

PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	 STMicroelectronics International N.V
1.2 PCN No.	EMBEDDED PROCESSING/26/16068
1.3 Title of PCN	ASE Kaohsiung (Taiwan) LQFP 14x14 package Copper Palladium bonding wire introduction on STM32G47x and STM32G48x listed products.
1.4 Product Category	STM32G471x, STM32G473x, STM32G474x, STM32G483x and STM32G484x.
1.5 Issue date	2026-06-16

2. PCN Team

2.1 Contact supplier	
2.1.1 Name	PIKE EMMA
2.1.2 Phone	+44 1628896111
2.1.3 Email	emma.pike@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Patrick AIDOUNE
2.1.2 Marketing Manager	Marie TOURNUT
2.1.3 Quality Manager	Pascal NARCHE

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Materials	Direct Material: Bond Wire - Metallurgy (metallic composition/ raw material)	ASE KaoHsiung (Taiwan)

4. Description of change

	Old	New
4.1 Description	Current Wire bonding material: - Amkor ATP (Philippines) gold wire - ASE KaoHsiung (Taiwan) gold wire	Current Wire bonding material: - Amkor ATP (Philippines) gold wire - ASE KaoHsiung (Taiwan) gold wire New Wire bonding material : - ASE KaoHsiung (Taiwan) copper palladium wire
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	no impact on form, Fit, Function	

5. Reason / motivation for change

5.1 Motivation	To improve service
5.2 Customer Benefit	SERVICE IMPROVEMENT

6. Marking of parts / traceability of change

6.1 Description	Traceability ensured by ST Internal tools
-----------------	---

7. Timing / schedule

7.1 Date of qualification results	2026-04-30
7.2 Intended start of delivery	2026-07-10
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	16068 MDG-GPM-RER2304-PCN16068 V5.0-ASE LQFP7x7 to 20x20 CuPd-Rel Eval Report.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2026-06-16

9. Attachments (additional documentations)		
16068 Public product.pdf 16068 MDG-GPM-RER2304-PCN16068 V5.0-ASE LQFP7x7 to 20x20 CuPd-Rel Eval Report.pdf 16068 _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
	STM32G473QET6	
3132393	STM32G474QET3	
3132397	STM32G484QET6	

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.

© 2022 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 : ASE Kaohsiung (Taiwan) LQFP 14x14 package Copper Palladium bonding wire introduction on STM32G47x and STM32G48x listed products.

PCN Reference : EMBEDDED PROCESSING/26/16068

Subject : Public Products List

Dear Customer,

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

STM32G473QCT3TR	STM32G484QET3	STM32G474QBT6
STM32G473QCT3	STM32G473QET6TR	STM32G473QET6
STM32G473QCT6	STM32G483QET6	STM32G484QET6
STM32G474QCT6	STM32G474QET6TR	STM32G473QBT6
STM32G474QET6	STM32G484QET6TR	

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.

© 2022 STMicroelectronics – All rights reserved

**PRODUCT/PROCESS
CHANGE NOTIFICATION
PCN16068
– Additional information**

**ASE Kaohsiung (Taiwan) LQFP 14x14 package Copper
Palladium bonding wire introduction on STM32G47x and
STM32G48x listed products.**

MRDF – General Purpose and Automotive Microcontrollers (GPAM)

What are the changes?

Introduction of an additional assembly line to continue our path through the deployment of our Low-cost wire strategy to secure our supply chain.

Table_1: Bill of material change description for LQFP 128L 14x14 package

LQFP 128L 14x14	Existing back-End assembly lines		New Added line
	Amkor ATP (Philippines)	ASE Kaohsiung (Taiwan)	
Molding Compound ⁽²⁾	Sumitomo G631HQ	Sumitomo G631SH	
Die attach Glue	Evertch AP4200	SUMITOMO CRM 1076WA	HITACHI EN4900G
Bonding Wire	Gold 0.8 Mils		CuPd 0.8 Mils
Leadframe	Copper, post-plated		
Leadfinishing ⁽¹⁾	Pure Tin (e3)		
Marking composition	2D Marking		

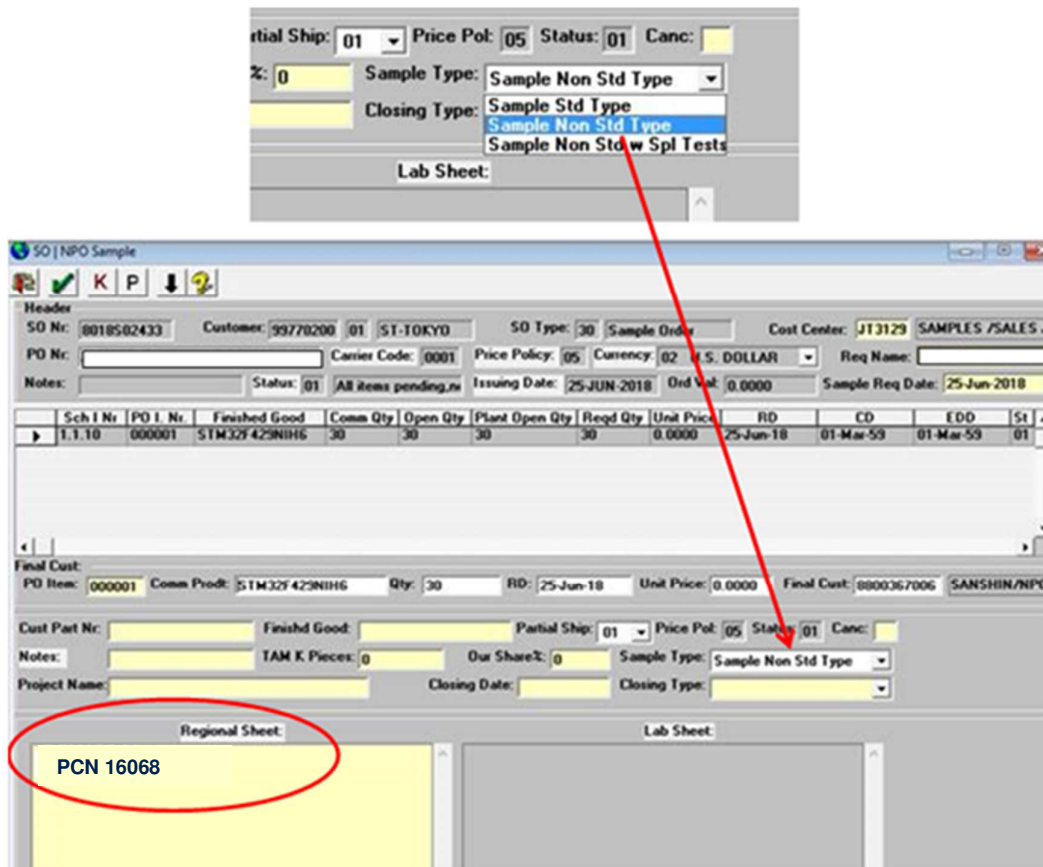
⁽¹⁾ Lead color and surface finishing may slightly vary depending on lead finishing.

⁽²⁾ Package darkness or chromaticity may change depending on molding compound.
Pin1 identifier may change in terms of size and positioning however remaining near pin1's edge.
Marking position and size may be different upon assembly site, without any loss of information.

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 "**PCN16068**" into the NPO Electronic Sheet/**Regional Sheet**.
- request sample(s) through Notice tool, indicating a single Commercial Product for each request.



The image shows a screenshot of the 'NPO Sample' form. At the top, there is a dropdown menu for 'Sample Type' with the following options: 'Sample Non Std Type', 'Sample Std Type', 'Sample Non Std Type', and 'Sample Non Std w Spl Tests'. A red arrow points from this menu to the 'Regional Sheet' section at the bottom. In the 'Regional Sheet' section, the text 'PCN 16068' is circled in red. The form also includes fields for 'Partial Ship', 'Price Pol', 'Status', 'Canc', 'Sample Type', 'Closing Type', 'Lab Sheet', 'SO No', 'Customer', 'Carrier Code', 'Price Policy', 'Currency', 'Req Name', 'Notes', 'Status', 'All items pending', 'Issuing Date', 'Ord Val', 'Sample Req Date', 'Sch I Nr', 'PO I. Nr', 'Finished Good', 'Comm Qty', 'Open Qty', 'Plant Open Qty', 'Reqd Qty', 'Unit Price', 'RD', 'CD', 'EDD', 'St', 'Final Cust', 'PO Item', 'Comm Prod', 'Qty', 'RD', 'Unit Price', 'Final Cust', 'SANSHIN/NPC', 'Cust Part Nr', 'Finishd Good', 'Partial Ship', 'Price Pol', 'Status', 'Canc', 'Notes', 'TAM K Pieces', 'Our Share%', 'Sample Type', 'Closing Date', 'Closing Type', and 'Project Name'.

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.



Reliability Evaluation Report

MDG-GPM-RER2304

ASEKH LQFP7x7 to LQFP20x20 Copper Palladium wire

General Information	
Commercial Product	STM32L433VCT6, STM32H723ZGT6 STM32F427VIT6, STM32F217ZGT6 STM32L552VET6, STM32F767ZIT6 STM32G030C8T6, STM32U535RET6 STM32H533ZET6, STM32H742VGT6 STM32G474QET6
Product Line	435X66, 483X66, 419X66, 411X66 472X66, 451X66, 466X66, 455X66, 478X66, 450X66, 469X66
Die revision	435 cut1.1, 483 cut1.1, 419 cut2.2 411 cut2.4, 472 cut 2.1, 451 cut1.1 466 cut1.2, 455 cut1.1, 478 cut1.0, 450 cut2.2, 469 cut2.3
Product Description	STM32L4, STM32H7, STM32F4 STM32F2, STM32L5, STM32F7 STM32G0, STM32U5, STM32H5, STM32H7, STM32G4
Package	LQFP 100 14x14x1.4 LQFP 144 20X20X1.4 LQFP 48 7x7x1.4 LQFP 64 10x10x1.4 LQFP 128 14x14x1.4
Silicon Technology	TN090, CMOSM40, CMOSM10, TN040, CMOSE40
Division	MDRF-GPAM

Traceability	
Diffusion Plant	TSMC Fab14 / Crolles 300/ HHGRACE
Assembly Plant	ASEKH - TAIWAN

Reliability Assessment	
Pass	X
Fail	

Release	Date	Author	Function
1.0	12/06/2023	Gabin BOSCO	GPAM BE Q&R
2.0	25/08/2023	Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R
3.0	05/07/2024	Celine NAVARRO	GPAM BE Q&R
4.0	28/10/2025	Celine NAVARRO	GPAM BE Q&R
4.1	21/01/2026	Celine NAVARRO	GPAM BE Q&R
4.2	04/03/2026	Celine NAVARRO	GPAM BE Q&R
5.0	16/04/2026	Celine NAVARRO	GPAM BE Q&R

Approved by:

Approval list V1.0			
Name	Function	Location	Date
Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R Manager	ROUSSET	16/06/2023
Pascal NARCHE	Subgroup Quality Manager	ROUSSET	19/06/2023
Approval list V2.0			
Pascal NARCHE	Subgroup Quality Manager	ROUSSET	25/08/2023
Approval list V3.0			
Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R Manager	ROUSSET	12/07/2024
Approval list V4.0			
Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R Manager	ROUSSET	29/10/2025
Approval list V4.1			
Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R Manager	ROUSSET	21/01/2026
Approval list V4.2			
Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R Manager	ROUSSET	04/03/2026
Approval list V5.0			
Berengere ROUTIER-SCAPPUCCI	GPAM BE Q&R Manager	ROUSSET	30/04/2026

This report is a summary of the reliability trials performed in good faith by STMicroelectronics. This report does not imply for STMicroelectronics expressly or implicitly any contractual obligations other than as set forth in STMicroelectronics General Terms and Conditions of Sale.

RELIABILITY EVALUATION OVERVIEW

• OBJECTIVE

The aim of this report is to present the reliability evaluation performed for the qualification of ASEKH (Taiwan) LQFP7x7/LQFP10x10/LQFP14x14/LQFP20X20 with copper-palladium wires on M10 TSMC/Crolles, M40/E40 Crolles and N90/N40 TSMC.

PCN13841 changes are described here below:

	Existing back-end line	Added back-end line
Assembly site	ASE KaoHsiung (Taiwan)	
Wire	Gold 0.8mil	CuPd 0.8mil
GLUE	Sumitomo CRM 1076WA	HITACHI EN4900G ⁽¹⁾
Marking composition	Without 2D	With 2D marking

PCN14224 changes are described here below:

	Existing back-end line	Added back-end line
Assembly site	AMKOR ATP (Philippines)	ASE KaoHsiung (Taiwan)
Wire	Gold 0.8mil	CuPd 0.8mil
GLUE	Evertech AP4200	HITACHI EN4900G ⁽¹⁾
Resin	SUMITOMO EME-G631SHQ	SUMITOMO EME-G631SH
Marking composition	Without 2D	With 2D marking

PCN 14728 changes are described here below:

	Existing back-end line		Added back-end line
Assembly site	ASE KaoHsiung (Taiwan)		
Wire	Gold 0.8mil		CuPd 0.8mil
GLUE	Sumitomo CRM 1076WA		HITACHI EN4900G
Marking composition	Without 2D	With 2D Marking	With 2D marking

⁽¹⁾Sumitomo CRM 1076WA and HITACHI EN4900G glues were used during qualification phase however production will be on HITACHI EN4900G.

PCN 15910 changes are described here below:

LQFP 10x10 64L	Existing back-end line			Added back-end line
Assembly site	StatsChipPAC JSCC Jiangyin (China)			ASE KaoHsiung (Taiwan)
Wire	Gold 0.8mil	Ag 96.5 0.8mil	CuPd 0.8 mil	CuPd 0.8 mil
Leadframe	Copper, Post plated			Copper, Post plated
Lead Finishing	Pure Tin (e3)			Pure Tin (e3)
Mold Compound	G631SHQ	G631SHQ	G700LALA	G631SH
Glue	Ablestik 3230	Ablestik 3230	EN4900GC	EN4900G
PP code marking	GQ			AA

PCN 16068 changes are described here below:

Table_1: Bill of material change description for LQFP 128L 14x14 package

LQFP 128L 14x14	Existing back-End assembly lines		New Added line
	Amkor ATP (Philippines)	ASE Kaohsiung (Taiwan)	
Molding Compound ⁽²⁾	Sumitomo G631HQ	Sumitomo G631SH	
Die attach Glue	Evertch AP4200	SUMITOMO CRM 1076WA	HITACHI EN4900G
Bonding Wire	Gold 0.8 Mils		CuPd 0.8 Mils
Leadframe	Copper, post-plated		
Leadfinishing ⁽¹⁾	Pure Tin (e3)		
Marking composition	2D Marking		

⁽¹⁾ Lead color and surface finishing may slightly vary depending on lead finishing.

⁽²⁾ Package darkness or chromaticity may change depending on molding compound.
Pin1 identifier may change in terms of size and positioning however remaining near pin1's edge.
Marking position and size may be different upon assembly site, without any loss of information.

• CONCLUSION

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

Package oriented tests have not put in evidence any criticality. Physical analysis performed on samples submitted to tests has not put in evidence any issue. ESD CDM are in accordance with ST spec.

Based on the overall results obtained, products below have positively passed reliability evaluation:

Line code	Commercial product	Diff plant	Assy plant
435x66	STM32L433VCT6	TSMC FAB14	ASEKH (TAIWAN)
483x66	STM32H723ZGT6	Crolles 300	
419x66	STM32F427VIT6	TSMC FAB14	
411x66	STM32F217ZGT6	Crolles 300	
472x66	STM32L552VET6	TSMC FAB14	
451x66	STM32F767ZIT6	Crolles 300	
466x66	STM32G030C8T6	TSMC FAB14	
455x66	STM32U535RET6	TSMC FAB14	
478x66	STM32H533ZET6	Crolles 300	
450x66	STM32H742VGT6	HHGRACE	
469x66	STM32G474QET6	Crolles 300	

All reliability tests are completed with good results for all Finished Goods diffused in M10 TSMC/Crolles, M40/E40 Crolles, M40 HHGRACE, N90 TSMC/Crolles/Agrate, N40 TSMC and assembled in LQFP7x7 to LQFP20x20 at ASEKH (Taiwan) in copper-palladium wire.

Refer to Section 3.0 for reliability test results.

TABLE OF CONTENT

1. RELIABILITY STRATEGY	7
2. PRODUCT OR TEST VEHICLE CHARACTERISTICS	7
2.1. Generalities	7
2.2. Traceability	8
2.2.1. Wafer Fab Information	8
2.2.2. Assembly Information	19
2.2.3. Reliability testing information	21
3. TEST RESULTS SUMMARY	22
3.1. Lot information	22
3.2. Test results summary	23
4. APPLICABLE AND REFERENCE DOCUMENTS	25
5. GLOSSARY	25
6. REVISION HISTORY	26

1. RELIABILITY STRATEGY

Reliability trials performed as part of this reliability evaluation are in agreement with ST 0061692 specification, in full compliancy with the JESD-47 international standard.

PCN 15910 is covered by M10 Crolles technology qualified on ASE LQFP line with 2 reliability lots of 411 and 451 in LQ20x20 144L with same technology than STM32F446RCT6 (421 LQ64). Biggest packages size cover smaller package size qualification.

For details on test conditions, generic data used and specifications references, refer to test results summary in section 3.

2. PRODUCT OR TEST VEHICLE CHARACTERISTICS

2.1. Generalities

Package line	Partial rawline code	Number of lots
LQFP 100 14x14x1.4	1L*435	1
	1L*419	1
	1L*472	1
LQFP 144 20X20X1.4	1A*483	1
	1A*411	1
	1A*451	1
	1A*478	1
LQFP 48 7x7x1.4	5B*466	1
LQFP 64 10x10x1.4	5W*455	1
LQFP 100 14x14x1.4	1L*450	1
LQFP 128 14x14x1.4	TC*469	1

2.2. Traceability

2.2.1. Wafer Fab Information

Die 435

Wafer Fab Information			
FAB1			
Wafer fab name / location	TSMC Fab14 / Taiwan		
Wafer diameter (inches)	12		
Wafer thickness (μm)	775±25		
Silicon process technology	TN090		
Number of masks	45		
Die finishing front side (passivation) materials / thickness	PSG+NITRIDE / 1,75μm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	10.045 mm² (3176.4μm, 3162.4μm)		
Die pad size	Geometry	Open(X,Y)	
	Rectangular	123,59 μm	
Sawing street width (X,Y) (μm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/CuSeed/Cu	0.24 μm
	2	TaN/Ta/CuSeed/Cu	0.31 μm
	3	TaN/Ta/CuSeed/Cu	0.31 μm
	4	TaN/Ta/CuSeed/Cu	0.31 μm
	5	TaN/Ta/CuSeed/Cu	0.31 μm
	6	TaN/Ta/CuSeed/Cu	0.85 μm
	7	AlCu	1.45 μm

Die 483

Wafer Fab Information			
FAB1			
Wafer fab name / location	Crolles 300 / France		
Wafer diameter (inches)	12		
Wafer thickness (μm)	775±25		
Silicon process technology	CMOSM40		
Number of masks	51		
Die finishing front side (passivation) materials / thickness	PSG+NITRIDE / 1,75μm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	15.67 mm² (3753μm, 4175μm)		
Die pad size	Geometry	Open(X,Y)	
	Rectangular	54.9,54.4 μm	
Sawing street width (X,Y) (μm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/CuSeed/Cu	0.13 μm
	2	TaN/Ta/CuSeed/Cu	0.14 μm
	3	TaN/Ta/CuSeed/Cu	0.14 μm
	4	TaN/Ta/CuSeed/Cu	0.14 μm
	5	TaN/Ta/CuSeed/Cu	0.14 μm
	6	TaN/Ta/CuSeed/Cu	0.85 μm
	7	TaN/Ta/CuSeed/Cu	0.85 μm
	8	Ta/TaN/AlCu	1.525 μm

Die 411

Wafer Fab Information			
FAB1			
Wafer fab name / location	Crolles 300 / France		
Wafer diameter (inches)	12		
Wafer thickness (µm)	775±25		
Silicon process technology	CMOSM10		
Number of masks	42		
Die finishing front side (passivation) materials / thickness	PSG+NITRIDE / 1,75µm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	14.71mm² (4006µm, 3674µm)		
Die pad size	Geometry		Open(X,Y)
	Rectangular		59,123 µm
	Rectangular		63,73 µm
Sawing street width (X,Y) (µm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/CuSeed/Cu	0.24 µm
	2	TaN/CuSeed/Cu	0.33 µm
	3	TaN/CuSeed/Cu	0.33 µm
	4	TaN/CuSeed/Cu	0.33 µm
	5	TaN/CuSeed/Cu	0.33 µm
	6	TaN/CuSeed/Cu	0.85 µm
	7	AlCu/TinArc	1.45 µm

Die 419

Wafer Fab Information			
FAB1			
Wafer fab name / location	TSMC Fab14 / Taiwan		
Wafer diameter (inches)	12		
Wafer thickness (μm)	775±25		
Silicon process technology	CMOSM10		
Number of masks	44		
Die finishing front side (passivation) materials / thickness	USG + NITRIDE / 1.1μm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	25.43 mm² (5582μm, 4556μm)		
Die pad size	Geometry		Open(X,Y)
	Rectangular		59,123 μm
Sawing street width (X,Y) (μm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/CuSeed/Cu	0.22 μm
	2	TaN/Ta/CuSeed/Cu	0.28 μm
	3	TaN/Ta/CuSeed/Cu	0.28 μm
	4	TaN/Ta/CuSeed/Cu	0.28 μm
	5	TaN/Ta/CuSeed/Cu	0.28 μm
	6	Ta/TaN/AlCu	0.73 μm
	7	AlCu	1.2 μm

Die 472

Wafer Fab Information			
FAB1			
Wafer fab name / location	TSMC Fab14 / Taiwan		
Wafer diameter (inches)	12		
Wafer thickness (μm)	775±25		
Silicon process technology	TN090		
Number of masks	45		
Die finishing front side (passivation) materials / thickness	USG + NITRIDE / 1,75μm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	17.999 mm² (4099.2, 4391.0)		
Die pad size	Geometry		Open(X,Y)
	Rectangular		123,59 μm
Sawing street width (X,Y) (μm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/CuSeed/Cu	0.24 μm
	2	TaN/Ta/CuSeed/Cu	0.31 μm
	3	TaN/Ta/CuSeed/Cu	0.31 μm
	4	TaN/Ta/CuSeed/Cu	0.31 μm
	5	TaN/Ta/CuSeed/Cu	0.31 μm
	6	TaN/Ta/CuSeed/Cu	0.85 μm
	7	AlCu	1.45 μm

Die 451

Wafer Fab Information			
FAB1			
Wafer fab name / location	Crolles 300 / France		
Wafer diameter (inches)	12		
Wafer thickness (µm)	775±25		
Silicon process technology	CMOSM10		
Number of masks	43		
Die finishing front side (passivation) materials / thickness	PSG + NITRIDE / 1.1µm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	34.15 mm² (6130, 5572)		
Die pad size	Geometry		Open(X,Y)
	Rectangular		59,123 µm
Sawing street width (X,Y) (µm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/CuSeed/Cu	0.24 µm
	2	TaN/CuSeed/Cu	0.33 µm
	3	TaN/CuSeed/Cu	0.33 µm
	4	TaN/CuSeed/Cu	0.33 µm
	5	TaN/CuSeed/Cu	0.33 µm
	6	TaN/CuSeed/Cu	0.85 µm
	7	AlCu/TinArc	1.45 µm

Die 466

Wafer Fab Information			
FAB1			
Wafer fab name / location	TSMC Fab14 / Taiwan		
Wafer diameter (inches)	12		
Wafer thickness (μm)	775±25		
Silicon process technology	TN090		
Number of masks	45		
Die finishing front side (passivation) materials / thickness	USG + NITRIDE / 1.1μm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	4.0921 mm ² (1889.6, 2165.6)		
Die pad size	Geometry		Open(X,Y)
	Rectangular		65,59 μm
	Rectangular		123,59 μm
Sawing street width (X,Y) (μm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/CuSeed/Cu	0.24 μm
	2	TaN/Ta/CuSeed/Cu	0.31 μm
	3	TaN/Ta/CuSeed/Cu	0.31 μm
	4	TaN/Ta/CuSeed/Cu	0.31 μm
	5	TaN/Ta/CuSeed/Cu	0.31 μm
	6	TaN/Ta/CuSeed/Cu	0.85 μm
	7	AlCu	1.45 μm

Die 455

Wafer Fab Information			
FAB1			
Wafer fab name / location	TSMC Fab14 / Taiwan		
Wafer diameter (inches)	12		
Wafer thickness (μm)	775±25		
Silicon process technology	N40		
Number of masks	48		
Die finishing front side (passivation) materials	Oxide + Nitride		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	11.6035 mm ² (3406.4, 3406.4)		
Die pad size	Geometry		Open(X,Y)
	Rectangular		54.9,55.38 μm
	Square		54.9,54.9 μm
Sawing street width (X,Y) (μm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	Cu	0.125 μm
	2	Cu	0.145 μm
	3	Cu	0.145 μm
	4	Cu	0.145 μm
	5	Cu	0.145 μm
	6	Cu	0.850 μm
	7	Cu	3.500 μm
	8	Al	1.500 μm

Die 478

Wafer Fab Information			
FAB1			
Wafer fab name / location	Crolles 300 / France		
Wafer diameter (inches)	12		
Wafer thickness (µm)	775±25		
Silicon process technology	CMOSE40		
Number of masks	51		
Die finishing front side (passivation) materials / thickness	PSG+NITRIDE / 1,75µm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	7.817 mm² (2785µm, 2807µm)		
Die pad size	54.9,54.9 µm		
Sawing street width (X,Y) (µm)	80,80		
Metal levels/Materials/Thicknesses			
	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/CuSeed/Cu	0.145 µm
	2	TaN/Ta/CuSeed/Cu	0.130 µm
	3	TaN/Ta/CuSeed/Cu	0.130 µm
	4	TaN/Ta/CuSeed/Cu	0.130 µm
	5	TaN/Ta/CuSeed/Cu	0.130 µm
	6	TaN/Ta/CuSeed/Cu	0.850 µm
	7	TaN/Ta/CuSeed/Cu	0.850 µm
	8	Ta/TaN/AlCu	1.525 µm

Die 450

Wafer Fab Information			
FAB1			
Wafer fab name / location	HHGRACE Wuxi / HHGRACE WUXI DIFF		
Wafer diameter (inches)	12		
Wafer thickness (µm)	775±25		
Silicon process technology	CMOSM40MI		
Number of masks	51		
Die finishing front side (passivation) materials / thickness	Oxide Nitride		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	23.23 mm² (4983, 4662)		
Die pad size	54.9,54.4 µm		
Sawing street width (X,Y) (µm)	72,72		
Metal levels/Materials/Thicknesses			
	Wire bond pad metal	Composition	Thickness
	1	TaN/Ta/Cu	0.13 µm
	2	TaN/Ta/Cu	0.14 µm
	3	TaN/Ta/Cu	0.14 µm
	4	TaN/Ta/Cu	0.14 µm
	5	TaN/Ta/Cu	0.14 µm
	6	TaN/Ta/Cu	0.85 µm
	7	TaN/Ta/Cu	0.85 µm
	8	TaN/Ta/Ti/AlCu	1.525 µm

Die 469

Wafer Fab Information			
FAB1			
Wafer fab name / location	Crolles 300 / France		
Wafer diameter (inches)	12		
Wafer thickness (µm)	775±25		
Silicon process technology	TN090CE		
Number of masks	43		
Die finishing front side (passivation) materials / thickness	PSG+NITRIDE / 1,75µm		
Die finishing back side Materials	RAW SILICON		
Die area (Stepping die size)	17.390 mm ² (4298.4, 4045.6)		
Die pad size	123,59 µm		
Sawing street width (X,Y) (µm)	80,80		
Metal levels/Materials/Thicknesses	Wire bond pad metal	Composition	Thickness
	1	Ta/Tan/Cu	0.24 µm
	2	TaN/Ta/Cu	0.33 µm
	3	TaN/Ta/Cu	0.33 µm
	4	TaN/Ta/Cu	0.33 µm
	5	Ta/Tan/Cu	0.33 µm
	6	TaN/Ta/Cu	0.9 µm
	7	TaN/Ta/Ti/AlCu	1.45 µm

2.2.2.Assembly Information

Assembly Information			
Package 1: LQFP 100 14x14x1.4	435	419	472 - 450
Assembly plant name / location	ASE Taiwan		
Pitch (mm)	0,5		
Die thickness after back-grinding (µm)	375±25		
Die sawing method	Laser groove + mechanical sawing		
Bill of Material elements			
Lead frame/ material/ reference	LF LQ14 100L Pure Tin C7025 6.6sq Slot		
Lead frame finishing (material/thickness)	Pure Tin (e3): Tolerance 7 to 20µm		
Die attach material/ glue /supplier	GLUE SUMITOMO EPOXY CRM 1076WA	HITACHI EN4900G	
Wire bonding material/diameter	Wire CuPd 0.8 mils		
Molding compound material/supplier/reference	MOLDING RESIN SUMITOMO EME-G631SH		
Package Moisture Sensitivity Level (JEDEC J-STD020D)	3		

Assembly Information				
Package 2: LQFP 144 20X20X1.4	483	411	451	478
Assembly plant name / location	ASE Taiwan			
Pitch (mm)	0.5			
Die thickness after back-grinding (μm)	375±25			
Die sawing method	Laser groove + mechanical sawing			
Bill of Material elements				
Lead frame/material/reference	LF LQ20 144L Pure Tin C7025 6.6sq			
Lead frame finishing (material/thickness)	Pure Tin (e3): Tolerance 7 to 20μm			
Die attach material/glue/supplier	SUMITOMO EPOXY CRM 1076WA		HITACHI EN4900G	
Wire bonding material/diameter	Wire CuPd 0.8 mils			
Molding compound material/supplier/reference	MOLDING RESIN SUMITOMO EME-G631SH			
Package Moisture Sensitivity Level (JEDEC J-STD020D)	3			

Assembly Information	
Package 3: LQFP 48 7x7x1.4	
Assembly plant name / location	ASE Taiwan
Pitch (mm)	0.5
Die thickness after back-grinding (µm)	375±25
Die sawing method	Laser groove + mechanical sawing
Bill of Material elements	
Lead frame/material/reference	LF LQ48L Pur tin C7025 4.092sq
Lead frame finishing (material/thickness)	Pure Tin (e3): Tolerance 7 to 20µm
Die attach material/glue/supplier	HITACHI EN4900G
Wire bonding material/diameter	Wire CuPd 0.8 mils
Molding compound material/supplier/reference	MOLDING RESIN SUMITOMO EME-G631SH
Package Moisture Sensitivity Level (JEDEC J-STD020D)	3

Assembly Information	
Package 4: LQFP 64 10x10x1.4	
Assembly plant name / location	ASE Taiwan
Pitch (mm)	0.5
Die thickness after back-grinding (µm)	375±25
Die sawing method	Laser groove + mechanical sawing
Bill of Material elements	
Lead frame/material/reference	LF LQ64 Pure Tin C7025 5.7sq
Lead frame finishing (material/thickness)	Pure Tin (e3): Tolerance 7 to 20µm
Die attach material/glue/supplier	HITACHI EN4900G
Wire bonding material/diameter	Wire CuPd 0.8 mils
Molding compound material/supplier/reference	MOLDING RESIN SUMITOMO EME-G631SH
Package Moisture Sensitivity Level (JEDEC J-STD020D)	3

Assembly Information	
Package 5: LQFP 128 14x14x1.4	
Assembly plant name / location	ASE Taiwan
Pitch (mm)	0.4
Die thickness after back-grinding (µm)	375±25
Die sawing method	Laser groove + mechanical sawing
Bill of Material elements	
Lead frame/material/reference	LQ14 128L Pure Tin C7025 5.5sq
Lead frame finishing (material/thickness)	Pure Tin (e3): Tolerance 7 to 20µm
Die attach material/glue/supplier	HITACHI EN4900G
Wire bonding material/diameter	Wire CuPd 0.8 mils
Molding compound material/supplier/reference	MOLDING RESIN SUMITOMO EME-G631SH
Package Moisture Sensitivity Level (JEDEC J-STD020D)	3

2.2.3. Reliability testing information

Reliability Testing Information	
Reliability laboratory name / location	Grenoble Rel Lab, Rousset MDG Rel Lab, Shenzhen BE Lab, Muar BE Lab, ASE Rel Lab

Note: ST is ISO 9001 certified. This induces certification of all internal and subcontractor labs. ST certification document can be downloaded under the following link: http://www.st.com/content/st_com/en/support/quality-and-reliability/certifications.html

3. TEST RESULTS SUMMARY

3.1. Lot information

Lot #	Diffusion Lot	Die Revision (Cut)	Trace Code	Raw Line	Package
Lot 1	9R113962	Cut1.1	AA136031	211L*435CSXZ	LQFP 100 14x14x1.4
Lot 2	3R31C302	Cut 1.1	AA143030	221A*483CSXZ	LQFP 144 20X20X1.4
Lot 3	VQ112465	Cut 2.4	AA136033	201A*411CSX2	LQFP 144 20X20X1.4
Lot 4	9R121544	Cut 2.2	AA136032	201L*419CSX5	LQFP 100 14x14x1.4
Lot 5	9R23159	Cut 2.1	AA248173	211L*472QCXZ	LQFP 100 14x14x1.4
Lot 6	Q229850	Cut 1.1	AA306008	201A*451QCXZ	LQFP 144 20X20X1.4
Lot 7	9R230180	Cut 1.2	AA249007	235B*466QCXY	LQFP 48 7x7x1.4
Lot 8	9R247270	Cut 1.1	AA351004	235W*455QCXZ	LQFP 64 10x10x1.4
Lot 9	VQ311272	Cut 1.0	AA345005	201A*478CSXA	LQFP 144 20X20X1.4
Lot 10	Y5452001	Cut 2.2	AA520072	241L*450QCX2	LQFP 100 14x14x1.4
Lot 11	VQ522388	Cut 2.3	AA603027	20TC*469QCX2	LQFP 128 14x14x1.4 1.0

3.2. Test results summary

ACCELERATED ENVIRONMENT STRESS TESTS

Test code	Stress method	Stress Conditions	Lots Qty	S.S.	Total	Results/Lot Fail/S.S.	Comments:(N/A =Not Applicable)
PC	JSTD 020 JESD 22-A113 7191395	24h bake@125°C, MSL3 (192h/30°C/60%RH) 3x Reflow simulation Peak Reflow Temp= 260°C	10	308 Lot10: 231	3003	Lot 1: 0/308 Lot 5: 0/308 Lot 2: 0/308 Lot 6: 0/308 Lot 3: 0/308 Lot 7: 0/308 Lot 4: 0/308 Lot 8: 0/308 Lot 9: 0/308 Lot10: 0/231	NA
HTSL	JESD22-A103	Ta= 150°C Duration= 1000hrs ☒ After PC (excepted lot10)	10	77	770	Lot 1: 0/77 Lot 5: 0/77 Lot 2: 0/77 Lot 6: 0/77 Lot 3: 0/77 Lot 7: 0/77 Lot 4: 0/77 Lot 8: 0/77 Lot 9: 0/77 Lot10: 0/77	NA
TC	JESD22-A104	Ta= -65/150°C Cyc= 500 ☒ After PC	10	77	770	Lot 1: 0/77 Lot 5: 0/77 Lot 2: 0/77 Lot 6: 0/77 Lot 3: 0/77 Lot 7: 0/77 Lot 4: 0/77 Lot 8: 0/77 Lot 9: 0/77 Lot10: 0/77	NA
THB	JESD22-A101	Ta=85°C/85%RH VDD=3v6 Duration= 1000hrs ☒ After PC	10	77	770	Lot 1: 0/77 Lot 5: 0/77 Lot 2: 0/77 Lot 6: 0/77 Lot 3: 0/77 Lot 7: 0/77 Lot 4: 0/77 Lot 8: 0/77 Lot 9: 0/77 Lot10: 0/77	NA
UHASt	JESD22-A118	Ta=130°C ,85% RH, 2 Atm Duration= 96hrs ☒ After PC	10	77	770	Lot 1: 0/77 Lot 5: 0/77 Lot 2: 0/77 Lot 6: 0/77 Lot 3: 0/77 Lot 7: 0/77 Lot 4: 0/77 Lot 8: 0/77 Lot 9: 0/77 Lot10: 0/77	NA

ELECTRICAL TEST VERIFICATION

Test code	Stress method	Stress Conditions	Lots Qty	S.S.	Total	Results/Lot Fail/S.S.	Comments:(N/A =Not Applicable)
CDM	JEDEC JS-002	Voltage=500V for 411/466/ 455 (except PC15 250V)/ 478 Voltage=250V for 435/483/419/472/451/450/469	11	3	33	Lot 1: 0/3 Lot 5: 0/3 Lot 2: 0/3 Lot 6: 0/3 Lot 3: 0/3 Lot 7: 0/3 Lot 4: 0/3 Lot 8: 0/3 Lot 9: 0/3 Lot10: 0/3 Lot11: 0/3	NA

PACKAGE ASSEMBLY INTEGRITY TESTS

Test code	Stress method	Stress Conditions	Lots Qty	S.S.	Total	Results/Lot Fail/S.S.	Comments:(N/A =Not Applicable)
CA	Construction analysis including -Wire bond shear -Wire bond pull	ST internal specifications	11	50	550	Lot 1: 0/50 Lot 2: 0/50 Lot 3: 0/50 Lot 4: 0/50 Lot 5: 0/50 Lot 6: 0/50 Lot 7: 0/50 Lot 8: 0/50 Lot 9: 0/50 Lot10: 0/50 Lot11: 0/50	SHZ-CA_21_00299 SHZ-CA_22_00003 SHZ-CA_21_00351 SHZ-CA_21_00298 SHZ-CA_23_00132 SHZ-CA_23_00275 SHZ-CA_23_00075 MDG Muar_24_00011 SHZ - CA_24_00066 SHZ - CA_25_00375 MDG Muar_26_00013

Note: Test method revision reference is the one active at the date of reliability trial execution.

4. APPLICABLE AND REFERENCE DOCUMENTS

Reference	Short description
JESD47	Stress-Test-Driven Qualification of Integrated Circuits
SOP2.4.4	Record Management Procedure
SOP2.6.2	Internal Change Management
SOP2.6.7	Finished Good Maturity Management
SOP2.6.9	Package & Process Maturity Management in BE
SOP2.6.11	Program Management for Product Development
SOP2.6.17	Management of Manufacturing Transfers
SOP2.6.19	Front-End Technology Platform Development and Qualification
DMS 0061692	Reliability Tests and Criteria for Product Qualification
JEDEC JS-002	Electrostatic discharge (ESD) sensitivity testing charge device model (CDM)
JESD 22-A103	High Temperature Storage Life
J-STD-020	Moisture/reflow sensitivity classification for non-hermetic solid state surface mount devices
JESD22-A113	Preconditioning of non-hermetic surface mount devices prior to reliability testing
JESD22-A118	Unbiased Highly Accelerated temperature & humidity Stress Test
JESD22-A104	Temperature cycling
JESD22-A101	Temperature Humidity Bias

5. GLOSSARY

ESD-CDM	Electrostatic Discharge - Charged device model
CA	Construction analysis
HTSL	High Temperature Storage Life
PC	Preconditioning
TC	Temperature Cycling
THB	Temperature Humidity Bias
UHAST	Unbiased HAST (Highly Accelerated Stress Test)
DMS	ST Advanced Documentation Controlled system/ Documentation Management system

6. REVISION HISTORY

Release	Date	Description
1.0	19/06/2023	Initial Release
2.0	16/06/2023	Added PCN14224
3.0	25/08/2023	Added PCN14728 with die 455 and 478
4.0	28/10/2025	Added PCN15910 (for die 421)
4.1	21/01/2026	Typo error page 15
4.2	04/03/2026	Typo error page 1
5.0	16/04/2026	Added PCN16068 with results die 469 + results die 450

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.

© 2026 STMicroelectronics - All rights reserved