

PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	 STMicroelectronics International N.V
1.2 PCN No.	ANALOG MEMS SENSORS/24/14686
1.3 Title of PCN	Qualification of Carsem China for Assembly & Test of selected product in Small QFN package
1.4 Product Category	See product list
1.5 Issue date	2024-04-11

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
2.2.2 Marketing Manager	Salvatore DI VINCENZO
2.2.3 Quality Manager	Jean-Marc BUGNARD

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Transfer	Product transfer from one site to another site, even if test or process line is qualified	Current : ST Calamba New : Carsem China

4. Description of change

	Old	New
4.1 Description	Assembly & Test plant : - ST Calamba	Assembly & Test plant : - Carsem China
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No impact	

5. Reason / motivation for change

5.1 Motivation	To increase Assembly and Test Volume Capacity for SQFN products
5.2 Customer Benefit	MANUFACTURING FLEXIBILITY

6. Marking of parts / traceability of change

6.1 Description	New Finished good codes
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7. Timing / schedule

7.1 Date of qualification results	2024-04-03
7.2 Intended start of delivery	2024-07-15
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	14686 RER 6088-1835-W-2023_New Assembly plant CARSEM CHINA for Small QFN_TS33.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2024-04-11

9. Attachments (additional documentations)

14686 Public product.pdf
14686 RER 6088-1835-W-2023_New Assembly plant CARSEM CHINA for Small QFN_TS33.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
	TS3320AQPR	
	TS3330AQPR	
	TS3333AQPR	

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Public Products List

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PCN Title : Qualification of Carsem China for Assembly & Test of selected product in Small QFN package

PCN Reference : ANALOG MEMS SENSORS/24/14686

Subject : Public Products List

Dear Customer,

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

TS3333AQPR	TS3320AQPR	TS3330AQPR
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Reliability Evaluation Report

TS3312AQPR, TS3325AQPR
QFPN 1.5X1.5 8L CARSEM - CHINA

General Information		Location	
Product Line	U1L6, U1L9	Wafer Fab	Catania CTM8 8
P/N	TS3312AQPR, TS3325AQPR	Assembly plant	CARSEM - CHINA
Product Division	AMS	Results	
Package	QFPN 1.5X1.5 8L	Reliability Assessment	
Silicon Process Technology	BCD6S	PASS	

DOCUMENT INFORMATION

Version	Date	Pages	Prepared by	Comment
1.0	3/29/2024	4	Quality AMS	Final Report

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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4.2 APPENDIX 1	ERROR! BOOKMARK NOT DEFINED.

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1 APPLICABLE AND REFERENCE DOCUMENTS

Document reference	Short description
JESD47	Stress-Test-Driven Qualification of 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 evaluation report of New Assembly plant CARSEM - CHINA for small QFN (VFQFPN 1.5X1.5X0.55 8L) package.

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 (Abbv.)	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 = 260C	MSL1				
High Temperature Storage Life (HTSL)	JESD22 A103	T=150°C	3	231	168hrs 500hrs 1000hrs	0/231 0/231 0/231	
Unbiased HAST (UHAST)	JESD22 A118	110 °C / 85% RH	3	231	264hrs	0/231	1
Temperature Cycling (TC)	JESD22 A104	-40°C to +125°C, 2c/h	3	231	500 cycles 850 cycles	0/231 0/231	1
Temperature Humidity bias (THB)	JESD22-A101	85 °C, 85 % RH, Vcc max	3	231	168hrs 500hrs 1000hrs	0/231 0/231 0/231	1
High Temperature Operation Life (HTOL)	JESD22-A108	Tj=125°C, Vcc≥1.2Vcc max	3	231	168hrs 500hrs 1000hrs	0/231 0/231 0/231	

Table 2. Assembly integrity Tests

Stress (Abbv.)	Ref.	Conditions	Requirements			Notes
			# Lot	SS	Pass Criteria (Fails / Tested)	
Solderability	J-STD-002	>95% Lead coverage	3	15 units / All Lead	PASS	
WBP	Mil-STD-883, Method 2011	30 wires, characterization	3	30 units / All bonds	PASS Cpk>1.67	
WBS	JESD22-B116	30 balls, characterization	3	30 units / All bonds	PASS Cpk>1.67	
Physical dimension	JESD22-B100	Meet all outline drawing tolerances	3	30 units	PASS Cpk>1.67	

Notes:

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

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