

## PRODUCT / PROCESS CHANGE NOTIFICATION

### 1. PCN basic data

1.1 Company	 STMicroelectronics International N.V
1.2 PCN No.	MDG/24/14405
1.3 Title of PCN	ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G05x/G06x, STM32L45x/L46x and STM32G0Bx/G0Cx listed products
1.4 Product Category	STM32G05x/G06x, STM32L45x/L46x and STM32G0Bx/G0Cx
1.5 Issue date	2024-05-29

### 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.
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### 7. Timing / schedule

7.1 Date of qualification results	2024-07-15
7.2 Intended start of delivery	2024-07-22
7.3 Qualification sample available?	Upon Request

#### 8. Qualification / Validation

<b>8.1 Description</b>	14405 MDG-GPM-RER2317 PCN14405 ST CLB UFQFN7x7 48L STM32G-Cx - Reliability plan.pdf		
<b>8.2 Qualification report and qualification results</b>	Available (see attachment)	<b>Issue Date</b>	2024-05-29

#### 9. Attachments (additional documentations)

14405 Public product.pdf  
 14405 MDG-GPM-RER2317 PCN14405 ST CLB UFQFN7x7 48L STM32G-Cx - Reliability plan.pdf  
 14405 PCN14405 \_Additional information.pdf

#### 10. Affected parts

<b>10. 1 Current</b>		<b>10.2 New (if applicable)</b>
<b>10.1.1 Customer Part No</b>	<b>10.1.2 Supplier Part No</b>	<b>10.1.2 Supplier Part No</b>
	STM32G051C6U6	
	STM32G051C8U6	
	STM32G061C6U6	
	STM32G061C8U6	
	STM32G0B1CBU3	
	STM32G0B1CBU6	
	STM32G0B1CCU6	
	STM32G0B1CEU6	
	STM32G0B1CEU6N	
	STM32G0C1CEU6	
	STM32L451CCU3	
	STM32L451CCU6	
	STM32L451CCU6TR	
	STM32L451CEU6	
	STM32L451CEU6TR	
	STM32L452CCU6	
	STM32L452CEU3	
	STM32L452CEU6	
	STM32L462CEU6	
	STM32L462CEU6TR	

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# **MDG-GPM-RER2317 for PCN14405**

## **ST Calamba (Philippines) UFQFPN 7x7 48L**

### **package line additional source for**

### **STM32G05x/G06x, STM32L45x/L46x and**

### **STM32G0Bx/G0Cx listed products**

## **Reliability Evaluation Plan**

May 27<sup>th</sup>, 2024

MDRF GPM Quality & Reliability

ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G05x/G06x, STM32L45x/L46x and STM32G0Bx/G0Cx 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
UFQFN	UFQFN 7x7	48L	Cu Alloy	STM32G0x (MI*456)	TN090CE TSMC fab 14	1
UFQFN	UFQFN 7x7	48L	Cu Alloy	STM32L45x (MI*462)	TN090CE TSMC fab 14	1
UFQFN	UFQFN 7x7	48L	Cu Alloy	STM32G0Bx (MI*467)	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.

For products embedding 456, 462 & 467 dice in UFQFN48 7x7 package, evaluation will be focused on CDM and Construction Analysis, reliability being evaluated by similarity with dice 460,469 & 453 using same diffusion technology/plant in same UFQFN48 7x7 package.

## Package Reliability Trials

Reliability Trial & Standard		Test Conditions	Pass Criteria	Unit per Lot	Lot qty
PC	Pre-Conditioning: Moisture Sensitivity Jedec Level 3 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (30°C / 60% RH / 192 hrs) for level 3 Convection reflow: 3 passes	3 passes MSL3	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	6
ESD	ESD Charge Device Model JEDEC JS-002	Aligned with device datasheet	Aligned with device datasheet	3	6

(\*) tests performed after preconditioning

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**PRODUCT/PROCESS  
CHANGE NOTIFICATION  
PCN14405**  
– Additional information

**ST Calamba (Philippines) UFQFPN 7x7 48L package line  
additional source for STM32G05x/G06x, STM32L45x/L46x and  
STM32G0Bx/G0Cx listed products.**

**MDRF – General Purpose Microcontrollers Division (GPM)**

**What are the changes?**

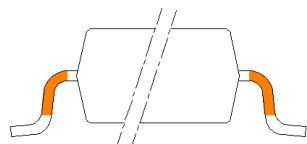
ST General Purpose Microcontrollers Division decided to qualify an additional back-end assembly site. The full process transfer to ST Calamba Assembly site is done maintaining state of the art service level to our customers thanks to extra capacity. This PCN is limited to STM32G05x/G06x, STM32L45x/L46x and STM32G0Bx/G0Cx 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
Lead frame	Copper Frame Double Ring Ag Plating	Copper Frame Double Ring Ag Plating	Copper plated PPF
Leadfinishing <sup>(1)</sup>	Pure Tin (e3)	Pure Tin (e3)	NiPdAu(e4)
Epoxy Molding Compound <sup>(2)</sup>	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	<b>AA:</b> ASE KaoHsiung (Philippines) <b>GQ:</b> Stats ChipPAC JSCC Jiangyin China	<b>78:</b> ST Calamba (Philippines)

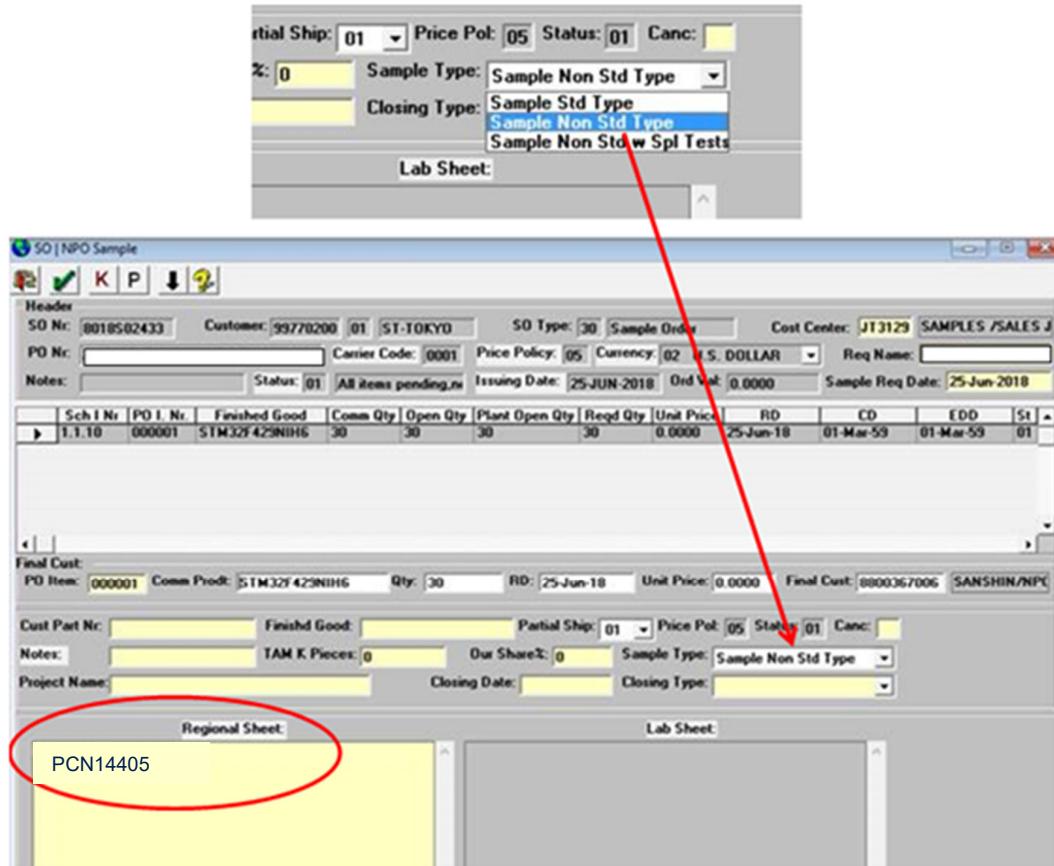
**Y WW code** indicates Year Week (manufacturing date)

**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 “**PCN14405**” 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

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

PO Nr:  Carrier Code: 0001 Price Policy: 05 Currency: 02 U.S. DOLLAR  Req Name:

Notes:  Status: 01 All items pending.nw 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

**Final Cust:**

PO Item: 000001 Comm Prod: STM32F429NIH6 Qty: 30 RD: 25-Jun-18 Unit Price: 0.0000 Final Cust: 8800367006 SANSHIN/NPC

Cust Part Nr:  Finished 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:** **Lab Sheet:**

PCN14405



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**PCN Title :** ST Calamba (Philippines) UFQFPN 7x7 48L package line additional source for STM32G05x/G06x, STM32L45x/L46x and STM32G0Bx/G0Cx listed products

**PCN Reference :** MDG/24/14405

**Subject :** Public Products List

Dear Customer,

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

STM32G061C6U6	STM32L451CCU3TR	STM32G0B1CEU7TR
STM32G0B1CCU3TR	STM32G0B1CCU6N	STM32G0B1CCU7
STM32L462CEU6	STM32G051C8U6TR	STM32G0B1CCU6
STM32G0B1CBU7	STM32G0B1CEU6	STM32G0B1CBU6N
STM32G061C8U6	STM32G0B1CEU7	STM32G0B1CCU6NTR
STM32G0B1CCU3	STM32G0B1CBU3	STM32G051C8U7TR
STM32G051C8U3	STM32L451CEU6TR	STM32G0B1CBU6
STM32G0B1CBU7TR	STM32G051C8U7	STM32L451CCU6TR
STM32L452CEU3	STM32G051C8U6	STM32L451CCU3
STM32G0B1CBU6TR	STM32L462CEU6TR	STM32L451CEU6
STM32G051C6U6	STM32G0C1CCU6	STM32G051C8U3TR
STM32G0C1CEU6TR	STM32G0B1CCU6TR	STM32G0B1CEU6N
STM32L452CEU6	STM32G0B1CCU7TR	STM32L451CCU6
STM32L452CCU6	STM32G0C1CEU6	STM32L462CEU6F

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