PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data	
1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	MDG/20/12327
1.3 Title of PCN	AMKOR, new and additional UFDFPN8 (DFN8) assembly & test line for CMOSF8H+ Industrial Range: Additional CP 2Kbit EEPROM
1.4 Product Category	M24C02-FMC6TG M24C02-RMC6TG M34E02-FMC6TG
1.5 Issue date	2020-09-09

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	Benoit RODRIGUES
2.1.2 Marketing Manager	Hubert LEDUC
2.1.3 Quality Manager	Rita PAVANO

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	Amkor (Philippines)

4. Description of change		
	Old	New
4.1 Description	The 2Kbit EEPROM products (industrial range) processed with CMOSF8H+ process technology at ST Rousset (France) and assembled & tested in UFDFPN8 (DFN8) package at ST Calamba (Philippines)...	...will be also assembled & tested at AMKOR subcontractor (Philippines). PCN MDG2012021 was already released for similar CMOSF8H+ products (June 2020). This line is already used for the assembly and test & finishing of CMOSF8H EEPROM in UFDFPN8 package.
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	- Form: - Top side marking flanked with a vertical bar - Pad shape - Fit: No change - Function: No change	

5. Reason / motivation for change	
5.1 Motivation	The strategy of STMicroelectronics Memory Division is to support our customers on a long-term basis. In line with this commitment, the qualification of the 2Kbit CMOSF8H+ EEPROM products in UFDFPN8 on AMKOR assembly & test line will increase the production capacity throughput and consequently improve the service to our customers.
5.2 Customer Benefit	CAPACITY INCREASE

6. Marking of parts / traceability of change	
6.1 Description	N/A

7. Timing / schedule	
7.1 Date of qualification results	2020-10-30
7.2 Intended start of delivery	2020-12-11
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)
12327 Public product.pdf 12327 PCN DFN8 AMKOR 2Kbit CMOSF8H+.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**
	M24C02-FMC6TG	
	M24C02-RMC6TG	
	M34E02-FMC6TG	

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PRODUCT / PROCESS CHANGE NOTIFICATION

AMKOR, new and additional UFDFPN8 (DFN8) assembly & test line for CMOSF8H+ Industrial Range: Additional CP 2Kbit EEPROM

What is the change?

The 2Kbit EEPROM products (industrial range) processed with CMOSF8H+ process technology at ST Rousset (France) and assembled & tested in UFDFPN8 (DFN8) package at ST Calamba (Philippines) will be also assembled & tested at AMKOR subcontractor (Philippines).

PCN MDG2012021 was already released for similar CMOSF8H+ products (June 2020).
This line is already used for the assembly and test & finishing of CMOSF8H EEPROM in UFDFPN8 package.

Why?

The strategy of STMicroelectronics Memory Division is to support our customers on a long-term basis.

In line with this commitment, the qualification of the 2Kbit CMOSF8H+ EEPROM products in UFDFPN8 on AMKOR assembly & test line will increase the production capacity throughput and consequently improve the service to our customers.

When?

The production of the 2Kbit CMOSF8H+ EEPROM products on the UFDFPN8 (DFN8) AMKOR assembly & test line will ramp up from October 2020 and shipments can start from November 2020 onward.

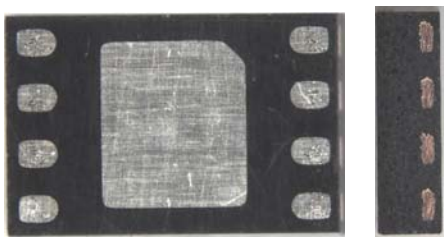
How will the change be qualified?

The 2Kbit CMOSF8H+ EEPROM products assembled in UFDFPN8 on the AMKOR assembly & test line will be qualified following the standard ST Microelectronics Corporate Procedures for Quality & Reliability.

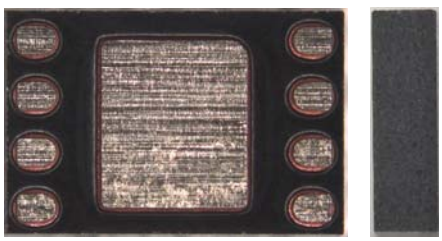
Qualification plan is attached
Qualification Report QRMMY2001 will be available week 44 / 2020.

What is the impact of the change?

- Form:
- Top side marking flanked with a vertical bar (see device marking paragraph)
- Pad shape, see below:



Back side / side views Amkor



Back side / side views ST Calamba

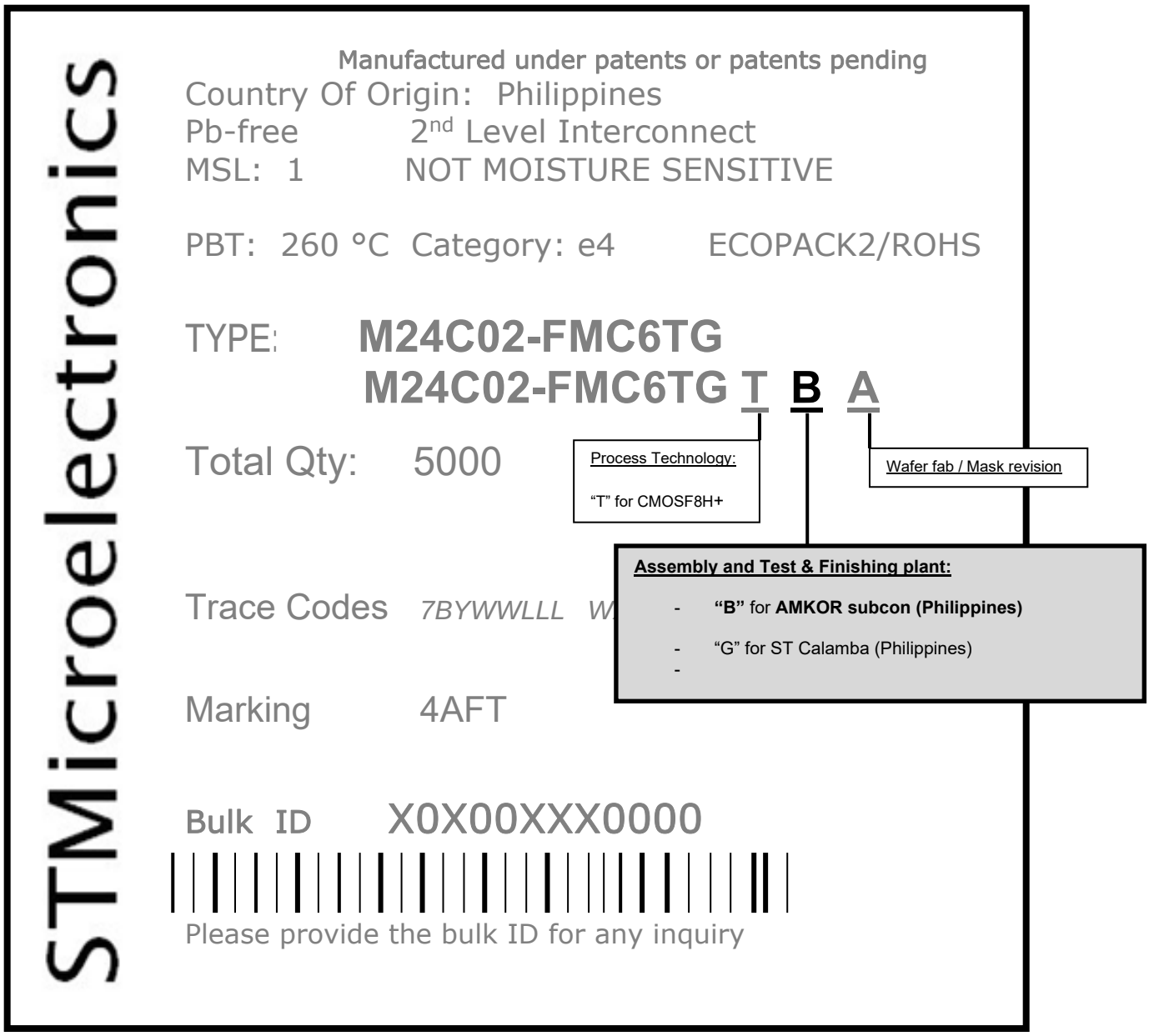
- Fit: No change

- Function: No change

How can the change be seen?

- ***BOX LABEL MARKING***

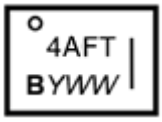
On the BOX LABEL MARKING, the difference is visible inside the **Finished Good Part Number** where the "**Assembly and Test & Finishing plants"** identifier is "**B**" for products assembled & tested at **AMKOR**, this digit being "G" for current products assembled & tested at ST Calamba.



How can the change be seen?

- UFDFPN8 (DFN8) DEVICE MARKING

The difference is visible inside the Trace Code *PYWW* (*) where the first digit *P* for *Assembly plant* is "**B**" for AMKOR, this digit being "8" for current ST Calamba assembly plant.

	New Assembly & Test at AMKOR	Current Assembly & Test at ST CALAMBA
Example for **M24C02-FMC6TG**		

The vertical bar denotes Amkor DFN8 with central pad compatible to ST Calamba DFN8 central pad.

(*) Legend:

P = Assembly plant
Y = Assembly year
WW = Assembly week

Appendix A- Product Change Information

Product family / Commercial products:	2Kbit EEPROM (industrial range) from CMOSF8H+ process in UFDFPN8 (DFN8)
Customer(s):	All
Type of change:	New assembly & test line
Reason for the change:	Second source creation
Description of the change:	AMKOR subcontractor (Philippines) new assembly & test line for all CMOSF8H+ EEPROM in UFDFPN8 (DFN8)
Forecast date of the change: (Notification to customer)	Week 37 / 2020
Forecast date of Qualification samples availability for customer(s):	Week 44 / 2020
Qualification Report availability:	**Qualification Plan QPMMY2001** is included inside this document.
Marking to identify the changed product:	First digit of traceability code is "**B**"
Description of the qualification program:	Standard ST Microelectronics Corporate Procedures for Quality and Reliability
Product Line(s) and/or Part Number(s):	M24C02-FMC6TG M24C02-RMC6TG M34E02-FMC6TG
Estimated date of first shipment:	Week 50 / 2020

Appendix B: BOM comparison:

Material	**New BOM at AMKOR**	Current BOM at ST Calamba
LEAD FRAME	**Ru-PPF**	**EFTEC64T**
MOLDING COMPOUND	**SUMITOMO G700Y**	**HITACHI CEL 9240**
BONDING WIRE	**GOLD** 0.8 mil	**COPPER** 0.8 mil
DIE ATTACH	**DAF CDF215E**	**GLUE HENKEL QMI519**
LEAD FINISH	PRE-PLATED 3-LAYERS	PRE-PLATED 3-LAYERS

Appendix C: Qualification Plan QPMMY2001:

Package oriented test plan

Test	Test short description					
	Method	Conditions	Sample size / lots	No. of lots	Duration	Acceptance Criteria
PC	**Preconditioning: moisture sensitivity level 1**					
	JESD22-A113	MSL1, peak temperature at 260 °C, 3 IReflow	408	3	N/A	0/408
TC	**Temperature cycling**					
	JESD22-A104	-65 °C / +150 °C	77	3	1000 cy	0/77
HTSL	**High temperature storage Life**					
	JESD22-A103	Retention bake at 150 °C	77	3	1000 hrs	0/77
AC	**Autoclave (pressure pot)**					
	JESD22-A102	121 °C, 100% RH at 2 ATM	77	3	96 hrs	0/77
THB	**Temperature humidity bias**					
	JESD22-A101	85°c/85%RH	77	3	1000 hrs	0/77
ESD CDM	**Electrostatic discharge (charge device model)**					
	JEDEC JS-002 2014	Field induced charging method	18	3	N/A	PASS 500V
CA	**Construction analysis**					
	Internal spec.	Physical Analysis on unstressed parts	30	1		conform
SAM	**Scanning Acoustic Microscope**					
	Internal spec.	After PC MSL1	100	1		No delamination

Note : TC, HTSL, AC, THB and SAM are first submitted to preconditioning flow PC (MSL1)

Document Revision History

Date	Rev.	Description of the Revision
Sept. 07, 2020	1.00	Christian POLI - First draft creation

Source Documents & Reference Documents

Source document Title	**Rev.:**	**Date:**

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 : AMKOR, new and additional UFDFPN8 (DFN8) assembly & test line for CMOSF8H+ Industrial Range: Additional CP 2Kbit EEPROM

PCN Reference : MDG/20/12327

Subject : Public Products List

Dear Customer,

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

M34E02-FMC6TG	M24C02-RMC6TG	M24C02-FMC6TG

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