟进日期**  **When** | |
| **预防措施**  **Preventive measures** | | |  | | | | | | | | | | | | | | 周闯 | | |  | |
| **D7：预防再发生 Prevent recurrence** | | | | | | | | | | | | | | | | | | | | | |
| (将可行措施标准化、经验宣导、以及对类似问题横向扩展Standardization of feasible measures, dissemination of experience, and horizontal expansion of similar issues) | | | | | | | | | | | | | | | | | | | | | |
| **事项**  **Project** | | | **内容**  **Content** | | | | | | | | | | | | | | **责任人**  **Who** | | | **执行日期**  **When** | |
| **标准化**  **Standardization** | | |  | | | | | | | | | | | | | |  | | |  | |
| **D8：效果跟踪及关闭Effect confirmation closed** | | | | | | | | | | | | | | | | | | | | | |
| (跟进上述事项均已落实，将资料存档，闭环Follow up the above matters have been implemented, file the data, close the loop) | | | | | | | | | | | | | | | | | | | | | |
| **跟进人**  **Follow up** | | | | | | **跟进日期**  **Follow up date** | | | | **审核人**  **Approved** | | | | **审核日期**  **Approved date** | | | | | | | |
| 周闯 | | | | | | 2021/04/12 | | | |  | | | |  | | | | | | | |