

可靠性试验报告

Reliability Test Report

报告编号	RA2022070504
Report Number	
委托方	合肥聆思半导体技术有限公司
Consigner	
产品型号	LS98003
Part Number	
产品批号	NPS2211058N-01
Lot Number	
封装形式	QFN
Package type	
检验性质	转量产可靠性验证
Test Nature	
接样日期	2022/7/7
Receive Date	
检测日期	2022/7/12~2022/8/31
Test Duration	

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日期: 2022/9/14
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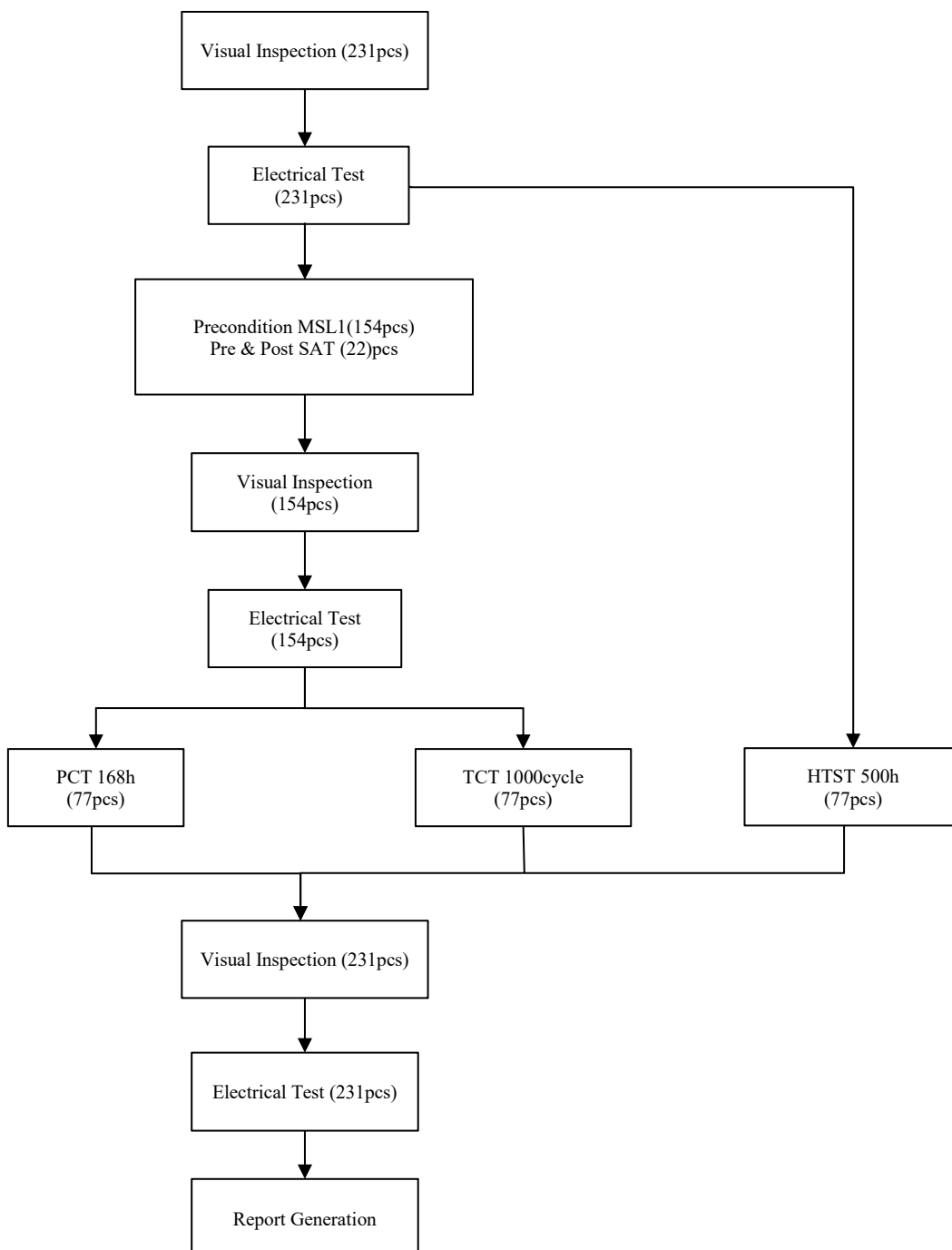


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试验流程图 Test Flow Figure



可靠性试验报告

Reliability Test Report

1. 目的 Purpose

LS98003 转量产可靠性验证

Perform the mass product reliability test for LS98003

2. 可靠性试验 Reliability Test

2.1. 样品信息 sample Information

产品型号 Part Number	产品批号 Lot Number	封装形式 Package Type	试验数量 Sample Size
LS98003	NPS2211058N-01	QFN	231

2.2. 材料信息 Material information

序号 NO	材料名称 Material name	信息 Information
1	引线框架 L/F	QFN-8L-1.3X1.3-A_FC
2	料饼 Compound	CEL-9220HF13X-D-M3 14mm*6.5g
3	粘胶 Bonding Material	TACFLUX 026S
4	芯片型号 Chip Number	Si
5	芯片尺寸 Chip Size	1090X1050um

2.3. 试验汇总 Test Summary

2.3.1 试验环境条件 Test environment conditions

温度Temp: 21.2℃~25.8℃

湿度Humi: 56.8%RH~62.1%RH

2.3.2 试验结果 Test Result

试验项目 Test Items	试验条件 Test condition	数量 S.S	判定 Acc/Re	SAT Result	外观 VI Result	电性测试 FT Result
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					Fail	Pass	Fail	Pass
Precondition MSL1	Bake: 125°C, 24h Soak: 85°C, 85%RH 168h Reflow: 260°C, 3 times	154	0/1	PASS	0	154	0	154
TCT	-55°C~125°C, soak mode3, 30min/cycle,1000cycles	77	0/1	NA	0	77	0	77
PCT	121°C 100%RH, 205kPa, 168h	77	0/1	NA	0	77	0	77
HTST	150°C, 500h	77	0/1	NA	0	77	0	77
Solderability	93°C, 100%RH, 8h	5	0/1	NA	0	5	-	-

备注：电性测试结果由试验委托方提供结果并保证

Remark: Electrical test result was proved and guaranteed by consigner

2.4. 试验描述 Test Description

2.4.1. Precondition MSL1

◆ 试验方法 Test Method

JESD22-A113I-2020 Preconditioning of Nonhermetic Surface Mount Devices Prior to Reliability Testing

J-STD-020E-2014 Moisture/Reflow Sensitivity Classification for Nonhermetic Surface Mount Devices

◆ 试验条件 Test Condition

Step 1: Bake => 125°C, 24h

Step 2: Soak => 85°C/85%RH, 168h

Step 3: reflow => 260°C, 3 times

◆ 试验日期 Test Duration

2022.07.12 ~ 2022.07.20

2.4.2. PCT (Accelerated Moisture Resistance - Unbiased Autoclave)

◆ 试验方法 Test Method

JESD22-A102D Accelerated Moisture Resistance - Unbiased Autoclave

◆ 试验条件 Test Condition

121°C, 100%RH,168h

◆ 试验日期 Test Duration

2022.08.11~ 2022.08.18

2.4.3. TCT (TEMP. Cycles Test)

◆ 试验方法 Test Method

JESD22-A104F-2020Temperature Cycling

◆ 试验条件 Test Condition

-55°C ~ 125°C, soak mode 3,30min/cycle, 1000 cycles

◆ **试验日期 Test Duration**

2022.08.09~ 2022.08.31

2.4.4. HTST (High Temp. Storage Test)

◆ **试验方法 Test Method**

JESD22-A103E-2020 High Temperature Storage Life

◆ **试验条件 Test Condition**

150°C, 500h

◆ **试验日期 Test Duration**

2022.07.13 ~ 2022.08.03

3. 结论 Conclusion

- (1) LS98003产品预处理MSL1前后SAT扫描未发现明显异常（见附录一）；

There is no obvious abnormality by SAT before and after precondition MSL1 (see Appendix one) ；

- (2) LS98003产品可靠性试验后客户测试 Pass。

LS98003 Product customer Test Pass after Reliability Test。

- (3) LS98003产品易焊性试验爬锡面积大于95%，结果Pass（见附录二）。

The solder area of LS98003 product is more than 95% in the Solder ability test, and the result is Pass
(see Appendix two)

附录一：超声波检测报告

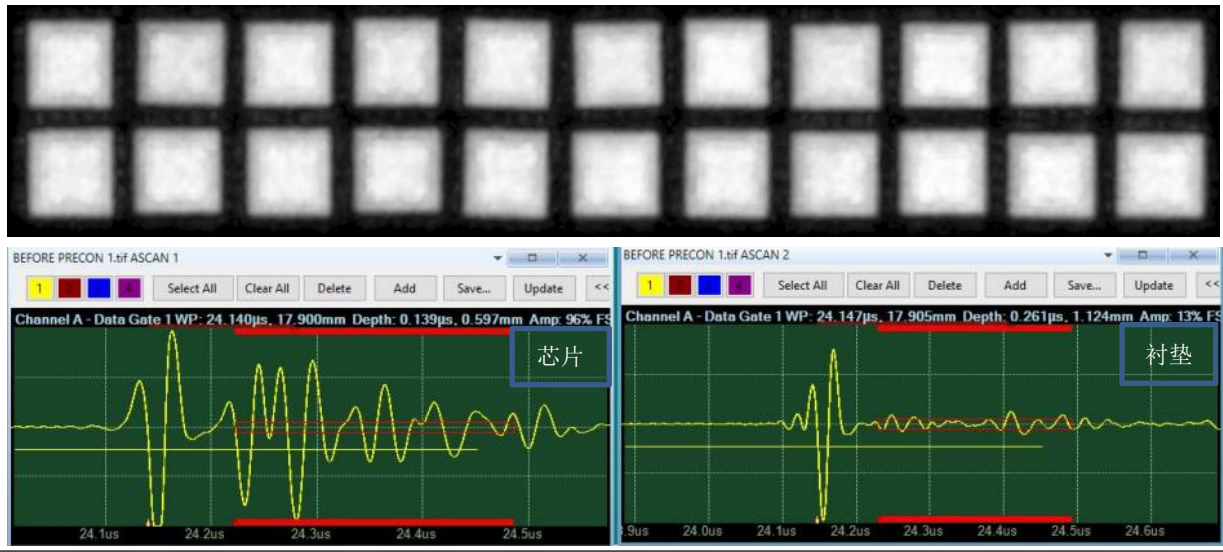
Appendix One: C-SAM Detection Report

1. 产品检测信息 Product & Inspection Information

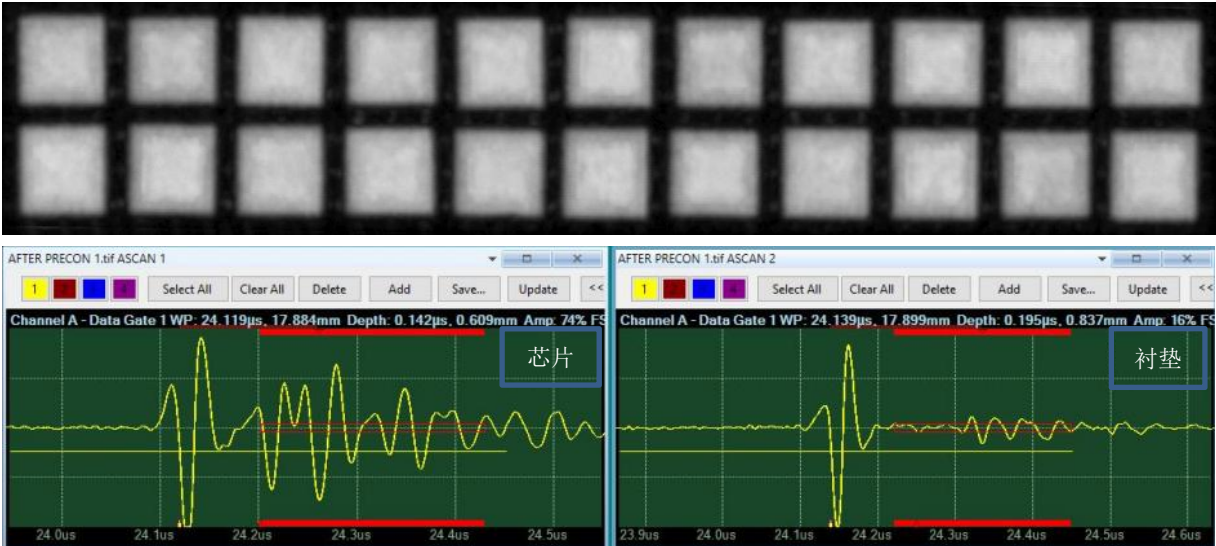
产品型号 Part Number	产品批号 Lot Number	封装形式 Package Type	试验数量 Sample Size
LS98003	NPS2211058N-01	QFN	22
检测者 Detector	日期 Date	探头频率 Transducer frequency	—
尹荣芳	2022年7月12日	75MHz	

2. 扫描检测结果 Detection Description

2.1 预处理MSL1前超声波扫描图片 CSAM picture before precondition MSL1

C-Scan Picture	检测情况 Description
	MSL1试验前SAT扫描未发现明显异常

2.2 预处理MSL1前超声波扫描图片 CSAM picture after precondition MSL1

C-Scan Picture	检测情况 Description
	MSL1试验 后SAT扫描 未发现明 显异常

附录二：可焊性试验

Appendix Two: Solder ability

◆ 试验方法 Test Method

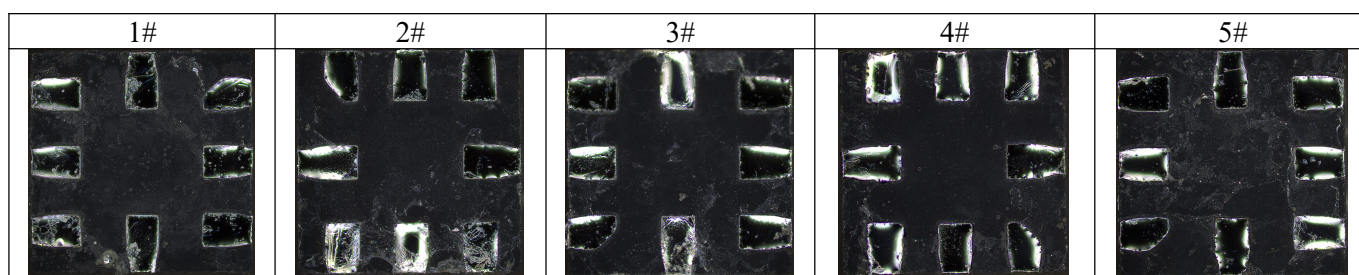
JESD22 -B102E Solder ability

◆ 试验条件 Test Condition

93°C, 100%RH, 8h

◆ 试验日期 Test Duration

2022.7.23 ~ 2022.7.24



附录三：试验/检测设备

Appendix Three: Test/Inspection Device

型号 Type	名称 Name	编号 No.
BX53M	OM金像显微镜 OM microscope	FA006
UH-225A	恒温恒湿试验箱 Temp. & Humi. Tester	FA002
UYT-202	高温试验箱 High Temp. Tester	FA003
UT-80A	高低温试验箱 High and low Temp. Tester	FA004
EHS-222MD	高加速寿命试验箱 Highly Accelerated Stress Tester	FA005
EC-25EXH	恒温恒湿试验箱 Temp. & Humi. Tester	FA009
UT-408-A	高低温交变湿热试验箱 High and low Temp. & Humi. Tester	FA010
UT-216DF	充氮气高温试验箱 Nitrogen filled high Temp. Tester	FA015
EHS-222MD	高加速寿命试验箱 Highly Accelerated Stress Tester	FA016
U2S-100-W	高低温循环试验箱 High and low Temp. Cycle Tester	FA017
U2S-100-W	高低温循环试验箱 High and low Temp. Cycle Tester	FA018
SONIX-ECHO LS™ SAM	扫描声学显微镜 Scanning Acoustic Microscope	FA019
UTH-225-A	高低温交变湿热试验箱 High and low Temp. & Humi. Tester	FA020
SIK300	全热风回流焊 Reflow tester	2RF001

---The end---