PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	MDG/22/13539
1.3 Title of PCN	ST Shenzhen (China) Assy & Test line upgrade for CMOS F9V Automotive grade EEPROM products in SO8N
1.4 Product Category	CMOS F9V Automotive EEPROM product in SO8N M95M04-DWMN3TP/V
1.5 Issue date	2022-06-30

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	Philippe GANIVET
2.1.3 Quality Manager	Rita PAVANO

3. Change

3.1 Category	**3.2 Type of change**	**3.3 Manufacturing Location**
Machines	(Not Defined)	ST Shenzhen (China)

4. Description of change

	Old	**New**
4.1 Description	Automotive grade EEPROM products in SO8N are widely used in high volume at all automotive customers and in all automotive applications. To maintain high level of service and to support high volume production on the long-term, ST has decided to switch Assembly & Test from High Density (HD) strip test line...	...to Super High Density (SHD) strip test line.
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	- Form: visual on package top side / backside - Fit: no change - Function: no change	

5. Reason / motivation for change

5.1 Motivation	The strategy of the STMicroelectronics Memory division is to support our customers on product and service quality on a long-term basis. In line with this commitment, this change will secure long term availability and automotive SO8N capacity while improving product manufacturing quality.
5.2 Customer Benefit	QUALITY IMPROVEMENT

6. Marking of parts / traceability of change

6.1 Description	N/A

7. Timing / schedule

7.1 Date of qualification results	2022-07-15
7.2 Intended start of delivery	2023-01-01
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)
13539 Public product.pdf 13539 PCN F9V SO8N HD to SHD.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**
	M95M04-DWMN3TP/V	

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PRODUCT / PROCESS CHANGE NOTIFICATION

ST Shenzhen (China) Assy & Test line upgrade for CMOS F9V Automotive grade EEPROM products in SO8N

Automotive grade EEPROM products in SO8N are widely used in high volume at all automotive customers and in all automotive applications. To maintain high level of service and to support high volume production on the long-term, ST has decided to switch Assembly & Test from High Density (HD) strip test line to **Super High Density (SHD)** strip test line. Both lines are installed in ST Shenzhen (China). SHD strip test line already produces very high-volume of EEPROM SO8N products for industrial market since year 2012.

What is the change?

The **Assembly & Test** of **Automotive EEPROM** products processed with the CMOS F9V process technology and assembled in **SO8N package** at **ST Shenzhen (China)** are upgraded from High Density (HD) strip test line to **Super High Density (SHD) strip test line.**

SHD Assembly line runs with higher parallelism and same assembly flow as current HD line. As continuous improvement, a step of plasma cleaning has been introduced between die attach and wire bonding.
A change of the leadframe dimensions has been done.

SHD strip test line runs with higher parallelism and same test flow and test sequence as current HD line. SHD strip test line runs with same test equipment as current HD line.

See appendix B for more details on assembly and test flow.

Why?

The strategy of the STMicroelectronics Memory division is to support our customers on product and service quality on a long-term basis. In line with this commitment, this change will secure long term availability and automotive SO8N capacity while improving product manufacturing quality.

When?

Shipments will start from **Week 01** / 2023.

The production of the CMOS F9V Automotive EEPROM products in SO8N on current HD strip test line will continue until end of June 2023 giving the time to ramp-up gradually the SHD line.

From **June 2023**, CMOS F9V Automotive EEPROM SO8N products will be **produced only on SHD line**.

Engineering samples are available, qualification samples will be available 40 / 2022.

How will the change be qualified?

This change has been qualified using the standard STMicroelectronics Corporate Procedures for Quality and Reliability.

Intermediate Reliability evaluation report RERMMY2210 for Assembly is available.

Final reliability evaluation report is forecasted for Week 28 / 2022.
Test evaluation report TERMMY2210 for Test is forecasted for Week 40 / 2022.

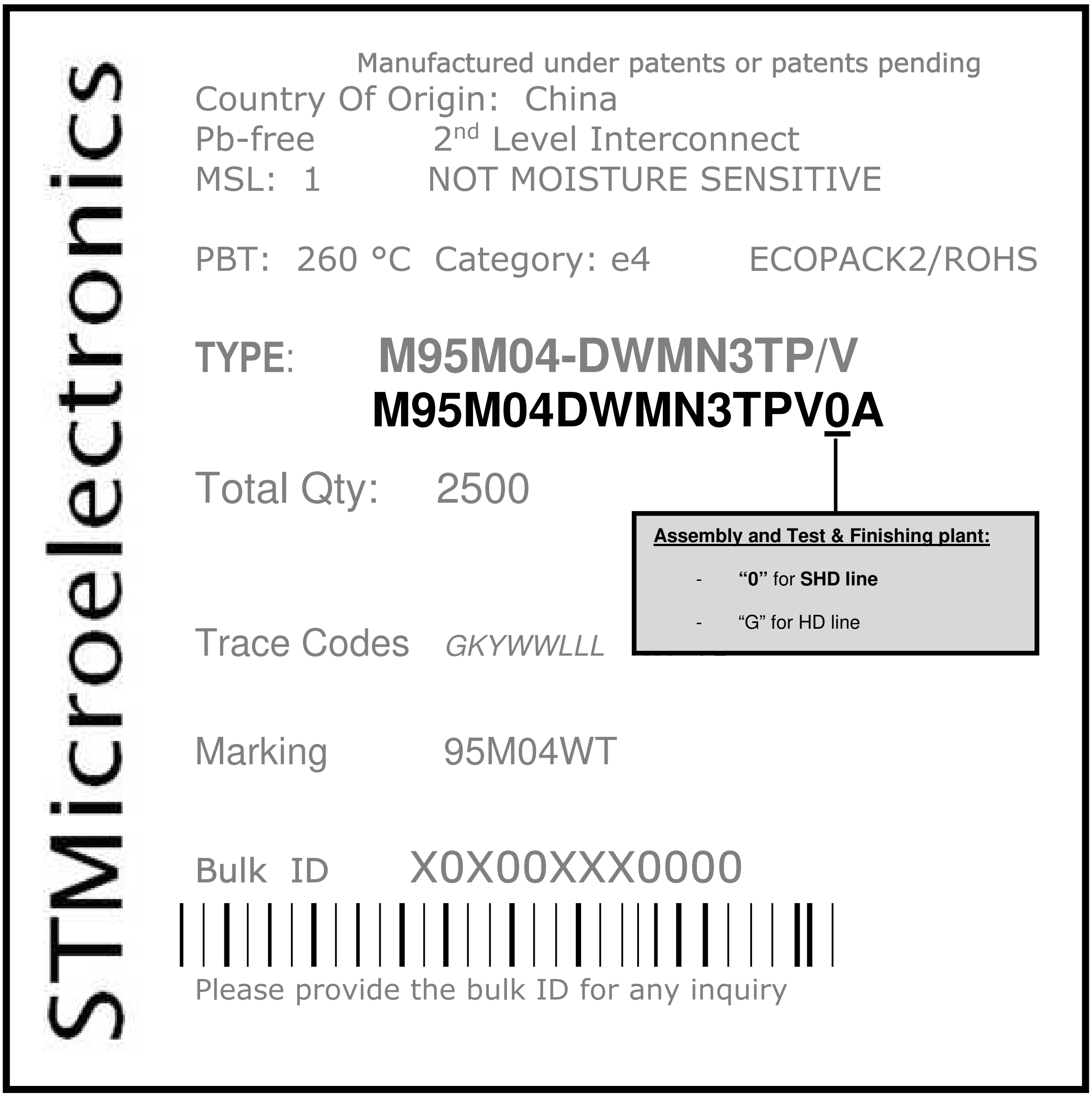
What is the impact of the change?

- **Form:** visual on package top side / backside
- **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 "**H**" for products **assembled & tested on SHD line**, this digit being "G" for current products assembled & tested on HD line.



Manufactured under patents or patents pending

Country Of Origin: China

Pb-free 2nd Level Interconnect

MSL: 1 NOT MOISTURE SENSITIVE

PBT: 260 °C Category: e4 ECOPACK2/ROHS

TYPE: M95M04-DWMN3TP/V

M95M04DWMN3TPV0A

Total Qty: 2500

Assembly and Test & Finishing plant:

- **"0"** for **SHD line**
- "G" for HD line

Trace Codes *GKYWWLLL*

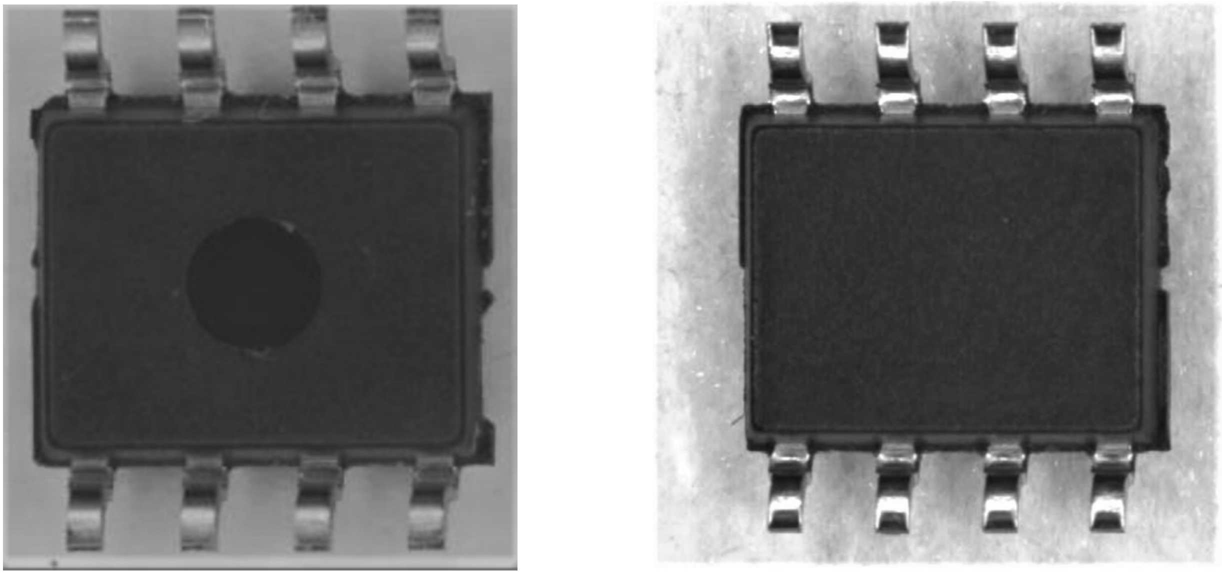
Marking 95M04WT

Bulk ID X0X00XXX0000

Please provide the bulk ID for any inquiry

- ***PACKAGE VISUAL***

A visual difference can be observed at bottom side: the **package of the SHD line** is showing a **dot at the center** while no dot at bottom side on the package of the HD line:



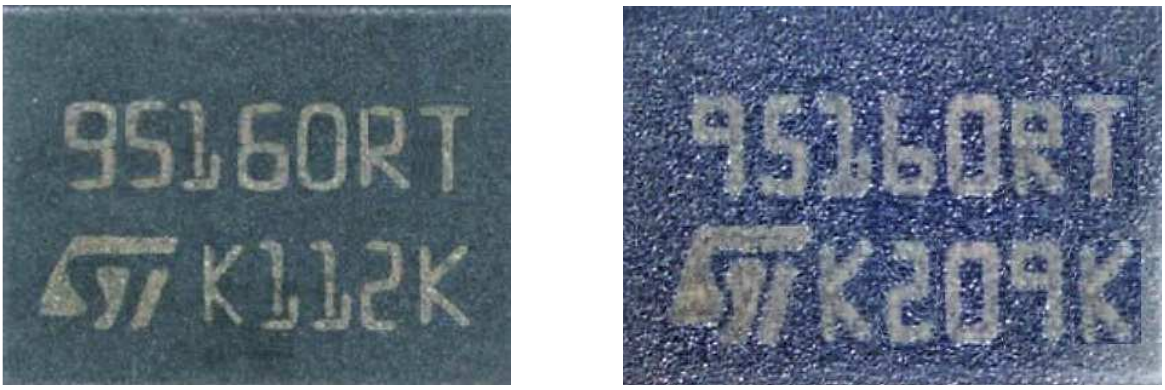
Package of SHD line

Package of HD line

Bottom side views

Marking readability improvement:

- *Example for M95160 (picture for M95M04 available with samples)*



Package of SHD line

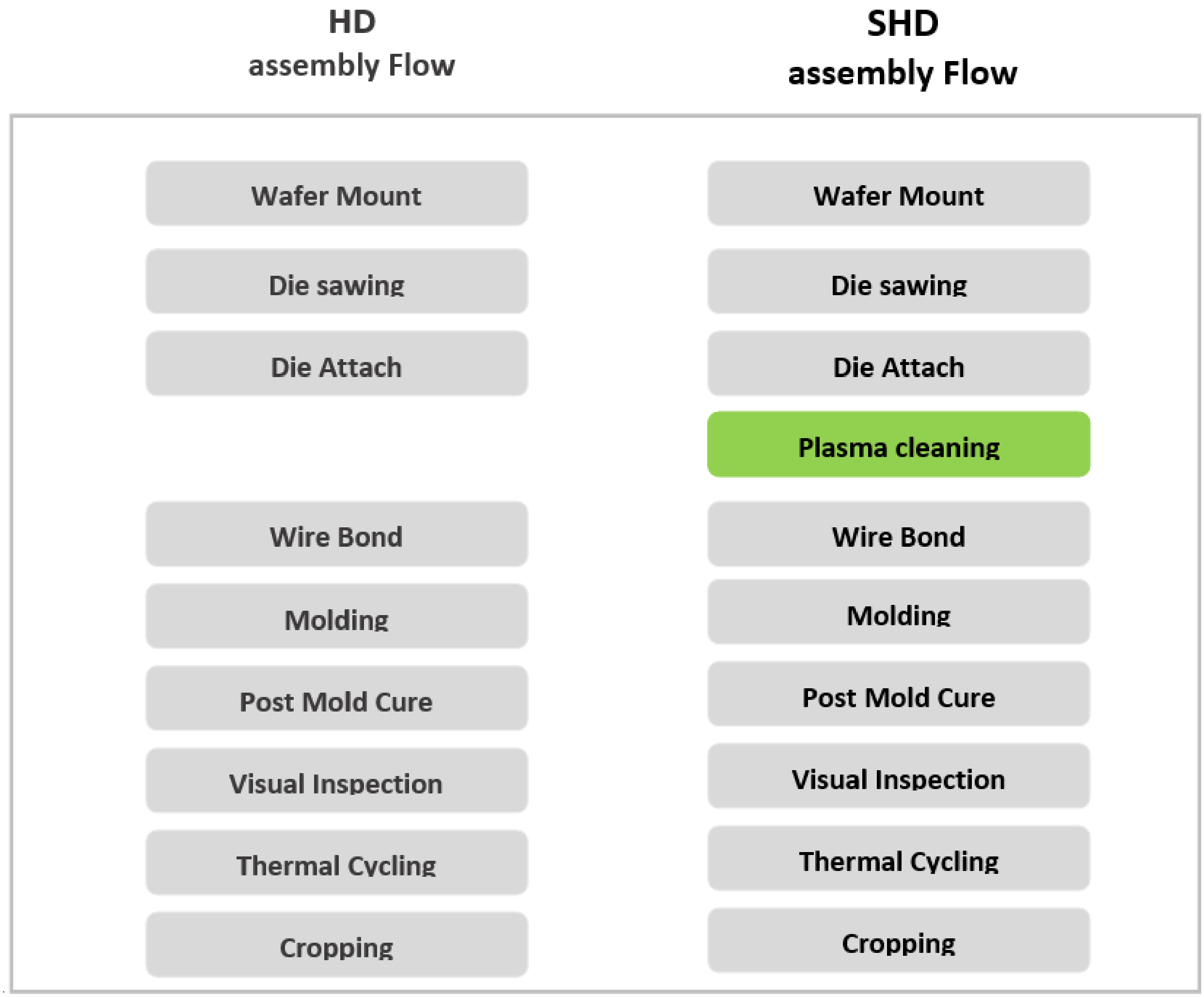
Package of HD line

Top side views

Appendix A- Product Change Information

Product family / Commercial products:	CMOS F9V Automotive EEPROM product in SO8N **M95M04-DWMN3TP/V**
Customer(s):	All
Type of change:	Upgrade Assembly & Test line
Reason for the change:	Upgrade to SHD line
Description of the change:	ST Shenzhen (China) Assembly & Test lines switch from high density (HD) to super high density (SHD).
Forecast date of the change: **(Notification to customer)**	Week 26 / 2022
Forecast date of Qualification samples availability for customer(s):	Engineering samples are available. Qualification samples will be available 40 / 2022.
Evaluation Report availability:	RERMMY2210 for Assembly: Week 28 / 2022 TERMMY2210 for Test: Week 40 / 2022
Marking to identify the changed product:	No change on top marking
Description of the qualification program:	Standard ST Microelectronics Corporate Procedures for Quality and Reliability
Estimated date of first shipment:	Week 01 / 2023

Appendix B: HD / SHD flows comparison:



HD assembly Flow	SHD assembly Flow
Wafer Mount	Wafer Mount
Die sawing	Die sawing
Die Attach	Die Attach
	Plasma cleaning
Wire Bond	Wire Bond
Molding	Molding
Post Mold Cure	Post Mold Cure
Visual Inspection	Visual Inspection
Thermal Cycling	Thermal Cycling
Cropping	Cropping

Assembly flow comparison

Strip	HD Test line	SHD Test line
Size	32 x 8	**36 x 12**
Unit Qty / strip	256	**432**
Tester	Magnum-sv	Magnum-sv
Handler	MCT-tri-temp MCT SH5000	MCT-tri-temp MCT SH5000
Test parallelism	128	**144**

Test flow comparison

Document Revision History

Date	Rev.	Description of the Revision
Apr. 29, 2022	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 : ST Shenzhen (China) Assy & Test line upgrade for CMOS F9V Automotive grade EEPROM products in SO8N
PCN Reference : MDG/22/13539

Subject : Public Products List

Dear Customer,

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

M95M04-DWMN3TP/V		

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