PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data	
1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	ADG/22/13743
1.3 Title of PCN	TDA7803A-ZST and TDA7803A-ZSX (UAQ8 in PowerSO-36): Activation of Additional Diffusion Fab (CTM8 - Catania)
1.4 Product Category	TDA7803A-ZST and TDA7803A-ZSX
1.5 Issue date	2022-11-10

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	Marcello Donato MENCHISE

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	ST CTM8 - Catania Italy - Receiving Plant

4. Description of change		
	Old	New
4.1 Description	Diffusion Locations Agrate Fab	Diffusion Locations Agrate and CTM8 Catania Fabs
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No Impact	

5. Reason / motivation for change	
5.1 Motivation	Double Source Strategy
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	2023-04-30
7.2 Intended start of delivery	2023-07-07
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)

13743 Public product.pdf
13743 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
	TDA7803A-ZST	
	TDA7803A-ZSX	

IMPORTANT NOTICE – PLEASE READ CAREFULLY

Subject to any contractual arrangement in force with you or to any industry standard implemented by us, STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

PRODUCT/PROCESS CHANGE NOTIFICATION

TITLE	**TDA7803A-ZST and TDA7803A-ZSX (UAQ8 in PowerSO-36): Activation of Additional Diffusion Fab (CTM8 - Catania)**
IMPACTED PRODUCTS	ST silicon line UAQ8 diffused in ST Agrate Fab (BCD8S Auto technology) and assembled in PowerSO 36 .43 SLUG UP package. Commercial products impacted: - TDA7803A-ZST - TDA7803A-ZSX
MANUFACT. STEP	Silicon Diffusion
INVOLVED PLANT	ST CTM8 Catania – Italy, receiving Fab
CHANGE REASON	Dual Sourcing Strategy
CHANGE DESCRIPTION	Activation (product transfer) of ST Catania diffusion source (CTM8). Technology already presents in CTM8 in high volumes and automotive qualified
TRACEABILITY	Dedicated Finished Good Codes (internal part number)
VALIDATION	See relevant qualification plan enclosed
CURRENT PRODUCTS	Current diffusion site (Agrate) will be kept in production to have a full dual source capability
REPORTS	Activity in progress, qualification reports available by end of April 2023
SAMPLES	Available within end of December 2022
IMPLEMENTATION	Change activation proposed within July 2023

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. H
Supplier Code:	UAQ8	**Supplier Wafer Fabrication:**	ST-Catania
Supplier Part Number:	TDA7803A		
Supplier Contact:	V. Scarcelli		
Supplier Family Type:	Power Amplifier		
Device Description:		**Supplier Reliability Signature:**	T. Mandrini
Reason for Qualification:	Diffusion plant transfer	**Date:**	11 May 2022

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				+ 100cy after reflow
THB	A2	JESD22 A101	Temperature Humidity Bias: (Test @ Rm/Hot) 1000h, 85°C/85% R.H.	3	77	231		extended up to 2000h
UHST	A3	JESD22 A118	Unbiased Highly Accelerated Stress Test: (Test @ Rm) 96h	3	77	231		
TC	A4	JESD22 A104	Temperature Cycle: (Test @ Hot) 1000cy, -55°C / +150°C	3	77	231		extended up to 2000cy
PTC	A5	JESD22 A105	Power Temperature Cycle (Test @ Room/Hot) 1000cy of 1h, Ta=-40°C / 85°C (Tj=150°C)	1	45	45		extended up to 2000cy
HTSL	A6	JESD22 A103	High Temperature Storage Life: (Test @ Room/Hot) 1000h, Tj=150°C	3	45	45		3 lots 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		

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 @ Rm/Hot)	3	800	2400	-	Family Data
EDR	B3	AEC-Q100-005	NVM Endurance & Data Retention Test: (Test @ Rm/Hot)	-	-	-	-	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

TEST GROUP D – DIE FABRICATION RELIABILITY TESTS

EM	D1	JESD61	Electromigration	-	-	-	-	Process qualification data
TDDB	D2	JESD35	Time Dependant Dielectric Breakdown	-	-	-	-	Process qualification data
HCI	D3	JESD60 & 28	Hot Carrier Injection	-	-	-	-	Process qualification data
NBTI	D4	JESD90	Negative Bias Temperature Instability:	-	-	-	-	Process qualification data
SM	D5	JESD61, 87, & 202	Stress Migration:	-	-	-	-	Process qualification data

Test	#	Reference	Test Conditions	Lots	S.S.	Total	Results Lot/Pass/Fail	Comments: (N/A =Not Applicable)
TEST GROUP E- ELECTRICAL VERIFICATION								
TEST	E1	User/Supplier Specification	Pre and Post Stress Electrical Test	All	All	All		In accordance to product spec
HBM	E2	AEC-Q100-002	Electrostatic Discharge, Human Body Model: (Test @ Rm/Hot); (2KV HBM / Class 2 or better)		See test method			Planned
CDM	E3	AEC-Q100-011	Electrostatic Discharge, Charged Device Model: (Test @ Rm/Hot); (750V corner leads, 500V all other leads / Class C4B or better)		See test method			Planned
LU	E4	AEC-Q100-004	Latch-Up: (Test @ Rm/Hot)		6			Planned
ED	E5	AEC-Q100-009 AEC-Q003	Electrical Distributions: (Test @ Rm/Hot/Cold) (where applicable, Cpk >1.67)					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 @ Rm/Hot/Cold)				Planned	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 diffused in Agrate.
SC	E10	AEC Q100-012	Short Circuit Characterization	-	-	-	Planned	Done at application level according to an internal procedure
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 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

Test	#	Reference	Test Conditions	Lots	S.S.	Total	Results Lot/Pass/Fail	Comments: (N/A =Not Applicable)
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 B104	Mechanical Shock: (Test @ Rm)	-	-	-	-	NA
VFV	G2	JESD22 B103	Variable Frequency Vibration: (Test @ Rm)	-	-	-	-	NA
CA	G3	MIL-STD-883 Method 2001	Constant Acceleration: (Test @ Rm)	-	-	-	-	NA
GFL	G4	MIL-STD-883 Method 1014	Gross and Fine Leak:	-	-	-	-	NA
DROP	G5	----------	Drop Test: (Test @ Rm) 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 2004	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**

Public Products List

Publict 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 : TDA7803A-ZST and TDA7803A-ZSX (UAQ8 in PowerSO-36): Activation of Additional Diffusion Fab (CTM8 - Catania)
PCN Reference : ADG/22/13743

Subject : Public Products List

Dear Customer,

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

TDA7803A-ZSX	TDA7803A-ZST	

IMPORTANT NOTICE – PLEASE READ CAREFULLY

Subject to any contractual arrangement in force with you or to any industry standard implemented by us, STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.