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信頼性試験成績書

0.18um Process Technology Product and Package

Legacy Fujitsu Reliability Engineering Test Report

Wafer Process : Aizu Fujitsu
Assembly : Tong Fu

Reliability Test 1

Device Type : MCU 1
Package Type : Plastic QFN-48 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	(a)	1000h	0
Temperature Humidity Bias 高湿連続動作試験	85 ℃ / 85% RH V_{DD}=Maximum Rating	46	(a)	1000h	0
Low Temperature Operation Life 低温連続動作試験	-55 ℃ V_{DD}=Maximum Rating	26	(a)	1000h	0
High Temperature Storage 高温保存試験	150 ℃	77	(a)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	77	(a)	500cyc	0
Pressure Cooker Test	121℃, 100%RH: 2.03E5 Pa	77	(a)	168h	0
Pressure Cooker Test with Bias	130℃, 85%RH: 2.33E5 Pa V_{DD}=Maximum Rating	33	(a)	96h	0

(a) Pre-condition: Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +IR 260℃ Max. x3

Reliability Test 2

Device Type : MCU 2
Package Type : Plastic SOP-24 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	26	(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	121℃, 100%RH, 2.03E5Pa	77	(b)	168h	0
HAST	130℃, 85%RH V_{DD}=Maximum Rating	33	(b)	96h	0

(b) Pre-condition: Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +IR 260℃ Max.
+Moisture Absorption (30℃/70%RH, 168h) +IR 260℃ Max.

Reliability Test 3

Device Type : MCU 3
Package Type : Plastic LQFP-64 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	(c)	1000h	0
Temperature Humidity Bias 高湿連続動作試験	85 ℃ / 85% RH V_{DD}=Maximum Rating	46	(c)	1000h	0
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
Unbiased HAST	110℃, 85%RH	77	(c)	264h	0
HAST	110℃, 85%RH V_{DD}=Maximum Rating	33	(c)	264h	0

(c) Pre-condition: Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +IR 260℃ Max. x3

Reliability Test 4

Device Type : MCU 4
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	(d)	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	77	(d)	500cyc	0
Pressure Cooker Test	121℃, 100%RH, 2.03E5Pa	77	(d)	168h	0

(d) Pre-condition: Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +IR 260℃ Max. x3

Reliability Test 5

Device Type : MCU 5
Package Type : Plastic TSSOP-24 Package

Test Item	Test Condition	Tested Number		Tested Time	Failed Number
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
Unbiased HAST	130℃, 85%RH,	77	(e)	96h	0

(e) Pre-condition: Baking (125℃, 24h) +Moisture Absorption (30℃/70%RH, 192h) +IR 260℃ Max. x3

Reliability Test 6

Device Type : MCU 6
Package Type : Plastic SDIP-48 Package

Test Item	Test Condition	Tested Number	Tested Time	Failed Number
High Temperature Storage 高温保存試験	125 ℃	11	1000h	0
Temperature Cycling 温度サイクル	-65℃～150℃	54	200cyc	0
Pressure Cooker Test	121℃, 100%RH, 2.03E5pa	54	168h	0

Endurance + Data Retention Test

Device Type : MCU 7
Package Type : Plastic QFP-100 Package

Test Condition (Ta)	Tested Number	Failed Number
1Kcyc (85℃) + Data Retention Bake : 1344h (150℃)	231 (3Lots)	0
10Kcyc (85℃) + Data Retention Bake : 672h (150℃)	231 (3Lots)	0
100Kcyc (85℃) + Data Retention Bake : 336h (150℃)	231 (3Lots)	0

Document History Page

Document Title: Qualification Report of 0.18um technology product with TongFu Package (CU80FUL)
Document Number: 002-20019

Rev.	ECN No.	Orig. of Change	Description of Change
**	5769778	KUMI	Initial release.