

PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.	MDG/19/10979	
1.3 Title of PCN	Extended STM32F listed products – TSMC Singapore Wafer Fab SSMC additional source	
1.4 Product Category	STM32F030x 256K; STM32F09x 256K products listed	
1.5 Issue date	2019-09-06	

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
Transfer	Line transfer for a full process or process brick (process step, control plan, recipes) from one site to another site: Wafer fabrication	TSMC Singapore Wafer Fab SSMC

4. Description of change

	Old	New
4.1 Description	Wafer diffusion plants : - TSMC Taiwan Wafer Fab 3	Wafer diffusion plants : - TSMC Taiwan Wafer Fab 3 - TSMC Singapore wafer Fab SSMC (added) Datasheet parameters are unchanged. There is no hardware or software change for customers
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	no change	

5. Reason / motivation for change

5.1 Motivation	The change improves and secures service through capacity increase & double-sourcing.
5.2 Customer Benefit	CAPACITY INCREASE

6. Marking of parts / traceability of change

6.1 Description	Change is visible through diffusion traceability plant, in the marking: - "98" for TSMC Taiwan Wafer Fab 8 - "9U" for TSMC USA Wafer Fab 11 - "93" for TSMC Taiwan Wafer Fab 3 - "9C" for TSMC Singapore Wafer Fab SSMC Please refer to PCN 10979 – Additional information attached document.
-----------------	--

7. Timing / schedule

7.1 Date of qualification results	2019-10-31
7.2 Intended start of delivery	2019-11-30
7.3 Qualification sample available?	Not Applicable

8. Qualification / Validation

8.1 Description	10979 MDG-MCD-RER1802 - PCN10553 PCN10803 PCN10979- STM32F listed products_TSMC Sgp Wafer Fab SSMC add src - reliability plan.pdf
-----------------	---

8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2019-09-06
--	----------------------------	------------	------------

9. Attachments (additional documentations)
10979 Public product.pdf 10979 MDG-MCD-RER1802 - PCN10553 PCN10803 PCN10979- STM32F listed products_TSMC Sgp Wafer Fab SSMC add src - reliability plan.pdf 10979 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
	STM32F030CCT6	
	STM32F030CCT6TR	
	STM32F030RCT6	
	STM32F030RCT6TR	
	STM32F091CBT6	
	STM32F091CBT7	
	STM32F091CBT7TR	
	STM32F091CBU6	
	STM32F091CCT6	
	STM32F091CCT6TR	
	STM32F091CCT7	
	STM32F091CCU6	
	STM32F091CCU7	
	STM32F091RBT6	
	STM32F091RCH6	
	STM32F091RCH7	
	STM32F091RCT6	
	STM32F091RCT6J	
	STM32F091RCT6TR	
	STM32F091RCT7	
	STM32F091RCY6TR	
	STM32F091RCY7TR	
	STM32F091VBT6	
	STM32F091VBT7	
	STM32F091VCH7	
	STM32F091VCT6	
	STM32F091VCT6TR	
	STM32F091VCT7	
	STM32F091VCT7TR	
	STM32F098CCT6	
	STM32F098CCU6	
	STM32F098RCH6	
	STM32F098RCT6	
	STM32F098VCT6	

IMPORTANT NOTICE – PLEASE READ CAREFULLY

Subject to any contractual arrangement in force with you or to any industry standard implemented by us, STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2018 STMicroelectronics – All rights reserved



Public Products List

Public 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 : Extended STM32F listed products – TSMC Singapore Wafer Fab SSMC additional source

PCN Reference : MDG/19/10979

Subject : Public Products List

Dear Customer,

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

STM32F091RCT6TR	STM32F098VCT6	STM32F030RCT6
STM32F091VCH7	STM32F098CCU6TR	STM32F091CBU6
STM32F091CCU6TR	STM32F091CBT6TR	STM32F098RCH6
STM32F091VCT7	STM32F091CCT7	STM32F091VCT6
STM32F091VBT7	STM32F098VCH6	STM32F030CCT6
STM32F091CBT6	STM32F091RCT6	STM32F091CBT7
STM32F091RCT6J	STM32F091CBT7TR	STM32F098RCY6TR
STM32F091VBT6	STM32F091RCT7	STM32F091VCH6
STM32F091RCH6	STM32F091CCT6J	STM32F091RBT6
STM32F030RCT6TR	STM32F098CCT6	STM32F091CCT6
STM32F091RCY7TR	STM32F098RCT6	STM32F091CCT6TR
STM32F098CCT7	STM32F091CCU6	STM32F098VCH6TR
STM32F030CCT6TR	STM32F091CCU7	STM32F091RCY6TR
STM32F098CCU6	STM32F091RCH7	STM32F091CBU6TR



IMPORTANT NOTICE – PLEASE READ CAREFULLY

Subject to any contractual arrangement in force with you or to any industry standard implemented by us, STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.



RER1802 for PCN10553, PCN10803 & PCN10979 STM32F listed products – TSMC Singapore Wafer Fab SSMC additional source

Reliability Evaluation Plan

July, 5th 2019

MDG Quality & Reliability Department



STM32F listed products – TSMC Singapore Wafer Fab SSMC

additional source

STM32 Die Test Vehicles

2

Die Vehicle	Process Perimeter	Assembly Line	Package	Number of Reliability Lots
422	TSMC 0.18μm	ATP1	LQFP100	3 lots to qualify Process Perimeter Then 1 lot by Die
440		JSCC	LQFP64	
444		MUAR	LQFP48	
445		JSCC	LQFP48	
448		ST MUAR	LQFP100	
442		ST MUAR	LQFP100	

STM32F listed products – TSMC Singapore Wafer Fab SSMC

additional source

STM32 Die Reliability Trials

3

Reliability Trial & Standard		Test Conditions	Pass Criteria	Lot Strategy	Units per Lot
ESD HBM	ANSI/ESDA/JEDEC JS-001 JESD22-A114	25°C	2kV (class 2)	1 to 2 lots	3
LU	JESD78	125°C REG-ON Configuration 125°C REG-OFF Configuration	No concern	1 to 2 lots	6 / configuration
EDR + Bake	JESD22-A117 JESD22-A103	125°C & 3.6V Cycling 150°C Bake	10k cycles 1500h 1000h	1 to 2 lots 1 st product driver Other products	77
EDR + Bake	JESD22-A117 JESD22-A103	25°C & 3.6V Cycling 150°C Bake	10k cycles 168h	1 to 2 lots	77
EDR + Bake	JESD22-A117 JESD22-A103	-40°C & 3.6V Cycling 150°C Bake	10k cycles 168h	1 to 2 lots	77
ELFR	JESD22-A108 JESD74	125°C & 3.6V	48h	1 to 2 lots	800 units for products driver 500 units for other products
HTOL	JESD22-A108	125°C & 3.6V	1200h 600h	1 to 2 lots 1 st product driver Other products	77

STM32F listed products – TSMC Singapore Wafer Fab SSMC

additional source

STM32 Package Test Vehicles

4

Package Line	Assembly Line	Package	Wire	Die Vehicle / Partial Rawline	Number of Reliability Lots
LQFP	ATP1	LQFP14*14 100L	Au	422 / 1L*422	3 lots to qualify Process Perimeter Then 1 lot by Package Assembly Line
	ST MUAR	LQFP14*14 100L	Ag	422 / 1L*422	
	ST MUAR	LQFP14*14 100L	Ag	448 / 1L*448	
	ST MUAR	LQFP14*14 100L	Ag	442 / 1L*442	
	JSCC	LQFP10*10 64L	Ag	440 / 5W*440	
	JSCC	LQFP7*7 48L	Ag	445 / 5B*445	
	ASEKH	LQFP7*7 48L	Au	440 / 5B*440	
	MUAR	LQFP7*7 48L	Ag	444 / 5B*444	
QFN	JSCC	UQFN7*7 48L	Ag	440 / MI*440	
	ST CALAMBA	UQFN7*7 48L	Ag	440 / MI*440	
	JSCC	UQFN4*4 28L COL	Au	444 / MB*444	
TSSOP	STS	TSSOP20 Body 4.4	Ag	444 / YA*444	
UFBGA	ATP3	UFBGA64 5x5	Au	440 / 2I*440	
WLCSP	SCS	WLCSP 100b	NA	422 / 1M*422	

STM32F listed products – TSMC Singapore Wafer Fab SSMC

additional source

STM32 Package Reliability trials

5

Reliability Trial & Standard		Test Conditions	Pass Criteria	Lot Strategy	Units per Lot
PC	Pre Conditioning Moisture Sensitivity Jedec Level 1 (*) Moisture Sensitivity Jedec Level 3 (*) J-STD-020/ JESD22-A113	Bake (125°C / 24h) Soak (85°C / 85% RH / 168 hrs) for level 1 (*) Soak (30°C / 60% RH / 192h) for level 3 (*) Convection reflow: 3 passes	3 Passes	1 to 2 lots	231 to 308 (***)
UHASt (**) (***)	Unbiased Highly Accelerated Temperature & Humidity Stress JESD22-A118	130°C, 85%RH, 2 Atm	96h	1 to 2 lots	77
TC (**)	Thermal Cycling JESD22 A104	-50°C, +150°C Or equivalent -65°C +150°C	1000Cy 500Cy	1 to 2 lots	77
THB (**) Or HASt (**)	Temperature Humidity Bias JESD22-A101 Or Biased Highly Accelerated temperature & humidity stress JESD22 A110	85°C, 85% RH, bias Or 110°C, 1.2 atm , 85% RH bias	1000h Or 264h	1 to 2 lots	77
HTSL (**)	High Temperature Storage Life JESD22-A103	150°C - no bias	1000h	1 to 2 lots	77
Construction Analysis	JESD22-B102	Including Solderability & Physical Dimensions	No concern	1 by package assembly line	15
	JESD22-B100/B108				10
ESD CDM	ESD Charged Device Model ANSI/ESD STM5.3.1	Aligned with device datasheet	250V to 500V	1 by package assembly line	3

(*) MSL1 for packages TSSOP20 and WLCSP100

MSL3 for other packages (LQFP48, LQFP64, LQFP100, UQFN28 COL, UQFN48, UFBGA64)

(**) Tests performed after preconditioning

(***) UHASt not done for BGA

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics International NV and its affiliates (“ST”) reserve the right to make changes corrections, enhancements, modifications, and improvements to ST products and/or to this document any time without notice.

This document is provided solely for the purpose of obtaining general information relating to an ST product. Accordingly, you hereby agree to make use of this document solely for the purpose of obtaining general information relating to the ST product. You further acknowledge and agree that this document may not be used in or in connection with any legal or administrative proceeding in any court, arbitration, agency, commission or other tribunal or in connection with any action, cause of action, litigation, claim, allegation, demand or dispute of any kind. You further acknowledge and agree that this document shall not be construed as an admission, acknowledgement or evidence of any kind, including, without limitation, as to the liability, fault or responsibility whatsoever of ST or any of its affiliates, or as to the accuracy or validity of the information contained herein, or concerning any alleged product issue, failure, or defect. ST does not promise that this document is accurate or error free and specifically disclaims all warranties, express or implied, as to the accuracy of the information contained herein. Accordingly, you agree that in no event will ST or its affiliates be liable to you for any direct, indirect, consequential, exemplary, incidental, punitive, or other damages, including lost profits, arising from or relating to your reliance upon or use of this document.

Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement, including, without limitation, the warranty provisions thereunder.

In that respect please note that ST products are not designed for use in some specific applications or environments described in above mentioned terms and conditions.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

Information furnished is believed to be accurate and reliable. However, ST assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously in any prior version of this document.

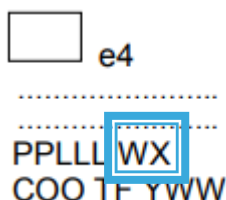
© 2019 STMicroelectronics - All rights reserved
www.st.com

Extended STM32F listed products –
TSMC Singapore Wafer Fab SSMC additional source

MDG - Microcontrollers Division (MCD)

How can the change be seen?

The standard marking is:



WX code indicates the diffusion traceability plant code.

Please refer to the [DataSheet](#) for marking details.

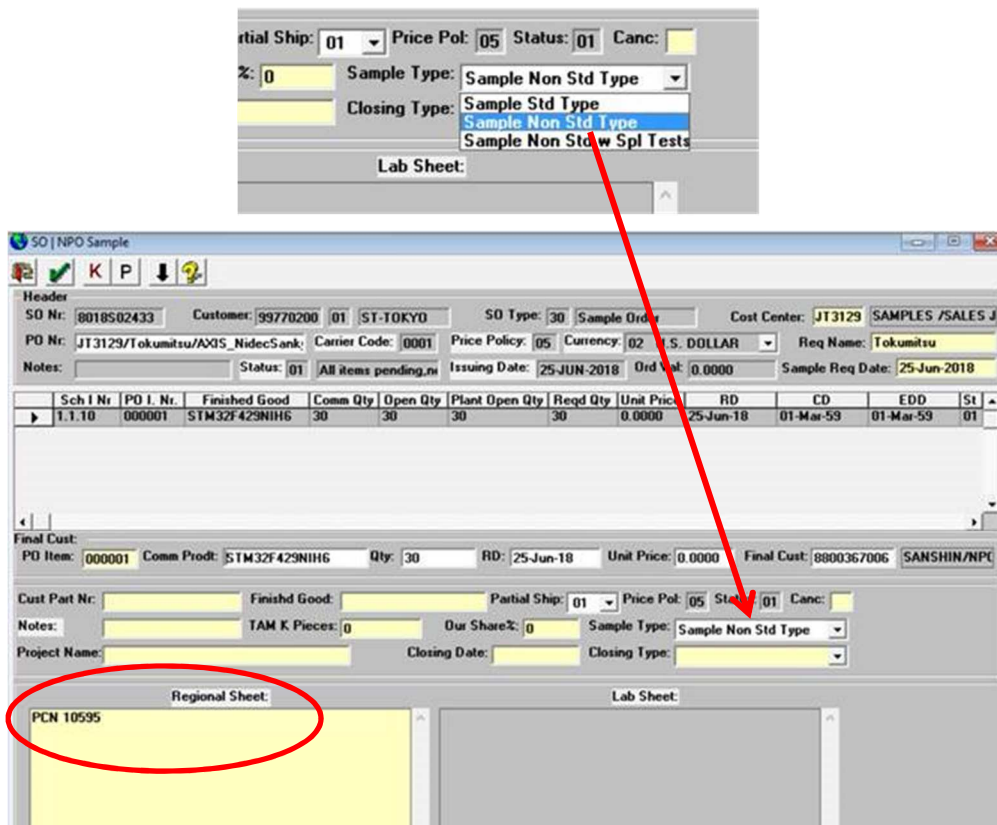
The marking is changing as follows:

Existing		Additional	
WX code	Fab	WX code	Fab
93	TSMC Taiwan Wafer Fab 3	9C	TSMC SSMC Singapore

How to order samples?

For all samples request linked to this PCN, please:

- place a **Non-standard** sample order (choose Sample Non Std Type from pull down menu)
- insert the PCN number "**PCN10979**" into the NPO Electronic Sheet/**Regional Sheet**
- request sample(s) through Notice tool, indicating a single Commercial Product for each request



Partial Ship: 01 Price Pol: 05 Status: 01 Canc: []

%: 0 Sample Type: Sample Non Std Type

Closing Type: Sample Std Type

Sample Non Std Type

Sample Non Std w Spl Tests

Lab Sheet: []

SO | NPO Sample

Header

SO Nr: 8018502433 Customer: 99770200 01 ST-TOKYO SO Type: 30 Sample Order Cost Center: JT3129 SAMPLES /SALES J

PD Nr: JT3129/Tokumitsu/AXS_NidecSank Carrier Code: 0001 Price Policy: 05 Currency: 02 U.S. DOLLAR Req Name: Tokumitsu

Notes: Status: 01 All items pending. Issuing Date: 25-JUN-2018 Ord Val: 0.0000 Sample Req Date: 25-Jun-2018

Sch I Nr	PD 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-53	01-Mar-53	01

Final Cust: PD Item: 000001 Comm Prod: 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: []

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics International NV and/or its affiliates, registered in the U.S. and other countries

© 2019 STMicroelectronics International NV and/or its affiliates - All Rights Reserved

www.st.com