

Reliability Qualification Report

for

Mobile LPSDRAM with Pb/Halogen Free

(4M×32, 63nm SDRAM AS4C4M32MSA-6BIN)

1. Information

Product	128Mb Mobile LPSDRAM
Device	AS4C4M32MSA-6BIN
Technology	63nm
Function	4M*32 LPSDRAM

Package Type	90B FBGA
Substrate	BT
Solder Ball	Sn-Ag-Cu solder ball
Molding Compound	Kyocera G1250
Package Size	8*13 mm²

2. Reliability test summary

Test items	Conditions	Number of Lot	Number of Samples	Test Results
EFR with Burn In mode	Ta = 125°C, VDD = 2.0V T = 48hrs	3 lots	1800 1800 1800	0/1800 0/1800 0/1800
EFR without Burn In mode	Ta = 125°C, VDD = 1.1 * VDD T = 48hrs	3 lots	1800 1800 1800	0/1800 0/1800 0/1800
HTOL Test *	Ta = 125°C, VDD = 1.9V T = 1008hrs	3 lots	100 100 100	0/100 0/100 0/100
HTS Test *	Ta= 150°C T = 1008hrs	3 lots	45 45 45	0/45 0/45 0/45
TC Test	-65°C / 150°C* 700cycle	3 lots	45 45 45	0/45 0/45 0/45
HAST Test	130°C / 85% RH 1.1 * VDD t = 96hrs	3 lots	45 45 45	0/45 0/45 0/45
THB Test *	85°C / 85% RH 1.1 * VDD t = 1008hrs	3 lots	45 45 45	0/45 0/45 0/45
PCT Test	Ta=121°C, 15psi 100% RH, 168 hrs	3 lots	45 45 45	0/45 0/45 0/45
ESD Test	HBM V=±2000V	3 lots	3	0/3
			3	0/3
			3	0/3
	MM V=±200V	3 lots	3	0/3
			3	0/3
			3	0/3
	CDM V=±1000V	3 lots	3	0/3
			3	0/3
			3	0/3

2. Reliability test summary(Continued)

Test items	Conditions	Number of Lot	Number of Samples	Test Results
Latch-up Test	Current Injection $I = \pm 150\text{mA}$	3 lots	3 3 3	0/3 0/3 0/3
	PSOV = $\pm 5.3\text{V}$	3 lots	3 3 3	0/3 0/3 0/3
Soft Error Rate [Powerchip Result]	ASER(Accelerated Soft Error Rate) Alpha source : $3.84\text{E}+08$ (alpha/cm ² * hour)	1 lots	1	Less than 3 FIT
Pre-condition	Temp. cycle(-65°C/150°C,5cycle)+ Soak (30°C/60%RH,192hrs)+ IR Reflow(250°C, 3 times)	3 lots	184	0/184