PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	MDG/23/14173
1.3 Title of PCN	ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G07x/08x, STM32G41x/G47x/48x and STM32C031x listed products
1.4 Product Category	STM32C0x, STM32G0x, STM32G4x.
1.5 Issue date	2023-10-25

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: Assembly site (SOP 2617)	ST Calamba (Philippines)

4. Description of change

	Old	New
4.1 Description	Back-End Sources - ASE KaoHsiung (Taiwan) - STATSChipPAC JSCC (China)	Back-End Sources - ASE KaoHsiung (Taiwan) / Bonding Wire is Gold - STATSChipPAC JSCC (China) / Bonding Wire is Gold - ST Calamba (Philippines) / Bonding Wire is Copper Alloy
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	Lead color and surface finish change depending on leadfinishing. Package darkness changes depending on molding compound. Pin1 identifier might change in terms of form and positioning. Marking position and size could be different upon assembly site, without any loss of information.	

5. Reason / motivation for change

5.1 Motivation	Due to the success on the market of STM32 devices, ST General Purpose Microcontrollers Group decided to qualify an additional back-end site to maintain state of the art service level to our customers thanks to extra capacity.
5.2 Customer Benefit	SERVICE IMPROVEMENT

6. Marking of parts / traceability of change

6.1 Description	Change is visible through assembly traceability plant, in the marking: - “GQ” for Stats ChipPAC Jiangyin China (JSCC) - "AA" for ASE Kaohsiung Taiwan - “78” for ST Calamba Philippines Please refer to PCN 14173 Additional information attached document.

7. Timing / schedule

7.1 Date of qualification results	2024-01-31
7.2 Intended start of delivery	2024-03-06

7.3 Qualification sample available?	Upon Request

8. Qualification / Validation			
8.1 Description	14173 MDG-GPM-RER2317 PCN14173 ST CLB UFQFN7x7 48L STM32G-Cx - Reliability plan.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	**Issue Date**	2023-10-25

9. Attachments (additional documentations)
14173 Public product.pdf 14173 MDG-GPM-RER2317 PCN14173 ST CLB UFQFN7x7 48L STM32G-Cx - Reliability plan.pdf 14173 PCN14173_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**
	STM32C031C4U6	
	STM32C031C6U6	
	STM32G071C8U3	
	STM32G071C8U6TR	
	STM32G071C8U7	
	STM32G071C8U7TR	
	STM32G071CBU3	
	STM32G071CBU6	
	STM32G071CBU6TR	
	STM32G081CBU6	
	STM32G473CBU6	
	STM32G473CCU6	
	STM32G473CEU6	
	STM32G474CEU6	
	STM32G484CEU6	

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MDG-GPM-RER2317 for PCN14173 ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G07x/08x, STM32G47x/48x and STM32C031x listed products

Reliability Evaluation Plan

September 20th, 2023

MDG GPM Quality & Reliability

MDG-GPM-RER2317
ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G07x/08x, STM32G47x/48x and STM32C031x listed products

Package Vehicle tests

Package line	Assembly Line	Package	Wire type	Device (RawLine Code)	Diffusion Process Plant	Number of Qual Lots
UFQFN	UFQFN 7x7	48L	Cu Alloy	STM32G07x/08x (MI*460)	TN090CE TSMC fab 14	1
UFQFN	UFQFN 7x7	48L	Cu Alloy	STM32G47x/48x (MI*469)	TN090CE TSMC fab 14	1
UFQFN	UFQFN 7x7	48L	Cu Alloy	STM32C031x (MI*453)	TN090CE TSMC fab 14	1

Reliability strategy:

- Reliability will be performed on 3 lots from representative test vehicles of STM32G07x/08x, STM32G47x/48x and STM32C031x product families. Refer to details in above and next tables.

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Package Reliability Trials

Reliability Trial & Standard		Test Conditions	Pass Criteria	Unit per Lot	Lot qty
PC	Pre Conditioning: Moisture Sensitivity Jedec Level 1 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (85°C / 85% RH / 168 hrs) for level1 Convection reflow: 3 passes	3 passes MSL1	308	3
Uhast(*)	UnBiased Highly Accelerated Temperature and Humidity Stress JESD22 A118	130°C, 85%RH, 2.3 atm	96h	77	3
TC(*)	Thermal Cycling JESD22 A104	-65°C +150°C	500Cy	77	3
THB(*)	Biased temperature & humidity stress JESD22 A101	85°C, 85% RH bias	1000h	77	3
HTSL(*)	High Temperature Storage Life JESD22 A103	150°C- no bias	1000h	77	3
Construction analysis	ST internal specifications	Ball shear, pull test, IMC inspection , internal analysis	NA	50	3
ESD	ESD Charge Device Model JEDEC JS-002	Aligned with device datasheet	Aligned with device datasheet	3	3

(*) tests performed after preconditioning

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PRODUCT/PROCESS CHANGE NOTIFICATION
PCN14173
– Additional information

ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G07x/08x, STM32G41x/G47x/48x and STM32C031x listed products

MDG - General Purpose Microcontrollers Division (GPM)

What are the changes?

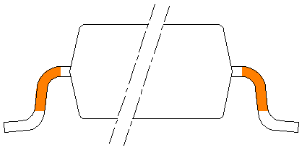
ST General Purpose Microcontrollers Division decided to qualify an additional back-end assembly site. The full process transfer to ST Calamba Assembly site is done maintaining state of the art service level to our customers thanks to extra capacity. This PCN is limited to STM32G07x/08x, STM32G47x/48x and STM32C031x listed products in UFQFPN 7x7 48L package.

Changes described in table below:

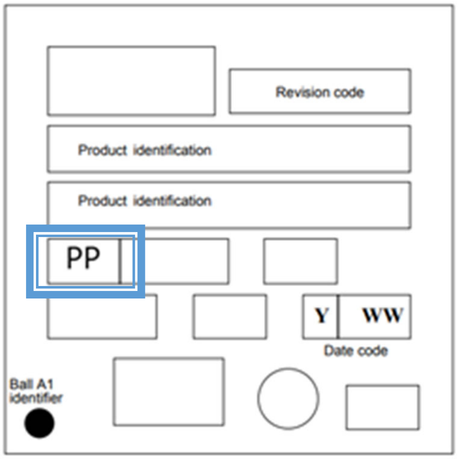
	Existing back-end sites		Added back-end site
Assembly site	Stats ChipPAC JSCC Jiangyin China	ASE Kaohsiung Taiwan	ST CALAMBA Philippines
Leadframe	Copper Frame Double Ring Ag Plating	Copper Frame Double Ring Ag Plating	Copper plated PPF
Leadfinishing (1)	Pure Tin (e3)	Pure Tin (e3)	NiPdAu(e4)
Epoxy Molding Compound (2)	Sumitomo G770	Sumitomo G631H	HITACHI CEL 9240ZHF10W
Glue	Ablebond 8290 Hitachi EN4900GC	Hitachi EN4900GC	QMI519
Wire	Gold 0.8mil	Gold 0.8mil	Cu Alloy 0.8mil

(1) Lead color and surface finish change depending on leadfinishing.

(2) Package darkness changes depending on molding compound.



How can the change be seen?

Marking	Existing	Added Back-End Site
UFQFPN 7x7 48L		
PP code	**AA:** ASE KaoHsiung (Philippines) **GQ**: Stats ChipPAC JSCC Jiangyin China	**78:** ST Calamba (Philippines)

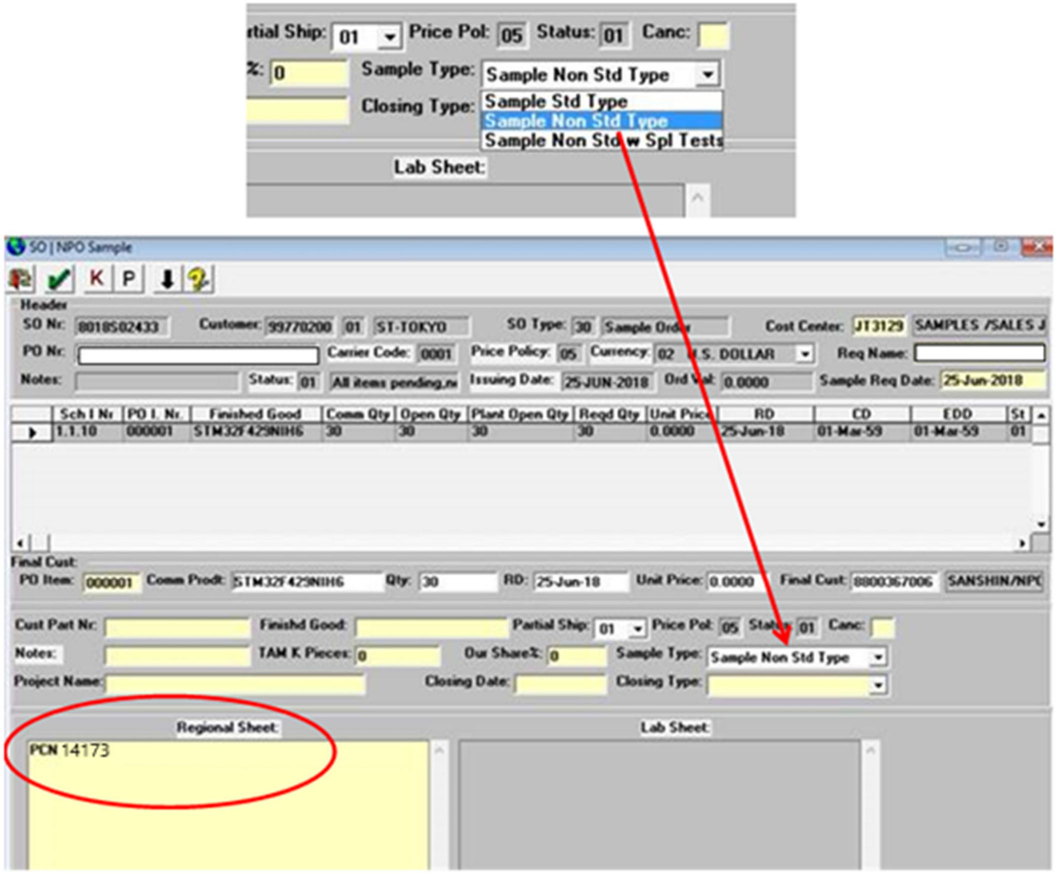
Y WW code indicates Year Week (manufacturing date)

PP code indicates assembly traceability plant code.

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 “**PCN14173**” 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:

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

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 14173

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PCN Title : ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G07x/08x, STM32G41x/G47x/48x and STM32C031x listed products

PCN Reference : MDG/23/14173

Subject : Public Products List

Dear Customer,

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

STM32G071C8U7	STM32G071CBU6	STM32G473CCU3TR
STM32G473CEU3	STM32G473CEU6	STM32G071C8U3TR
STM32G071CBU6TR	STM32C031C6U7	STM32G071C8U3
STM32C031C6U6	STM32G081CBU6	STM32G071CBU3
STM32G473CEU3F	STM32C031C6U7TR	STM32G474CCU6
STM32C031C4U6	STM32G483CEU6	STM32G473CCU6
STM32G071C8U6TR	STM32G474CEU6TR	STM32G071CBU3TR
STM32G473CCU6TR	STM32G071C8U7TR	STM32G484CEU6
STM32G474CEU6	STM32G474CBU6	STM32G473CEU6F
STM32G473CBU6	STM32G473CCU3	STM32G474CCU3
STM32G473CEU3TR		

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