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信頼性試験成績書

90nm Process Technology Product and Package

Legacy Fujitsu Reliability Engineering Test Report

Wafer Process : Mie Fujitsu
Assembly : Tong Fu

Reliability Test 1

Device Type : MCU 1
Package Type : Plastic LQFP-208 Package

Test Item	Test Condition	Tested Number		Tested Time	Failed Number
High Temperature Operation Life 高温連続動作試験	125 ℃ V_{DD}=Maximum Rating	231 (77x3Lots)	(a)	1000h	0
Temperature Humidity Bias 高湿連続動作試験	85 ℃ / 85% RH V_{DD}=Maximum Rating	138 (46x3Lots)	(a)	1000h	0
Low Temperature Operation Life 低温連続動作試験	-55℃ V_{DD}=Maximum Rating	78 (26x3Lots)	(a)	1000h	0
High Temperature Storage 高温保存試験	150 ℃	231 (77x3Lots)	(a)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	231 (77x3Lots)	(a)	500cyc	0
Pressure Cooker Test	130℃, 85%RH: 2.33E5 Pa	231 (77x3Lots)	(a)	96h	0
Pressure Cooker Test with Bias	130℃, 85%RH: 2.33E5 Pa V_{DD}=Maximum Rating	99 (33x3Lots)	(a)	96h	0

(a) Pre-condition:

Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +Reflow 260℃ Max x3

Reliability Test 2

Device Type : MCU 2
Package Type : Plastic LQFP-100 Package

Test Item	Test Condition	Tested Number		Tested Time	Failed Number
High Temperature Operation Life 高温連続動作試験	125 ℃ V_{DD}=Maximum Rating	77	(b)	1000h	0
Temperature Humidity Bias 高湿連続動作試験	85 ℃ / 85% RH V_{DD}=Maximum Rating	46	(b)	1000h	0
Low Temperature Operation Life 低温連続動作試験	-55℃ V_{DD}=Maximum Rating	77	(b)	1000h	0
High Temperature Storage 高温保存試験	150 ℃	77	(b)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	77	(b)	500cyc	0
Pressure Cooker Test	130℃, 85%RH: 2.33E5 Pa	77	(b)	96h	0
Pressure Cooker Test with Bias	130℃, 85%RH: 2.33E5 Pa V_{DD}=Maximum Rating	33	(b)	96h	0

(b) Pre-condition:

Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +Reflow 260℃ Max x3

Reliability Test 3

Device Type : MCU 3
Package Type : Plastic LQFP-120 Package

Test Item	Test Condition	Tested Number		Tested Time	Failed Number
High Temperature Storage 高温保存試験	150 ℃	77	(c)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	77	(c)	500cyc	0
Pressure Cooker Test	110℃, 85%RH: 1.20E5 Pa	77	(c)	264h	0

(c) Pre-condition:

Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +Reflow 260℃ Max x3

Reliability Test 4

Device Type : MCU 4
Package Type : Plastic LQFP-144 Package

Test Item	Test Condition	Tested Number		Tested Time	Failed Number
High Temperature Storage 高温保存試験	150 ℃	77	(d)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	77	(d)	500cyc	0
Pressure Cooker Test	130℃, 85%RH: 2.33E5 Pa	77	(d)	264h	0

(d) Pre-condition:

Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +Reflow 260℃ Max x3

Reliability Test 5

Device Type : MCU 5
Package Type : Plastic QFP-100 Package

Test Item	Test Condition	Tested Number		Tested Time	Failed Number
High Temperature Operation Life 高温連続動作試験	125 ℃ V_{DD}=Maximum Rating	77	(e)	1000h	0
Temperature Humidity Bias 高湿連続動作試験	85 ℃ / 85% RH V_{DD}=Maximum Rating	46	(e)	1000h	0
High Temperature Storage 高温保存試験	150 ℃	77	(e)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	77	(e)	500cyc	0
Pressure Cooker Test	130℃, 85%RH: 2.33E5 Pa	77	(e)	96h	0
Pressure Cooker Test with Bias	130℃, 85%RH: 2.33E5 Pa V_{DD}=Maximum Rating	33	(e)	96h	0

(e)Pre-condition:

Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +Reflow 260℃ Max. x3

Endurance + Data Retention Test

Device Type : Test Chip
Package Type : Plastic QFP-100 Package

Test Condition (Ta)	Tested Number	Failed Number
1Kcyc (125℃) + Data Retention Bake : 1344h (150℃)	231 (3Lots)	0
10Kcyc (125℃) + Data Retention Bake : 672h (150℃)	231 (3Lots)	0
100Kcyc (125℃) + Data Retention Bake : 336h (150℃)	231 (3Lots)	0
125℃, 100Kcyc + HTOL : 1000h (125℃)	231 (3Lots)	0

Document History Page

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Document Number: 002-19997

Rev.	ECN No.	Orig. of Change	Description of Change
**	5769103	KUMI	Initial release.