


PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.	AMS/23/14218	
1.3 Title of PCN	New Bumping Process for LD39130SJxx products (Power Management BU)	
1.4 Product Category	See product list	
1.5 Issue date	2023-07-19	

2. PCN Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Marcello SAN BIAGIO
2.1.2 Marketing Manager	Salvatore DI VINCENZO
2.1.3 Quality Manager	Giuseppe LISI

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Transfer	Line transfer for a full process or process brick (process step, control plan, recipes) from one site to another site: Wafer fabrication	SCS (Stats Chippac Singapore)

4. Description of change

	Old	New
4.1 Description	Printing Bumping Process ASE, Taiwan	Ball Drop Bumping Process SCS (Stats Chippac Singapore)
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No impact on the Electrical, Mechanical, Quality and Reliability Characteristics.	

5. Reason / motivation for change

5.1 Motivation	Following ASE communication about the termination of the current Printing Bumping Process, by DEC 2022, the Power Management BU plans to qualify and implement a New Bumping Process for LDO Devices. The new Bumping process will be implemented in SCS (Stats Chippac Singapore) OSAT. No change to the Package Outline Assembly (mechanical) and electrical characteristics (datasheet). No other change is made with respect to this PCN. Wafer diffusion as well as Testing & Finishing/ DPS remain unchanged both in terms of flow and location
5.2 Customer Benefit	SERVICE CONTINUITY

6. Marking of parts / traceability of change

6.1 Description	The traceability of the new parts will be ensured by physical Die Level and Lot Level codification.
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7. Timing / schedule

7.1 Date of qualification results	2023-07-12
7.2 Intended start of delivery	2023-10-30
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	14218 13522 RER 1705W2022 LD39130SJ18R LD39130SJ33R WLCSP STS rev1.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2023-07-19

9. Attachments (additional documentations)
14218 Public product.pdf 14218 13522 RER 1705W2022 LD39130SJ18R LD39130SJ33R WLCSP STS rev1.pdf

10. Affected parts		
10. 1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	10.1.2 Supplier Part No	10.1.2 Supplier Part No
	LD39130SJ10R	
	LD39130SJ12R	
	LD39130SJ25R	
	LD39130SJ30R	

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Reliability Evaluation Report

 LD39130SJ18R, LD39130SJ33R
 New Bumping Process SCS

General Information		Location	
Product Line	UAD601, UAP101	Wafer Fab	AR2F-Agrate R2
P/N	LD39130SJ33R, LD39130SJ18R	Assembly plant	SCS - Stats Chippac Singapore
Product Division	AMS	Results Reliability Assessment PASS	
Package	Ultra-small CSP 4		
Silicon Process Technology	BCD8SP		

DOCUMENT INFORMATION

Version	Date	Pages	Prepared by	Approved by	Comment
1.0	5/11/2022	4	Ivan Grasso	Giuseppe Lisi	

Note: This report is a summary of the reliability trials performed in good faith by STMicroelectronics in order to evaluate the potential reliability risks during the product life using a set of defined test methods.

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1 APPLICABLE AND REFERENCE DOCUMENTS

Document reference	Short description
JESD47	Stress-Test-Driven Qualification of Integrated Circuits
062-0101 Rev AD	General Qualification Procedure For Integrated Circuits

2 GLOSSARY

	Short description
T _j	Temperature at junction of the device
T _A	Temperature of ambient air
RH	Relative Humidity
V _{cc} max	Max Operative Voltage

3 RELIABILITY EVALUATION OVERVIEW

3.1 Objectives

This document is intended to provide reliability plan for LD39130SJ18R and LD39130SJ33R in BCD8 process technology, a very low quiescent current linear regulator IC in Ultra small CSP 4 at SCS - Stats Chippac Singapore.

3.2 Conclusion

Qualification requirements have been fulfilled without exception. Reliability tests have shown that the devices behave correctly against environmental tests (no failure). The stability of electrical parameters during the accelerated tests demonstrates the ruggedness of the products and safe operation, which is consequently expected during their lifetime.

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4 TESTS RESULTS SUMMARY

ST refers to the JEDEC standard JESD47 when conducting reliability tests for the qualification of new product.

4.1 Test plan and results summary

Table 1. Package qualification tests

Stress (Abb.)	Ref.	Conditions	Requirements				Notes
			# Lot	SS	Duration	Pass Criteria (Fails / Tested)	
MSL Preconditioning Must be performed prior to: THB, HAST, TC, AC, & UHAST	JESD22 A113 J-STD-020	Preconditioning: (Test @ Rm) SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, & PTC; Peak Reflow Temp = 260°C	MSL1				
High Temperature Storage Life (HTSL)	JESD22 A103	T _A ≥ 150°C	3 Lots	231	1000hrs	0/231	
Temperature-Humidity Bias (THB)	JESD22 A101	THB, 85°C, 85% RH V _{cc} max	3 Lots	231	1000hrs	0/231	1
Unbiased HAST (UHAST)	JESD22 A118	130 °C / 85% RH	3 Lots	231	96hrs	0/231	1
Temperature Cycling (TC)	JESD22 A104	G -40°C to +125°C	3 Lots	231	850cycles	0/231	1

Table 2. Assembly integrity Tests

Stress (Abb.)	Ref.	Conditions	Requirements			Notes
			# Lot	SS	Pass Criteria (Fails / Tested)	
Solderability	J-STD-002	>95% Lead coverage	3	5 units / 60 terminations	0/60	
Solder Ball Shear	JESD22 B117	Characterization (all balls for 10 units)	3	5 units / All balls	0/60	

Notes:

1. Preconditioning with soak per J-STD-020 at rated moisture sensitivity level prior to acceleration stress testing.

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Public Products List

Public Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

PCN Title : New Bumping Process for LD39130SJxx products (Power Management BU)

PCN Reference : AMS/23/14218

Subject : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

LD39130SJ10R	LD39130SJ30R	LD39130SJ41R
LD39130SJ12R	LD39130SJ29R	LD39130SJ25R

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