PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	MDG/22/13076
1.3 Title of PCN	ST Muar (Malaysia) Additional capacity through High Density Matrix Leadframe for STM8A AUTOMOTIVE listed products in LQFP 64 10x10 package
1.4 Product Category	STM8AF52xx, STM8AF62xx, STM8AF63xx
1.5 Issue date	2022-09-07

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	Ricardo Antonio DE SA EARP
2.1.2 Marketing Manager	Veronique BARLATIER
2.1.3 Quality Manager	Pascal NARCHE

3. Change

3.1 Category	**3.2 Type of change**	**3.3 Manufacturing Location**
Materials	New direct material part number r (same supplier, different supplier or new supplier),(Lead frame dimensions)	ST MUAR (Malaysia)

4. Description of change

	Old	**New**
4.1 Description	The current Bill of Materials in ST Muar (Malaysia) assembly plant is described in Additional information document.	The New Bill of Materials in ST Muar (Malaysia) assembly plant with High Density Matrix Leadframe is described in Additional information document.
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	Form: Yes - marking change Fit: No change, Function: No change, No impact for customer	

5. Reason / motivation for change

5.1 Motivation	The strategy of ST MCD Division is to increase the robustness and improve performances, quality and functionality of our products. This is achieved by introducing new Bill Of Material for STM8AF products.
5.2 Customer Benefit	SERVICE CONTINUITY

6. Marking of parts / traceability of change

6.1 Description	Traceability ensured by ST internal tools

7. Timing / schedule

7.1 Date of qualification results	2022-12-30
7.2 Intended start of delivery	2023-01-03
7.3 Qualification sample available?	Not Applicable

8. Qualification / Validation

8.1 Description	13076 MDG-GPM-RER2214 PCN13076 ST Muar LQFP10x10 64L Automotive MTX to HD conversion - reliability plan.pdf

8.2 Qualification report and qualification results	Available (see attachment)	**Issue Date**	2022-09-07

9. Attachments (additional documentations)

13076 Public product.pdf
13076 MDG-GPM-RER2214 PCN13076 ST Muar LQFP10x10 64L Automotive MTX to HD conversion - reliability plan.pdf
13076 PCN13076_Additional information.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**
	STM8AF5269TAY	
	STM8AF5289TAY	
	STM8AF5289TCX	
	STM8AF5289TCY	
	STM8AF52A9TAY	
	STM8AF52A9TCX	
	STM8AF52A9TCY	
	STM8AF52A9TDY	
	STM8AF6269TAY	
	STM8AF6269TCY	
	STM8AF6289TAY	
	STM8AF6289TCY	
	STM8AF62A9TDY	

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RER2214 for PCN13076
ST MUAR – LQFP10x10 64L
Automotive MTX to HD conversion (Gold wires)

Reliability Evaluation Plan

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August 25th, 2022

MDG GPM Quality & Reliability

RER2214 - ST MUAR - LQFP10x10 64L Automotive MTX to HD conversion Package Test Vehicles

Package line	Assembly Line	Package	Device (RawLine Code)	Diffusion Process Plant	Number of Reliability Lots
LQFP	LQFP 10*10	64L	STM8 (JJ5W*79AZ25T)	CMOS F9 G01 ST RSST 8	3

RER2214 - ST MUAR - LQFP10x10 64L Automotive MTX to HD conversion Extract AEC – Q100 Reliability flow

AEC - Q100 - REV-H
September 11, 2014

Automotive Electronics Council
Component Technical Committee

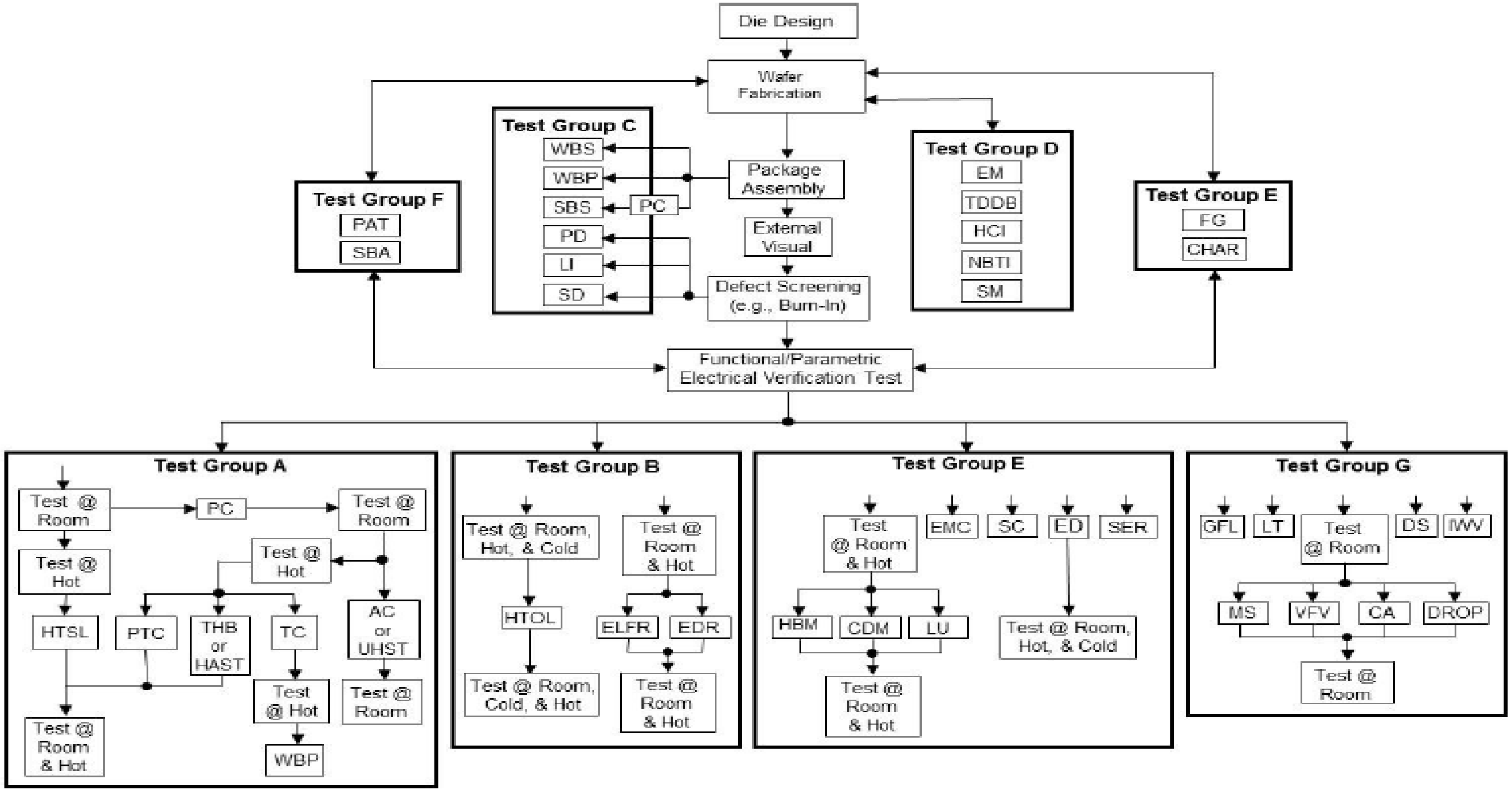

Figure 2: Qualification Test Flow

RER2214 - ST MUAR - LQFP10x10 64L Automotive MTX to HD conversion Package Reliability Trials (1/2)

Reliability Trial & Standards		Test Conditions	Pass Criteria	Unit per Lot	Lot qty	More critical constraints for components
PC	Pre Conditioning: Moisture Sensitivity Jedec Level 3 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (30°C / 60% RH / 192 hrs) for level 3 Convection reflow: 3 passes	3 passes MSL3	244	3	T0 test @ Room
uHAST (*)	UnBiased Highly Accelerated Temperature and Humidity Stress AEC-Q100 - JESD22 A118	130°C, 85%RH, 2 atm	96h	77	3	Read out after PC @ Room Read out 96h @ Room
TC(*)	Thermal Cycling AEC-Q100 - JESD22 A104	-55°C +150°C or equivalent	G0: 2000cy	90	3	Read out after PC @ Room + Hot Read out 1000cy/2000cy @ Hot
Wire Bond Pull after TC	Mil Std 883 Method 2011	Minimum pull strength after TC=3 grams	0cy/1000cy/ 2000cy	30 bonds from a minimum of 5 devices 30	3	5 devices @ 0cy/ 5 devices @ 1000cy/ 5 devices @ 2000cy
Wire Bond Shear after TC	AEC Q100-001	Min bond shear 15g	0cy/1000cy/ 2000cy		3	5 devices @ 0cy/ 5 devices @ 1000cy/ 5 devices @ 2000cy

(*) tests performed after preconditioning

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RER2214 - ST MUAR - LQFP10x10 64L Automotive MTX to HD conversion
Package Reliability Trials (2/2)

Reliability Trial & Standards		Test Conditions	Pass Criteria	Unit per Lot	Lot qty	More critical constraints for components
THB (*)	Temperature Humidity Bias AEC-Q100 - JESD22-A101	85°C, 85% RH, bias, 5,6V	1000h	77	3	Read out after PC @ Room + Hot Read out 500h/1000h @ Room + Hot
HTSL	High Temperature Storage Life AEC-Q100 - JESD22 A103	150°C- no bias	G0: 2000h	77	3	T0 test @ Room + Hot Read out 1000h/2000h @ Room + Hot
Construction analysis	JESD 22B102 JESDB100/B108 ST internal spec	including Solderability, Physical dimensions, wire bond shear, wire pull test, lead integrity			1 full CA	
ESD	ESD Charge Device Model AEC-Q100-011 – ANSI/ESD STM5.3.1	Aligned with device datasheet	750V corner pins / 500V others	3	3	T0 test @ Room + Hot Read out after ESD @ Room + Hot

(*) tests performed after preconditioning

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RER2214 - ST MUAR - LQFP10x10 64L Automotive MTX to HD conversion Die Reliability Trials

Reliability Trial & Standards		Test Conditions	Pass Criteria	Unit per Lot	Lot qty	More critical constraints for components
ELFR	AEC-Q100-008 JESD22-A108	G0: 24h 150°c 2.2V	24h	800	1	T0 test @ Room + Hot Read out 24h @ Room + Hot
HTOL	AEC-Q100-005 JESD22-A108	G0: 1200h 150°c 2.2V	1200h	77	1	T0 test @ Room + Hot + Cold Read out 600/1200h @ Room + Hot + Cold

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PRODUCT/PROCESS
CHANGE NOTIFICATION
PCN13076– Additional information

ST Muar (Malaysia) Additional capacity through High Density Matrix Leadframe for STM8A AUTOMOTIVE listed products in LQFP 64 10x10 package

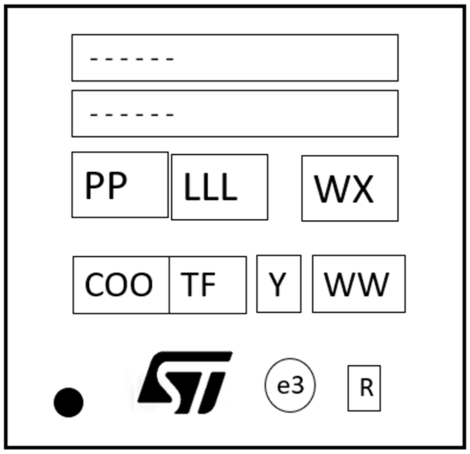
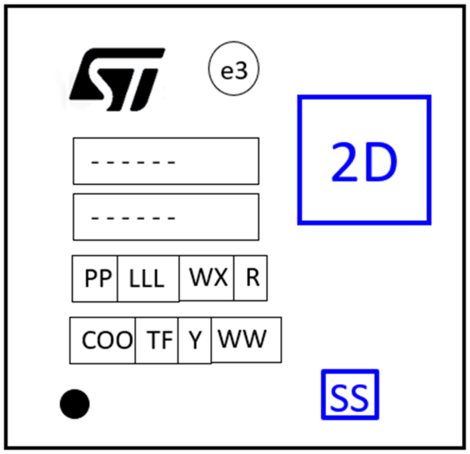
MDG - Microcontrollers Division (MCD)

What is the change?

	Current back-end lines	New back-end line
Assembly site	ST Muar (Malaysia)	
wire	Gold 1.0 mil	Gold 0.8 mil
Leadframe	Matrix	High Density
Leadfinishing	Spot Ag, postplated (e3)	Ring Ag, postplated (e3)
Resin (1)	Sumitomo G700L	Sumitomo G700LS
Glue	LOCTITE ABLESTIK QMI9507-2A1	Hitachi EN4900GC
Enhanced Traceability in marking	No digit	2 digits SS marking 2D marking

(1) Package darkness changes depending on molding compound.
Pin1 identifier can change in terms of form and positioning.
Marking position and size could be different upon assembly line, without any loss of information.

How can the change be seen?

	No Digit	With Enhanced Tracability (2D & SS) marking
Marking example		

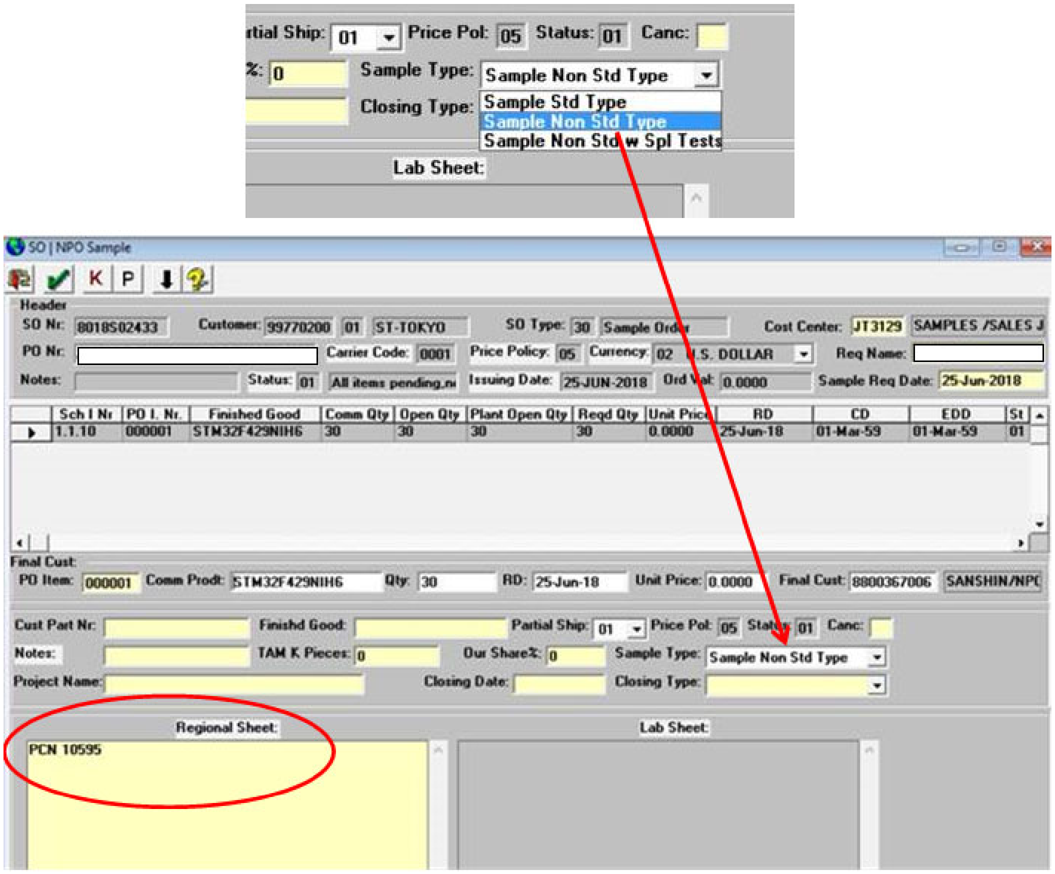
PP code indicates the Assembly traceability plant code.

PP code	Assembly Line - Fab
99	ST Muar (Malaysia)

How to order samples?

For all samples request linked to this PCN, please:

- place a **<u>Non-standard</u>** sample order (choose Sample Non Std Type from pull down menu)
- insert the PCN number “**PCN13076**” into the NPO Electronic Sheet/**Regional Sheet**
- request sample(s) through Notice tool, indicating a single Commercial Product for each request



rtial Ship: 01
Price Pol: 05
Status: 01
Canc:
%: 0
Sample Type: Sample Non Std Type
Closing Type:
Lab Sheet:

SO | NPO Sample

Header

SO Nr: 8018S02433
Customer: 99770200 01 ST-TOKYO
SO Type: 30 Sample Order
Cost Center: JT3129 SAMPLES /SALES J
PO Nr:
Carrier Code: 0001
Price Policy: 05
Currency: 02 U.S. DOLLAR
Req Name:
Notes:
Status: 01 All items pending_n
Issuing Date: 25-JUN-2018
Ord Val: 0.0000
Sample Req Date: 25-Jun-2018

Sch I Nr	PO I. Nr.	Finished Good	Comm Qty	Open Qty	Plant Open Qty	Reqd Qty	Unit Price	RD	CD	EDD	St
1.1.10	000001	STM32F429NIH6	30	30	30	30	0.0000	25-Jun-18	01-Mar-59	01-Mar-59	01

Final Cust

PO Item: 000001
Comm Prodt: STM32F429NIH6
Qty: 30
RD: 25-Jun-18
Unit Price: 0.0000
Final Cust: 8800367006 SANSHIN/NPC

Cust Part Nr:
Finishd Good:
Partial Ship: 01
Price Pol: 05
Status: 01
Canc:
Notes:
TAM K Pieces: 0
Our Share%: 0
Sample Type: Sample Non Std Type
Project Name:
Closing Date:
Closing Type:

Regional Sheet:

PCN 10595

Lab Sheet:

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PCN Title : ST Muar (Malaysia) Additional capacity through High Density Matrix Leadframe for STM8A AUTOMOTIVE listed products in LQFP 64 10x10 package
PCN Reference : MDG/22/13076

Subject : Public Products List

Dear Customer,

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

STM8AF5269TAY	STM8AF6289TCX	STM8AF52A9TDY
STM8AF5289TCX	STM8AF6289TCY	STM8AF62A9TCY
STM8AF6269TCX	STM8AF52A9TCY	STM8AF6289TAY
STM8AF5269TAX	STM8AF62A9TDY	STM8AF6269TCY
STM8AF5289TCY	STM8AF6269TAY	STM8AF5289TAY
STM8AF52A9TCX	STM8AF52A9TAY	STM8AF62A9TCX

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