

RER1909 for PCN10457 ASE Kaohsiung (Taiwan) additional source for WLCSP 12”

Reliability Evaluation Plan

April 03rd, 2019

MDG MCD Quality & Reliability Department

RER1909 ASE Kaohsiung (Taiwan) additional source for WLCSP12 - Package Test Vehicles & Strategy

Test vehicles are selected by Change Review Board based on key parameters such as die size and volumes allowing to qualify the entire product family in WLCSP12.

Similarity strategy will be applied to cover all combinations of Diffusion Plant, Diffusion Process and WLCSP packages listed below:

- TSMC90 6M1T / CMOS M10 Crolles / CMOSF9S Crolles diffusion process
- WLCSP on the same assembly line and using same materials

Package line	Assembly Line	Package	Device (Partial RawLine Code)	Diffusion Plants & Process	Number of Reliability Lots
WLCSP	WLCSP12	72L	3F*415	TSMC90 6M1T	1
		46L	87*435	TSMC90 6M1T	1
		64L	BC*435	TSMC90 6M1T	1
		90L	RI*413	CMOSM10 Crolles	1
		49L	51*447	CMOSF9S Crolles	1

RER1909 ASE Kaohsiung (Taiwan) additional source for WLCSP12 - Package Reliability Trials

Reliability Trial & Standard		Test Conditions	Pass Criteria	Units per Lot	Lot qty
PC	Pre Conditioning: Moisture Sensitivity Jedec Level 1 J-STD-020/ JESD22-A113	Bake (125°C / 24h) Soak (85°C / 85% RH / 168h) for level 1 Convection reflow: 3 passes with Jedec level 1	3 Passes MSL1	308	1 per device
UHAST (*)	Unbiased Highly Accelerated Temperature & Humidity Stress JESD22-A118	130°C, 85%RH, 2 Atm	96h	77	1 per device
TC (*)	Thermal Cycling JESD22-A104	-65°C +150°C	500Cy	77	1 per device
THB (*)	Temperature Humidity Bias JESD22-A101	85°C, 85% RH, bias	1000h	77	1 per device
HTSL (*)	High Temperature Storage Life JESD22-A103	150°C - no bias	1000h	77	1 per device
Construction Analysis	JESD22-B102 JESD22-B100/B108	Including Solderability & Physical Dimensions	No concern	50	1 per device
ESD CDM	ESD Charge Device Model ANSI/ESD STM5.3.1 Or JESD22-C101 Or JEDEC JS-002	Aligned with device datasheet	250V to 500V	3	1 per device

(*) Tests performed after preconditioning

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**ASE Kaohsiung (Taiwan) additional source for
WLCSP12” listed products**

MDG - Microcontrollers Division (MCD)

What are the changes?

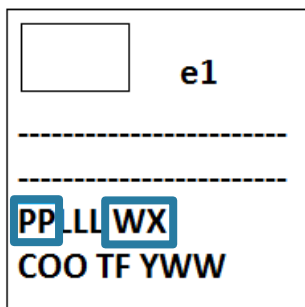
Changes described in the below table:

	Current back-end source			Added back-end site
	Assembly site	Stats ChipPAC Singapore WLCSP 8”	Amkor Taiwan T3 WLCSP12”	ASE Kaohsiung Taiwan WLCSP8”
Solder ball	SACN125	SAC405 SACN125	SAC405	SAC405
Passivation	PI	PBO	PI	Low Temp PI
Redistribution layer thickness	Standard Copper RDL	Standard Copper RDL	Thick Copper RDL	Thick Copper RDL
Enhanced traceability in marking	No		Yes - 2 digits ⁽¹⁾	Yes - 2 digits ⁽¹⁾

(1) added only for package those X,Y are beyond 3.8mm x 3.8mm

How can the change be seen?

The standard marking is



PP code indicates the Assembly traceability plant code.

WX code indicates the Diffusion traceability plant code.

Please refer to the [DataSheet](#) for marking details.

The marking is changing as follows:

Existing		Additional	
PP code	Fab	PP code	Fab
A3	Amkor Taiwan T3	AA	ASE Kaohsiung Taiwan WLCSP12"
8N	Stats ChipPAC SCS (Singapore)		
AA	ASE Kaohsiung Taiwan WLCSP8"		

In case parts **PP** code is AA then check **WX** code

Existing		Additional	
WX code	Fab	WX code	Fab
VG	ASE Kaohsiung Taiwan WLCSP8"	VQ or 9R	ASE Kaohsiung Taiwan WLCSP12"

How to order samples?

For all samples request linked to this PCN, please:

- place a **Non-standard** sample order (choose Sample Non Std Type from pull down menu)
- insert the PCN number "**PCN 10457**" into the NPO Electronic Sheet/**Regional Sheet**
- request sample(s) through Notice tool, indicating a single Commercial Product for each request

Partial Ship: 01 Price Pol: 05 Status: 01 Canc:

%: 0 Sample Type: Sample Non Std Type

Closing Type: Sample Std Type
Sample Non Std Type
Sample Non Std w Spl Tests

Lab Sheet:

SO | NPO Sample

Header
SO Nr: 8018502433 Customer: 99770200 01 ST-TOKYO SO Type: 30 Sample Order Cost Center: JT3129 SAMPLES /SALES J

PO Nr: JT3129/Tokumitsu/AX35_NidecSank Carrier Code: 0001 Price Policy: 05 Currency: 02 U.S. DOLLAR Req Name: Tokumitsu

Notes: Status: 01 All items pending,ni Issuing Date: 25-JUN-2018 Ord Val: 0.0000 Sample Req Date: 25-Jun-2018

Sch I Nr	PO I. Nr.	Finished Good	Comm Qty	Open Qty	Plant Open Qty	Reqd Qty	Unit Price	RD	CD	EDD	St
1.1.10	000001	STM32F429NIH6	30	30	30	30	0.0000	25-Jun-18	01-Mar-59	01-Mar-59	01

Final Cust:
PO Item: 000001 Comm Prod: STM32F429NIH6 Qty: 30 RD: 25-Jun-18 Unit Price: 0.0000 Final Cust: 8800367006 SANSHIN/NPC

Cust Part Nr: Finished Good: Partial Ship: 01 Price Pol: 05 Status: 01 Canc:

Notes: TAM K Pieces: 0 Dur Share: 0 Sample Type: Sample Non Std Type

Project Name: Closing Date: Closing Type:

Regional Sheet: PCN 10595

Lab Sheet:

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