PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data	
1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	DIGITAL ICS AND RF/24/14843
1.3 Title of PCN	FDA801xx-VYT / TSL001B-VYT / HFDA801x-VYT (UR50/UR76): Activation of Additional Diffusion Fab (SG8 - Singapore)
1.4 Product Category	see list
1.5 Issue date	2024-07-17

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	Lorenzo MOIOLI
2.1.2 Marketing Manager	Valeria SCARCELLI
2.1.3 Quality Manager	Alberto MERVIC

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 (SOP 2617)	Sending Fab: ST Agrate AG200 (Italy) Receiving Fab: ST Singapore SG8 AngMoKio (Singapore)

4. Description of change		
	Old	New
4.1 Description	Diffusion Plant AG200 Agrate - Italy	Diffusion Plant AG200 Agrate (Italy) and SG8 AngMoKio (Singapore)
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No Impact	

5. Reason / motivation for change	
5.1 Motivation	Dual source service improvement
5.2 Customer Benefit	DOUBLE SOURCING

6. Marking of parts / traceability of change	
6.1 Description	Dedicated Finished Good codes

7. Timing / schedule	
7.1 Date of qualification results	2025-04-12
7.2 Intended start of delivery	2025-04-19
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation			
8.1 Description			
8.2 Qualification report and qualification results	In progress	Issue Date	

9. Attachments (additional documentations)
14843 Public product.pdf 14843 Details.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
	FDA801B-VYT	
	HFDA801A-VYT	
	FDA801-VYT	
	FDA801S-VYT	

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Product/process change notification:

FDA801xx-VYT / TSL001B-VYT / HFDA801x-VYT (UR50 / UR76): Activation of Additional Diffusion Fab (SG8 - Singapore)

DIGITAL ICS AND RF/24/14843

Product family	Technology	Package
See list	BCD9s	LQFP 64 LEADS 10X10X1.4 EP UP

(optional)

Description of the change

Activation (product transfer) of ST SG8 - Singapore diffusion source.

Technology already presents in ST SG8 in high volumes and automotive qualified.

Regarding products belonging to silicon line UR50, will be implemented a product optimization from silicon revision BB to BC

Reason

Double source strategy applied

Date of implementation

Change activation proposed by wk15 / 2025

Impact of the change	
Form	No Impact
Fit	No Impact
Function	No Impact
Reliability	No Impact
Processibility	No Impact

Qualification of the change

According to AEC Q100 - see reliability test plan

Qualification activity will be completed on wk 15 / 2025

Samples availability on wk 45 /2024

Automotive Electronics Council

Component Technical Committee

Q100 Qualification Test Plan

Automotive Grade Level = 2 -40°C to +105°C MSL = 3

Supplier Name:	STMicroelectronics	**General Specification:**	AEC-Q100 Rev. J
Supplier Code:	UR50 - UR76	**Supplier Wafer Fabrication:**	ST - SG8 AngMoKio (Singapore)
Supplier Part Number:			
Supplier Contact:	V. Scarcelli	**Supplier Assembly Site:**	ST-Muar
Supplier Family Type:	Class D Audio Power Amplifier		
Device Description:		**Supplier Reliability Signature:**	T. Mandrini
Reason for Qualification:	Diffusion plant transfer	**Date:**	25 Jan 2024

Test	#	Reference	Test Conditions	Lots	S.S.	Total	Results Lot/Pass/Fail	Comments: (N/A =Not Applicable)
TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS								
PC	A1	JESD22 A113 J-STD-020	Preconditioning: (Test @ Rm) SMD only; Moisture Preconditioning for TC, THB, AC, HTRB, PTC and HTOL; Peak Reflow Temp = 260°C	Min. MSL = 3			MSL = 3	+ 100cy after reflow
THB	A2	JESD22 A101	Temperature Humidity Bias: (Test @ Room/Hot) 1000h, 85°C/85% R.H.	3	77	231	of	1 lot UR50 + 2 lots UR76 extended up to 2000h
UHST	A3	JESD22 A118	Unbiased Highly Accelerated Stress Test: (Test @ Room) 96h	3	77	231	of	1 lot UR50 + 2 lots UR76
TC	A4	JESD22 A104	Temperature Cycle: (Test @ Room/Hot) 1000cy, -55°C / +150°C	3	77	231	of	1 lot UR50 + 2 lots UR76 extended up to 2000cy
PTC	A5	JESD22 A105	Power Temperature Cycle (Test @ Room/Hot) 1000cy of 1h, Tj=-40°C / 150°C)	1	45	45	of	1 lot UR76 extended up to 2000h
HTSL	A6	JESD22 A103	High Temperature Storage Life: (Test @ Room/Hot) 1000h, Tj=150°C	3	45	45	of	1 lot UR50 + 2 lots UR76 extended up to 2000h
TEST GROUP B – ACCELERATED LIFETIME SIMULATION TESTS								
HTOL	B1	JESD22 A108	High Temp Operating Life: (Test @ Rm/Cold/Hot) 1000h according to Mission profile[1]	3	77	231	of	1 lot UR50 + 2 lots UR76

Test	#	Reference	Test Conditions	Lots	S.S.	Total	Results Lot/Pass/Fail	Comments: (N/A =Not Applicable)
ELFR	B2	AEC-Q100-008	Early Life Failure Rate: (Test @ Room/Hot)	3	800	2400	of	3 lots UR50
EDR	B3	AEC-Q100-005	NVM Endurance & Data Retention Test: (Test @ Room/Hot)	-	-	-	of	NA

EST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS

WBS	C1	AEC-Q100-001 AEC-Q003	Wire Bond Shear Test: (Cpk > 1.67)	30 bonds	5 parts min.		All measurement within spec limits	Assembly data
WBP	C2	Mil-STD-883, Method 2011 AEC-Q003	Wire Bond Pull: (Cpk > 1.67); Each bonder used	30 bonds	5 parts min.		All measurement within spec limits	Assembly data
SD	C3	JESD22 B102 JSTD-002D	Solderability: (>95% coverage) 8hr steam aging prior to testing	1	15	15	All measurement within spec limits	Assembly data
PD	C4	JESD22 B100, JESD22 B108 AEC-Q003	Physical Dimensions: (Cpk > 1.67)	3	10	30	All measurement within spec limits	Assembly data
SBS	C5	AEC-Q100-010 AEC-Q003	Solder Ball Shear: (Cpk > 1.67); 5 balls from min. of 10 devices	3	50 balls		-	NA
LI	C6	JESD22 B105	Lead Integrity: (No lead cracking or breaking); Through-hole only; 10 leads from each of 5 devices	1	50 leads		-	NA
BST	C7	JEDEC JESD22-B117 or equivalent AEC-Q003	Bump Shear Test (CPK >1.67); 20 bumps/pillars from a minimum of 5 devices	20 bumps/pillars	5 parts min.		-	NA

TEST GROUP D – DIE FABRICATION RELIABILITY TESTS

EM	D1	JESD61	Electromigration	-	-	-	-	Technology qualification data
TDDB	D2	JESD35	Time Dependant Dielectric Breakdown	-	-	-	-	Technology qualification data
HCI	D3	JESD60 & 28	Hot Carrier Injection	-	-	-	-	Technology qualification data
BTI	D4	JESD90	Bias Temperature Instability:	-	-	-	-	Technology qualification data

Test	#	Reference	Test Conditions	Lots	S.S.	Total	Results Lot/Pass/Fail	Comments: (N/A =Not Applicable)
SM	D5	JESD61, 87, & 202	Stress Migration:	-	-	-	-	Technology qualification data

TEST GROUP E- ELECTRICAL VERIFICATION

TEST	E1	User/Supplier Specification	Pre and Post Stress Electrical Test	All	All	All	of	In accordance to product spec
HBM	E2	AEC-Q100-002	Electrostatic Discharge, Human Body Model: (Test @ Room/Hot); (2kV HBM / Class 2 or better) For ≤ 28nm or RF operating frequency:1kV HBM (Classification 1C or better)		See test method		of	Planned both on 1 lot UR50 and 1 lot UR76 Target 2kV HBM
CDM	E3	AEC-Q100-011	Electrostatic Discharge, Charged Device Model: (Test @ Room/Hot); (750V corner leads, 500V all other leads / Class C2A or better) For ≤ 28nm or RF operating frequency:Test Condition 250 (Classification C1 or better)		See test method		of	Planned both on 1 lot UR50 and 1 lot UR76 Target 750V corner leads, 500V all other leads
LU	E4	AEC-Q100-004	Latch-Up: (Test @ Room/Hot)		3		of	Planned both on 1 lot UR50 and 1 lot UR76
ED	E5	AEC-Q100-009 AEC-Q003	Electrical Distributions: (Test @ Room/Hot/Cold) (where applicable, Cpk >1.67)				of	Covered by Electrical Characterization done by Product Eng. Team
FG	E6	AEC-Q100-007	Fault Grading: FG shall be = or > 90% for qual units	-	-	-	-	Diffusion plant transfer of a product already in production with FG in line with requirements.
CHAR	E7	AEC-Q003	Characterization: (Test @ Room/Hot/Cold)				-	Covered by Electrical Characterization done by Product Eng. Team
EMC	E9	SAE J1752/3	Electromagnetic Compatibility (Radiated Emissions)	-	-	-	-	Done at application level according to an internal procedure on the already qualified product
SC	E10	AEC Q100-012	Short Circuit Characterization	-	-	-	-	Done at application level according to an internal procedure on the already qualified product
SER	E11	JESD89-1 JESD89-2 JESD89-3	Soft Error Rate	-	-	-	-	Not Applicable
LF	E12	AEC-Q005	Lead (Pb) Free: (see AEC-Q005)	-	-	-	-	Covered by Test group A & C

Test	#	Reference	Test Conditions	Lots	S.S.	Total	Results Lot/Pass/Fail	Comments: (N/A =Not Applicable)
TEST GROUP F – DEFECT SCREENING TESTS								
PAT	F1	AEC-Q001	Process Average Testing: (see AEC-Q001)	All	All	All	Reject units outside avg.	applied in production
SBA	F2	AEC-Q002	Statistical Bin/Yield Analysis: (see AEC-Q002)	All	All	All	Reject units outside criteria	applied in production
TEST GROUP G – CAVITY PACKAGE INTEGRITY TESTS (for Ceramic Package testing only)								
MS	G1	JESD22 B110	Mechanical Shock: (Test @ Room)	-	-	-		NA
VFV	G2	JESD22 B103	Variable Frequency Vibration: (Test @ Room)	-	-	-		NA
CA	G3	MIL-STD-883 Method 2001	Constant Acceleration: (Test @ Room)	-	-	-		NA
GFL	G4	MIL-STD-883 Method 1014	Gross and Fine Leak	-	-	-		NA
DROP	G5	----------	Drop Test: (Test @ Room) MEMS cavity parts only. Drop part on each of 6 axes once from a height of 1.2m onto a concrete surface.	-	-	-		NA
LT	G6	MIL-STD-883 Method 2024	Lid Torque:	-	-	-		NA
DS	G7	MIL-STD-883 Method 2019	Die Shear	-	-	-		NA
IWV	G8	MIL-STD-883 Method 1018	Internal Water Vapor	-	-	-		NA

1. Mission PROFILE

ASSUMPTIONS:

a. Operating time: 12000h

b. Ambient & Junction temperature spectrum:

Time %	Ambient Temperature T_A [°C]	Junction Temperature T_J [°C]	Time [h]
6%	-40°C	5°C	720h
20%	23°C	68°C	2400h
65%	70°C	115°C	7800h
8%	100°C	145°C	960h
1%	105°C	150°C	120h

c. Activation Energy: 0.7eV

d. Acceleration model: Arrhenius

e. The cooling system on final application is designed to do not exceed Tj=150°C

f. Junction stress temperature: Tstress = 170 °C

Based on the above assumption, **HTOL Duration = 1000h**

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PCN Reference : DIGITAL ICS AND RF/24/14843

Subject : Public Products List

Dear Customer,

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

FDA801B-VYY	FDA801B-VYT	FDA801-VYY
HFDA801A-VYY	HFDA801A-VYT	

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