

**RER2021 – ASE Kaohsiung (Taiwan)  
xFBGA package  
Bonding Wire procurement flexibility**

**Reliability Evaluation Plan**

**December 01<sup>st</sup>, 2021**

**MDG MCD Quality & Reliability Department**



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## Package Test Vehicles

The reliability strategy has been defined with package related trials on 5 assembly lots from 3 different FE technology.

Test vehicles are dice 413, 435 and 450.

Package line	Assembly Line	Package	Device (Partial RawLine Code)	Diffusion Plant & Process	Number of Reliability Lots
UFBGA	UFBGA 10x10	176+25L	MR*450	M40 Crolles300	3
UFBGA	UFBGA 10x10	176+25L	MR*413	M10 TSMC Fab14	1
UFBGA	UFBGA 7x7	100L	MJ*435	TSMC90 TSMC Fab14	1

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## Package Reliability Trials

Reliability Trial & Standards		Test Conditions	Pass Criteria	Unit per Lot	413 Lot Qt	435 Lot Qt	450 Lot Qt
PC	Pre Conditioning: Moisture Sensitivity Jedec Level 3 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (30°C / 60% RH / 192 hrs) for level 3 Convection reflow: 3 passes	3 passes MSL3	308	1	1	3
uHAST (*)	UnBiased Highly Accelerated Temperature and Humidity Stress JESD22 A118	130°C, 85%RH, 2 atm	96h	77	1	1	3
TC(*)	Thermal Cycling JESD22 A104	-65°C +150°C	500cy	77	1	1	3
THB (*)	Temperature Humidity Bias JESD22-A101	85°C, 85% RH, bias	500/1000h	77	1	1	3
HTSL (*)	High Temperature Storage Life JESD22 A103	150°C- no bias	500/1000h	77	1	1	3
Construction analysis	Internal ST specifications	NA	NA	10	1	1	1
ESD	ESD Charged Device Model JESD22-C101		Aligned with device datasheet	3	1	1	1

(\*) After preconditioning



# Thank you

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