

PRODUCT / PROCESS CHANGE INFORMATION

1. PCI basic data

1.1 Company	 STMicroelectronics International N.V
1.2 PCI No.	MDG/23/13938
1.3 Title of PCI	AMKOR ATP (Philippines) CHANGE OF CARRIER TAPE SUPPLIER (Wi 16mm BGA 8x8) for TFBGA 8x8 100L products
1.4 Product Category	STM32G4x, STM32H7x, STM32F7x, assembled in BGA 8x8 package
1.5 Issue date	2023-05-16

2. PCI 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
2.2.2 Marketing Manager	Veronique BARLATIER
2.2.3 Quality Manager	Pascal NARCHE

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Materials	New Indirect material part number (same supplier or different supplier): Boxes, trays, carriers, back grinding tape, wafer mounting tape, mold tape, etc..	AMKOR ATP (Philippines)

4. Description of change

	Old	New
4.1 Description	Current ST material code reference: - SID# 201305988 (CARRIER TAPE Wi 16mm BGA 8x8) supplied by PEAK	Change of supplier for ST material code reference: - SID# 201309188 (CARRIER TAPE Wi 16mm BGA 8x8) supplied by C-PAK
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No impact on the commercial product	

5. Reason / motivation for change

5.1 Motivation	Current supplier Peak will discontinue carrier tape SID# 201305988
5.2 Customer Benefit	SERVICE IMPROVEMENT

6. Marking of parts / traceability of change

6.1 Description	ST traceability ensured by ST internal tools.
-----------------	---

7. Timing / schedule

7.1 Date of qualification results	2023-05-03
7.2 Intended start of delivery	2023-06-26
7.3 Qualification sample available?	Not Applicable

8. Qualification / Validation

8.1 Description	13938 MDG-GPM-qualification.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2023-05-16

9. Attachments (additional documentations)

13938 Public product.pdf
13938 MDG-GPM-qualification.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
	STM32F745VEH6	
	STM32F765VGH6	
	STM32G473VEH6	
	STM32G473VEH6TR	
	STM32H743VIH6	

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



PCI 13938 AMKOR ATP (Philippines) CHANGE OF CARRIER TAPE SUPPLIER (Wi 16mm BGA 8x8) for TFBGA 8x8 100L products

Qualification Report

May 3rd 2023

MDG GPM Product Test Engineering Department



Visual Inspection

CA/T BGA0808N PS3 22X6CY W16 P12 L500 (SID# 201309188) C-Pak Philippines

- Carrier Tape Visual Validation
 - Perform visual inspection on Carrier Tape (SS: 1 meter/roll).



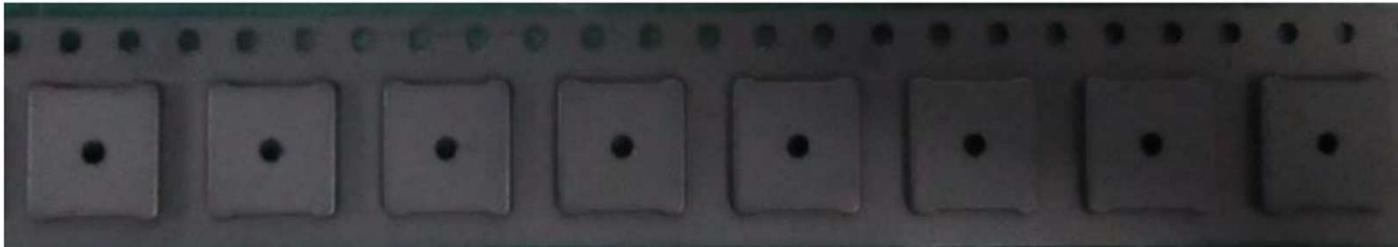
- Criteria: No visual defect on carrier tape like Foreign Material, Stain, Scratch, and Burr.
- Results:
 - Carrier tape passed visual Inspection.
 - No Foreign Material, Stain, Scratch and Burr was observed.
 - No deformed carrier tape pocket.

Visual Inspection

- Top Carrier Tape view



- Bottom Carrier Tape view



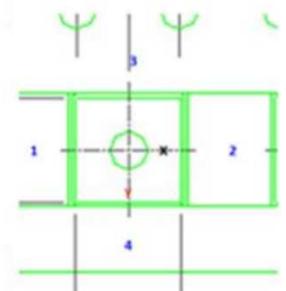
- Result:
 - No abnormality observed on Carrier tape and in good condition.

Visual Inspection

- Dimensional Inspection Result and Camber Test
 - Perform Dimensional check (SS: 3 pockets from 1 roll / lot)
 - Camber Test on Carrier Tape (SS: 250mm)

INSPECTION ITEMS		Specs	Tol.	Rdg 1	Rdg 2	Rdg 3	Average
Thickness	(t)	0.300	±0.05	0.29	0.28	0.29	0.29
Width	(W)	16.00	±0.30	16.04	16.03	16.03	16.03
Top Embossed Width	(Ao)	8.40	±0.10	8.42	8.43	8.43	8.43
Btm Embossed Width	(Bo)	8.40	±0.10	8.42	8.41	8.42	8.42
Btm Embossed Height	(Ko)	1.35	±0.10	note: below is the 4 corner dimension			
Sprocket Hole Size	(Do)	1.50	-0.00 / +0.10	1.511	1.536	1.534	1.53
Sprocket Hole Pitch	(Po)	4.00	±0.10	4.010	3.988	3.999	4.00
Embossed Pitch	(P)	12.00	±0.10	12.020	12.029	11.994	12.01
Chisel Distance	(Cd)	N/A	N/A	N/A	N/A	N/A	N/A
Chisel Height	(K1-K2, Ch)	N/A	N/A	N/A	N/A	N/A	N/A
Cross Bar Height	(Cb)	N/A	N/A	N/A	N/A	N/A	N/A

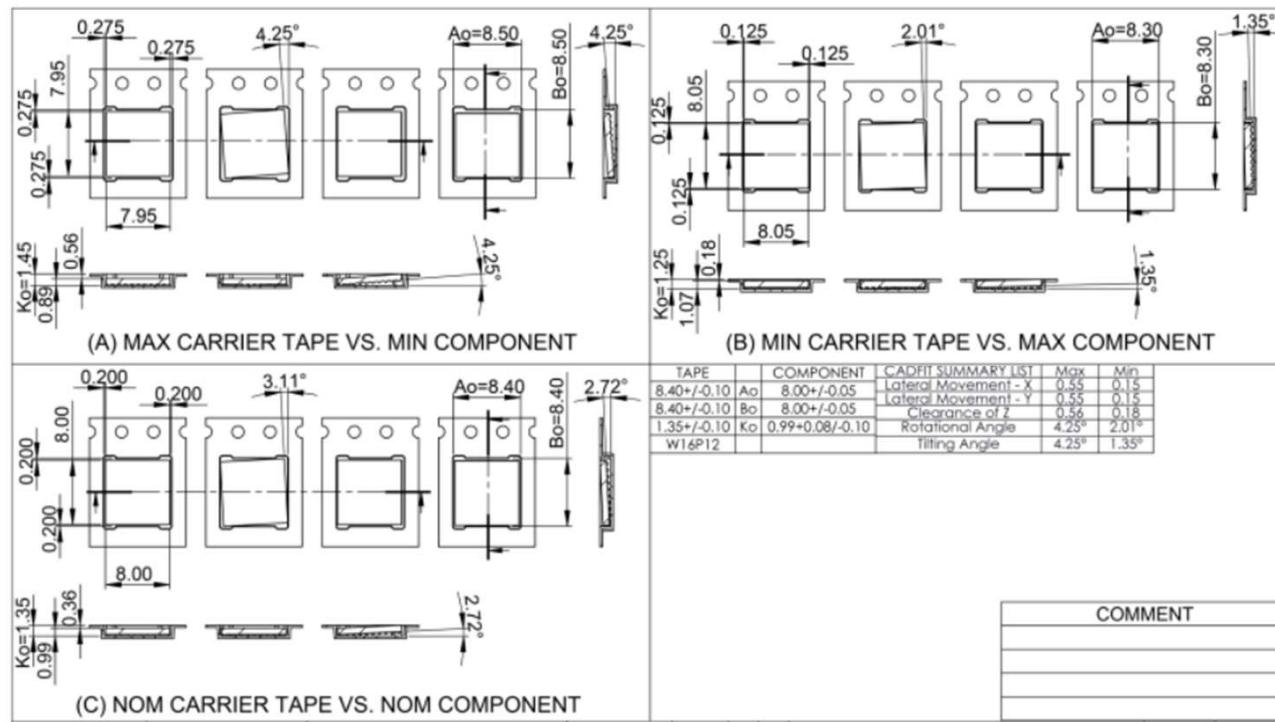
4 Corner reading (Ko)			
1	2	3	4
1.32	1.33	1.34	1.32
1.32	1.35	1.32	1.32
1.32	1.34	1.35	1.33



- Result:
 - Actual carrier tape dimensions are compliant with the carrier tape dimension specs.

CAD FIT Analysis

- CA/T BGA0808N PS3 22X6CY W16 P12 L500
 - Corner relief design changed from mouse ear to H, without affecting fit and function.



- Result: CAD FIT Simulation of CA/T BGA0808N PS3 22X6CY W16 P12 L500 with SID# 201309188 - Passed

Package Fitting

- Actual Unit Fitting in Carrier Tape:

ITEM	PHOTO
PACKAGE FITTING	

- Result:
 - Unit is properly seated in carrier tape pocket.
 - Dislodged unit in unlikely to happen.

Surface Resistivity Test

- ESD Measurement: Carrier Tape Surface Resistivity: Sample Size - 1 roll
- Surface resistivity:

Specs	Unit	Reading 1	Reading 2	Reading 3	Average	Remarks
<=10 ⁶ exp	ohms/square	7.20E+05	5.50E+05	7.50E+05	6.73E+05	PASSED

- Result: Sample Carrier Tape Passed surface resistivity requirement.

Peel Strength Test

- Combine, Edge and Sprocket test: sample size -1 roll

Check Item	Requirement	Package	Condition	CpK			Result
				COMBINED	EDGE	SPROCKET	
Peel Strength Test	Individual readings 20-80gms CpK > 2.0	BGA 8x8	Peel test at Zero Time (Normal production environment)	2.491	9.528	11.778	Passed
Peel Strength Test	Individual readings 20-80gms CpK > 2.0	BGA 8x8	Peel test after 1 week (Normal Production environment)	3.11	7.813	10.836	Passed
Peel Strength Test	Individual readings 20-80gms CpK > 2.0	BGA 8x8	Peel test after 2 weeks (Normal Production environment)	2.536	8.809	8.061	Passed
Peel Strength Test	Individual readings 20-80gms CpK > 2.0	BGA 8x8	Peel test after 72 Hrs. (at 55°C 60%RH)	2.289	16.016	7.578	Passed

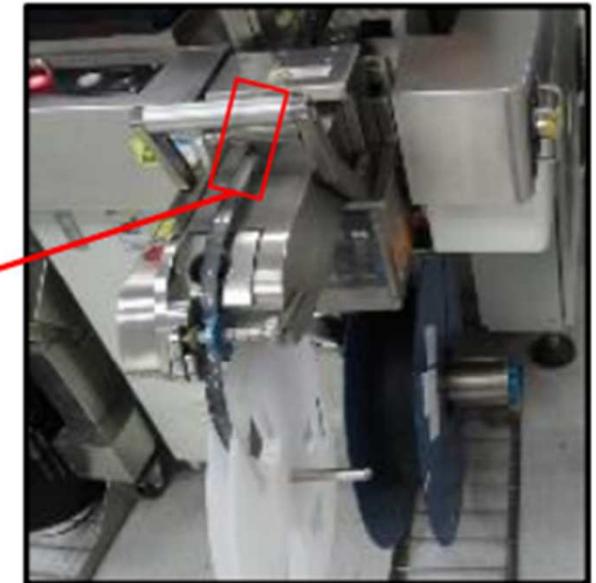
- Result:
 - Sample Carrier Tape Passed Peel Strength Test requirement per condition

Workability Test

- Machine Compatibility:



Carrier tape in taper with cover tape



Carrier tape Roll in Machine

- Results:
- Carrier tape is properly tilted in machine taper
- No abnormality encountered during carrier tape set-up
- Passed

Visual Inspection/Detape Test

Items	Requirement	Actual	Remarks
No. of units in reel	2500	2500	PASSED
Leader length	Min. 400 mm	63 empty pockets (>400 mm)	PASSED
Trailer length	Min. 160 mm	63 empty pockets (>400 mm)	PASSED
Sealing Quality	Continuous/No seal gap	No seal gap w/ continuous sealing	PASSED
Visual Inspection	Zero reject	No rejects found after 100% Post Reel inspection	PASSED
Machine Jam	0 jam related to material set-up	No machine jam encountered	PASSED
Detape Test	5 strips detape – No tearing/damage	No tearing / damage encountered	PASSED



Sealing quality is good & compliant to
TNR requirement

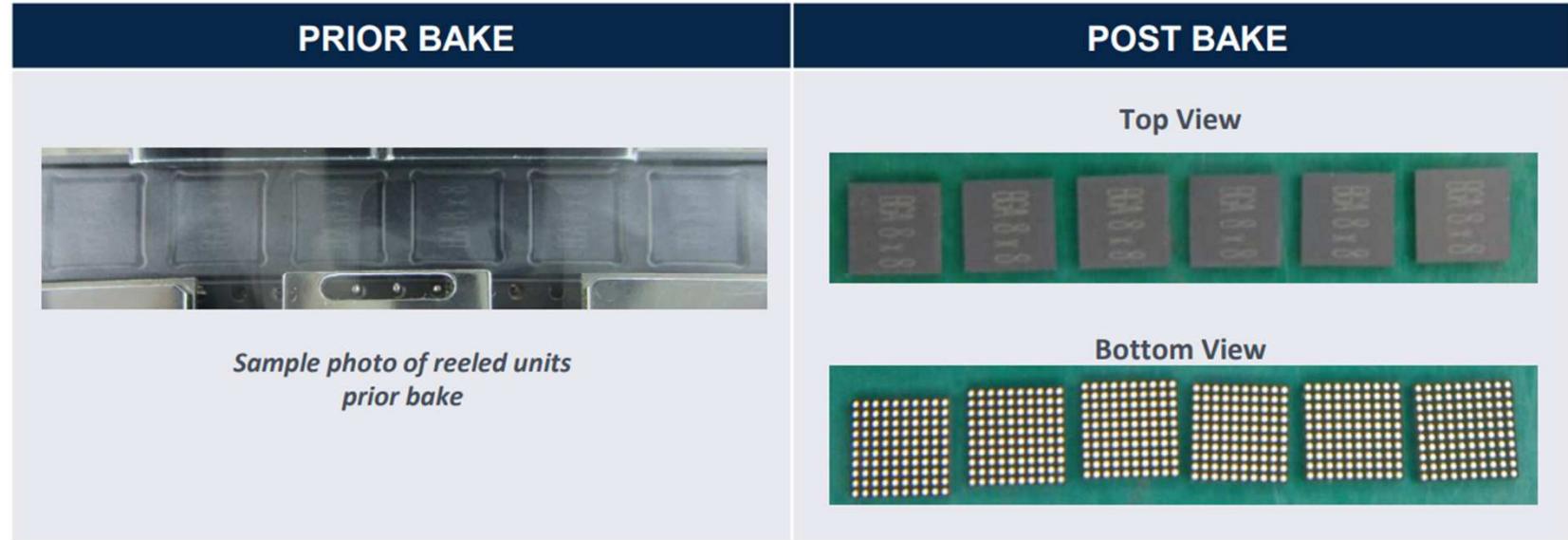


Detape Test Passed – no
Tearing & damaged found

- Results:
 - Sealing response is good and no abnormality seen.
 - No abnormality seen during visual and detape tests
 - Passed

Outgas Tests

- Reeled mechanical sample units and subject for bake @ 24 Hours (at 30'C 60%RH)



- Results:
 - All 6x sampled units passed visual inspection.
 - No Ball discoloration observed on mechanical sample units.
 - Passed

Summary

- **Carrier Tape Qualification**
 - No abnormality observed on Carrier tape and in good condition
 - Actual carrier tape dimensions are compliant with the carrier tape dimension specs.
 - Unit is properly seated in carrier tape pocket. No dislodge
 - Sample Carrier Tape Passed surface resistivity requirement
 - Sample Carrier Tape Passed Peel Strength Test requirement per condition
 - Carrier tape passed Drop test requirement:
 - Outer and Inner Box remains intact, Deep scoring seen but no breakage/damage found.
 - Packed materials remains intact, no punctured was seen on the bag and no loose vacuum was found.
 - No dislodged unit, damage reel, damage carrier tape, damage cover tape found on tape and reeled units
 - All three Specimens passed machine lead scan post-drop test
 - Carrier tape is properly fitted in machine taper
- **CONCLUSION:**
 - Carrier Tape CA/T BGA0808N PS3 22X6CY W16 P12 L500 (SID# 201309188) Passed Visual Inspection.
 - No abnormality encountered during carrier tape set-up

Legal Information



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.

© 2023 STMicroelectronics - All rights
www.st.com





Find out more at www.st.com/quality

© STMicroelectronics - All rights reserved.

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

For additional information about ST trademarks, please refer to www.st.com/trademarks.

All other product or service names are the property of their respective owners.



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

PCI Title : AMKOR ATP (Philippines) CHANGE OF CARRIER TAPE SUPPLIER (Wi 16mm BGA 8x8) for TFBGA 8x8 100L products

PCI Reference : MDG/23/13938

Subject : Public Products List

Dear Customer,

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

STM32G473VEH6	STM32F745VEH6TR	STM32F765VGH6
STM32F765VGH6TR	STM32H743VIH6	STM32F745VEH6
STM32G473VEH6TR	STM32H743VIH6TR	STM32H742VIH6
STM32H742VIH6TR		

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