

Reliability Qualification Report

for

Mobile LPDDR with Pb/Halogen Free

(32Mx32, 45nm LPDDR1 AS4C32M32MD1A-5BIN)

1. Information

Product	1Gb Mobile LPDDR
Device	AS4C32M32MD1A-5BIN
Technology	45nm
Function	32M*32 LPDDR

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

2. Reliability test summary

Test items	Conditions	Number of Lot	Number of Fail	Test Results
EFR (with Burn-in mode)	Ta = 125°C Vcc ≥ Vcc max T = 48hrs	1800 * 3lots	0/1800 0/1800 0/1800	Passed
HTOL Test (with Burn-in mode)	Ta = 125°C Vcc ≥ Vcc max T = 1008hrs	77 * 3lots	0/77 0/77 IFR = 47.3 FIT 0/77	Passed
HTS Test	Ta= 150°C T = 1008hrs	45 * 3lots	0/45 0/45 0/45	Passed
TC Test	-65°C / 150°C* 700cycle	45 * 3lots	0/45 0/45 0/45	Passed
HAST Test	Ta=130°C, R.H=85% Bias=1.1*Vcc_typ t = 96hrs	45 * 3lots	0/45 0/45 0/45	Passed
THB Test	Ta=85°C, R.H=85% Bias=1.1*Vcc_typ t = 1008hrs	45 * 3lots	0/45 0/45 0/45	Passed
PCT Test	Ta=121°C, 30psi R.H=100% 168 hrs	45 * 3lots	0/45 0/45 0/45	Passed
ESD Test	HBM V=±2000V	3 * 3lots	0/3 0/3 0/3	Passed
	CDM V=±500V	3 * 3lots	0/3 0/3 0/3	Passed
Latch-up Test	Current Injection I = ± 150mA	3 * 3lots	0/3 0/3 0/3	Passed
	PSOV (VDD1)= ± 2.85V PSOV (VDD2)= ± 2.25V	3 * 3lots	0/3 0/3 0/3	Passed

2. Reliability test summary(Continued)

Test items	Conditions	Number of Lot	Number of Fail	Test Results
Soft Error Rate [Powerchip Result]	ASER(Accelerated Soft Error Rate) Alpha source : 3.84E+08 (alpha/cm2 * hour)	1	Less than 35 FIT	Passed
	ASER(Accelerated Soft Error Rate) Neutron Beam ASER : 1.06E+10(n/cm2)	4	Less than 100 FIT	Passed
Pre-condition	Temp. cycle(-65°C/150°C,5cycle)+ Soak (30°C/60%RH,192hrs)+ IR Reflow(250°C, 3 times)	540	0/540	Passed