PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data		
1.1 Company		STMicroelectronics International N.V
1.2 PCN No.		MDG/22/13384
1.3 Title of PCN		ST Shenzhen (China) Assy & Test line upgrade for ST25DV02K-W products in SO8N
1.4 Product Category		ST25DV02K-W1R8S3 ST25DV02K-W2R8S3
1.5 Issue date		2022-04-21

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	Sylvain FIDELIS
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	Assembly & Test of ST25DV02K-W in SO8N package at ST Shenzhen (China)...	...are upgraded 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 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	2022-04-14
7.2 Intended start of delivery	2022-07-25
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)

13384 Public product.pdf
13384 PCN ST25DV02K-W SO8 HD to SHD V2.01.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
	ST25DV02K-W1R8S3	
	ST25DV02K-W2R8S3	

ST Shenzhen (China) Assy & Test line upgrade for ST25DV02K-W products in SO8N

What is the change?

Assembly & Test of ST25DV02K-W 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.

A rationalization of the lead-frame 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 capacity while improving product manufacturing quality.

When?

Shipments **will start from Week 30** / 2022.
Products assembled from HD line will remain in production till end of March 2023.

How will the change be qualified?

The SO8N SHD assembly line at ST Shenzhen has been qualified for ST25DV02K-W products following the standard STMicroelectronics Corporate Procedures for Quality and Reliability.
Qualification report available in Appendix C.

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?

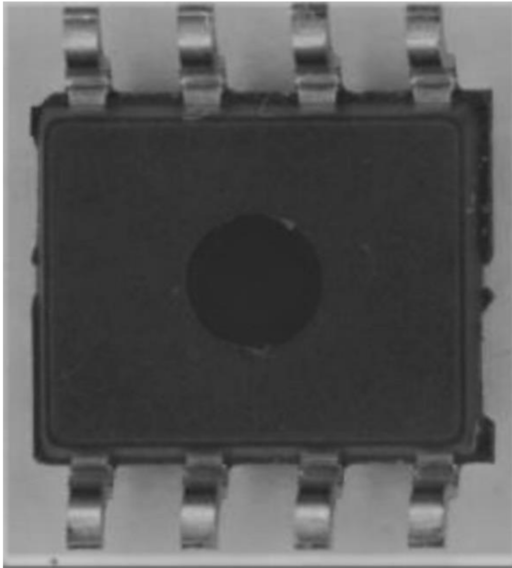
- ***Box label marking***

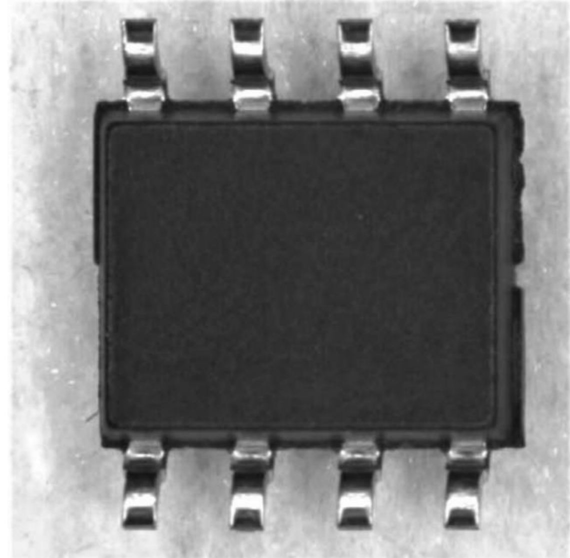
The change is visible on the **BOX LABEL MARKING**, inside the **Finished Good Part Number**:

➔ *Example for ST25DV02K-W1R8S3*

- ***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

- ***Top side marking readability improvement***

Package of SHD line Package of HD line

Top side views

Appendix A- Product Change Information

Product family / Commercial products:	ST25DV02K-W products family SO8 package
Customer(s):	All
Type of change:	Upgrade Assembly & Test line
Reason for the change:	Upgrade to SHD line
Description of the change:	SHD assembly line for SO8N at ST Shenzhen
Forecast date of the change: **(Notification to customer)**	Week 15 / 2022
Forecast date of **Qualification samples availability** **for customer(s):**	Week 17 / 2022
Forecast date for the internal **STMicroelectronics change,** **Qualification Report availability:**	Available Qualification report included in Appendix C
Marking to identify the changed product:	Date code (date to be communicated upon ST qualification)
Description of the qualification program:	Standard ST Microelectronics Corporate Procedures for Quality and Reliability
Product Line(s) and/or Part Number(s):	ST25DV02K-W1R8S3 ST25DV02K-W2R8S3
Manufacturing location	ST Shenzhen (China)
Estimated date of first shipment:	Week 30 / 2022

Appendix B: HD / SHD flows 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

Appendix C: Qualification Report

Test group A – Accelerated Environment Stress Tests

Test	#	Reference	Test Conditions	Lots Qty	Sample Size / Lot	Total	Results / Lot Fail / Sample	Comments (N/A = Not Applicable)
PC	A1	JESD22-A113 J-STD-020	24h bake@125 °C, MSL1 (168h@85 °C / 85% RH) 3x IReflow Peak temperature at 260°C + TC -65 °C / +150 °C	1 Performed before THB / HAST / HTSL / UHAST / TC	385	385	0 / 385	
THB	A2	JESD22-A101	Ta = 85 °C, 85% RH, bias 5v6 Duration = 1000hrs ☒ **After PC** ☒ **Testing at Room**	1	77	77	0 / 77	
HAST	A2	JESD22-A110	Ta = 130 °C, 85% RH, 230 kPa, bias 5.6 V Duration = 96hrs ☒ **After PC** ☒ **Testing at Room**	1	77	77	0 / 77	
UHAST	A3	JESD22-A118	Ta = 130 °C, 85% RH, 230 kPa, no bias Duration = 96hrs ☒ **After PC** ☒ **Testing at Room**	1	77	77	0 / 77	
TC	A4	JESD22 A104	Ta = -65 °C /+150 °C Duration = 1000 cyc ☒ **After PC** ☒ **Testing at Room**	1	77	77	0 / 77	
HTSL	A6	JESD22 A103	Ta = 150 ºC Duration = 1000hrs ☒ **After PC** ☒ **Testing at Room**	1	77	77	0 / 77	

Test group E – Electrical Verification

Test	#	Reference	Test Conditions	Lots Qty	Sample Size / Lot	Total	Results / Lot Fail/Sample Size	Comments (N/A = Not Applicable)
ESD CDM	E3	AEC-Q100-011	Target CDM = +/-750V on corner pins; +/- 500V all others Field induced charging method ☒ **Testing at Room**	1	See test method (3 parts / voltage)	48	pass 1500V	Class C3

- ***Conclusion***

All reliability tests have been completed with positive results. Neither functional nor parametric rejects were detected at final electrical testing.

Based on the overall results obtained, the new products list above manufactured in the ST Rousset 8”, France (Diffusion plant) and assembled in ST Shenzhen, China (Assembly plant), has positively passed reliability evaluation performed in agreement to JESD47K and internal ST spec 0061692.

Document Revision History

Date	Rev.	Description of the Revision
March 15, 2022	1.00	First draft creation
April 13, 2022	2.01	Final version