PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data	
1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	ADG/24/14531
1.3 Title of PCN	L9026 (UR5V): Activation of Additional Assembly Plant (TFME)
1.4 Product Category	L9026-YO-TR
1.5 Issue date	2024-02-16

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	Maurizio GALLINARI
2.1.2 Marketing Manager	Francesco MACINA
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: Assembly site (SOP 2617)	TFME (former NANTONG FUJITSU) - CHINA receiving Plant

4. Description of change		
	Old	New
4.1 Description	Assembly Location: AMKOR ATP1 - PHILIPPINE	Assembly Locations: AMKOR ATP1 - PHILIPPINE, TFME (former NANTONG FUJITSU) - CHINA
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No Impact	

5. Reason / motivation for change	
5.1 Motivation	Capacity Increase
5.2 Customer Benefit	DOUBLE SOURCING

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

7. Timing / schedule	
7.1 Date of qualification results	2024-05-30
7.2 Intended start of delivery	2024-06-30
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)
14531 Public product.pdf 14531 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
	L9026-YO-TR	

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Product/process change notification:

L9026 (UR5V): Activation of Additional Assembly Plant (TFME)

ADG/24/14531

Product family	Technology	Package
L9026-YO-TR	BCD9SL	**HTSSOP 24** 4.4 PITCH 0.65 EXPAD

(optional)

Description of the change

On L9026-YO-TR will be activated an additional assembly location:
TFME - China (former NANTONG FUJITSU)

Reason

Capacity increase

Date of implementation

Within June 2024

Impact of the change

Form	No Impact
Fit	No Impact
Function	No Impact
Reliability	No Impact
Processibility	No Impact

Qualification of the change

Qualification will be completed within May 2024 according to ZVEI and AECQ100 requirements.

See below Qualification Plan

Q100 Qualification Test Plan

Automotive Grade Level = 1 -40 to +125C MSL = 3

Supplier Name:	STMicroelectronics	**General Specification:**	AEC-Q100 Rev. H
Supplier Code:	UR5V	**Supplier Wafer Fabrication:**	ST - AG200
Supplier Part Number:	L9026	**Supplier Assembly Site:**	TFME
		Supplier Final Test Site:	Agrate / Muar
Supplier Family Type:	Multi-channel drivers	**Supplier Wafer Test:**	Agrate / AMK
Device Description:	**MCD 8 channels low side driver**		
Reason for Qualification:	BE transfer	**Date:**	14-Mar-2022 (initial release) 17-Jan-2024

Test	#	Reference	Test Conditions	Requirements			Comments	L9026 HTSSOP24	Notes
				Lots	S.S.	Total			
PC	A1	JESD22 A113 J-STD-020	Preconditioning: (Test @ Rm) SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, & PTC; Peak Reflow Temp = 260°C	All surface mount parts prior to A2, A3, A4, A5, B1			MSL = 3	Planned (3L)	+100 cycles after reflow
THB	A2	JESD22 A110	Temperature Humidity Bias: (Test @ Rm/Hot) 85°C, 85% Target: 1000h Robustness: 2000h	3	77	231	-	Planned (3L)	DPA as per Q006
uHST	A3	JESD22 A118	Autoclave: (Test @ Rm) 96h, 85% 130°C	3	77	231	-	Planned (3L)	
TC	A4	JESD22 A104	Temperature Cycle: (Test @ Hot) -55/+150°C Target: 1000c Robustness: 2000c	3	77	231	-	Planned (3L)	DPA as per Q006
PTC	A5	JESD22 A105	Power Temperature Cycle: (Test @ Rm/Hot) Tj_range=-40/150°C, Target: 1000c Robustness: 2000c	1	45	45	-	Planned (1L)	
HTSL	A6	JESD22 A103	High Temperature Storage Life: (Test @ Rm/Hot) 150°C Target: 1000h Robustness: 2000h	1	45	45	-	Planned (3L)	DPA as per Q006

Test	#	Reference	Test Conditions	Requirements			Comments	L9026 HTSSOP24	Notes
				Lots	S.S.	Total			
HTOL	B1	JESD22 A108	High Temp Operating Life: (Test @ Rm/Cold/Hot) Duration in accordance to mission profile	3	77	231	-	Planned (3L)	
ELFR	B2	AEC-Q100-008	Early Life Failure Rate: (Test @ Rm/Hot)	3	800	2400	-	Planned (3L)	
EDR	B3	AEC-Q100-005	NVM Endurance & Data Retention Test: (Test @ Rm/Hot)	-	-	-	-	NA	
WBS	C1	AEC-Q100-001 AEC-Q003	Wire Bond Shear Test: (Cpk > 1.67)	30 bonds 5 parts Min.			-	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.			-	Assembly data	
SD	C3	JESD22 B102 JSTD-002D	Solderability: (>95% coverage) 8hr steam aging prior to testing	1	15	15	-	Assembly data	
PD	C4	JESD22 B100, JESD22 B108 AEC-Q003	Physical Dimensions: (Cpk > 1.67)	3	10	30	-	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	
EM	D1	JESD61	Electromigration	-	-	-	-	Process qualification data data	
TDDB	D2	JESD35	Time Dependant Dielectric Breakdown	-	-	-	-	Process qualification data data	
HCI	D3	JESD60 & 28	Hot Carrier Injection	-	-	-	-	Process qualification data	

Test	#	Reference	Test Conditions	Requirements			Comments	L9026 HTSSOP24	Notes
				Lots	S.S.	Total			
NBTI	D4	JESD90	Negative Bias Temperature Instability	-	-	-	-	Process qualification data	
SM	D5	JESD61, 87, & 202	Stress Migration	-	-	-	-	Process qualification data	
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)	1	var	-	-	NA	
CDM	E3	AEC-Q100-011	Electrostatic Discharge, Charged Device Model: (Test @ Rm/Hot); (750V corner leads, 500V all other leads / Class C4B or better)	1	var	-	-	Planned	
LU	E4	AEC-Q100-004	Latch-Up: (Test @ Rm/Hot)	1	6	6	-	NA	
ED	E5	AEC-Q100-009 AEC-Q003	Electrical Distributions: (Test @ Rm/Hot/Cold) (where applicable, Cpk >1.67)	3	30	90	-	Planned	
FG	E6	AEC-Q100-007	Fault Grading FG shall be = or > 90% for qual units	-	-	-	-	NA	
CHAR	E7	AEC-Q003	Characterization: (Test @ Rm/Hot/Cold)	-	-	-	-	Planned	
EMC	E9	SAE J1752/3	Electromagnetic Compatibility (Radiated Emissions)	1	1	1	-	NA	
SC	E10	AEC Q100-012	Short Circuit Characterization	3	10	30	-	Planned	

Test	#	Reference	Test Conditions	Requirements			Comments	L9026 HTSSOP24	Notes
				Lots	S.S.	Total			
SER	E11	JESD89-1 JESD89-2 JESD89-3	Soft Error Rate	1	3	3	-	NA	
LF	E12	AEC-Q005	Lead (Pb) Free: (see AEC-Q005)	-	-	-	-	Covered by tests in group A	-
PAT	F1	AEC-Q001	Process Average Testing: (see AEC-Q001)	All	All	All	Reject units outside Avg.	See notes	Not performed on qualification lots. It will be implemented starting from first production lot
SBA	F2	AEC-Q002	Statistical Bin/Yield Analysis: (see AEC-Q002)	All	All	All	Reject units outside criteria	See notes	Not performed on qualification lots. It will be implemented starting from first production lot
MS	G1	JESD22 B104	Mechanical Shock: (Test @ Rm)	1	15	15	-	NA	
VFV	G2	JESD22 B103	Variable Frequency Vibr: (Test @ Rm)	1	15	15	-	NA	
CA	G3	MIL-STD-883 Method 2001	Constant Acceleration: (Test @ Rm)	1	15	15	-	NA	
GFL	G4	MIL-STD-883 Method 1014	Gross and Fine Leak:	1	15	15	-	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.	1	5	5	-	NA	
LT	G6	MIL-STD-883 Method 2004	Lid Torque	1	5	5	-	NA	
DS	G7	MIL-STD-883 Method 2019	Die Shear	1	5	5	-	NA	
IWV	G8	MIL-STD-883 Method 1018	Internal Water Vapor	1	5	5	-	NA	

MISSION PROFILE

a) Operating time: 8000h
b) Activation Energy: 0.7eV
c) Junction temperature spectrum:

		P diss [W]:		**T stress:**	170			
		RTh j-a [°C/W]:						
		self heating [°C]:	0					
		Total time	8000					
		EA (eV)	0.7	K (eV/K)	0.00008617			
TA [°C]	**Distribution [%]**	**TJ [°C]**	**t operating [h]**	**AF**	**Stress duration [h]**		TJ	DISTRIBUTION
-40	0	-40	0	14813719.28	0.0	1	-40	0.0
60	6	60	480	425.23	1.1	2	60	6.0
95	20	95	1600	41.87	38.2	3	95	20.0
110	33	110	2640	17.65	149.6	4	110	33.0
120	18	120	1440	10.29	139.9	5	120	18.0
130	9	130	720	6.16	116.8	6	130	9.0
135	3	135	240	4.82	49.8	7	135	3.0
140	2	140	160	3.79	42.3	8	140	2.0
145	1.7	145	136	2.99	45.5	9	145	1.7
150	1.5	150	120	2.38	50.5	10	150	1.5
155	1.4	155	112	1.90	58.9	11	155	1.4
160	1.3	160	104	1.53	68.1	12	160	1.3
165	1.2	165	96	1.23	77.9	13	165	1.2
170	1	170	80	1.00	80.0	14	170	1.0
175	0.9	175	72	0.82	88.3	15	175	0.9
0	0	0	0	90108.72	0.0	16	0	0.0
0	0	0	0	90108.72	0.0	17	0	0.0
0	0	0	0	90108.72	0.0	18	0	0.0
0	0	0	0	90108.72	0.0	19	0	0.0
0	0	0	0	90108.72	0.0	20	0	0.0
	100		8000		**1006.9**			

Stress temperature: T_{stress} = 170/175°C → HTOL Duration = 1007h/821h → 1000h

Pulses: 18M pulses

DEVICE CHARACTERISTICS

	L9026	
Function	Multi-channel drivers	
Wafer fab manufacturing location	Agrate	
Wafer diameter (inches)	8	
Wafer thicness (um)	280	
Silicon process technology	BCD9SL Cu Damascene	
Die finishing front side (passivation)	SiN+TEOS+SiN+Polymide	
Die finishing back side	Raw silicon	
Die area	2.323 x 1.734	
Metal levels/Materials	Metal 1	TaN/Ta/Cu
	Metal 2	TaN/Ta/Cu
	Metal 3	TaN/Ta/Cu
	Metal 4	TaN/Ta/Cu
		NiPd
Assembly Information		
Assembly plant location	TFME	
Package code description	**HTSSOP 24** 4.4 PITCH 0.65 EXPAD	
Package code	YO	
Lead-frame/Substrate	HTSSOP24 3.2x5.0mm C194	
Die attach material	SUMITOMO CRM-1085A	
Wires bonding materials/diameters	Cu 1.2 mil Pd Coated	
Molding compound	Sumitomo G700LS	

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PCN Title : L9026 (UR5V): Activation of Additional Assembly Plant (TFME)

PCN Reference : ADG/24/14531

Subject : Public Products List

Dear Customer,

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

L9026-YO-TR		

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