

PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.		MDG/22/13702
1.3 Title of PCN		AMKOR ATP (Philippines) TSSOP20 package HDLF to XDLF conversion for STM8AF6213x and STM8AF6223x listed AUTOMOTIVE products
1.4 Product Category		TSSOP 20 package products listed- automotive products - STM8AF6213x - STM8AF6223x
1.5 Issue date		2022-11-03

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
2.2.2 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 direct material part number (same supplier, different supplier or new supplier), Lead frame base material	Amkor ATP (Philippines)

4. Description of change

	Old	New
4.1 Description	PCBR HDLF to XDLF Conversion AMKOR TSSOP20 Auto (79J) Current line in Amkor: - Leadframe: Pre-Plated Frame (PPF) , High Density Leadframe (HDLF) - Second level interconnect : e4	Converted line: - Leadframe : Tin Post-plated Frame, Extreme Density Leadframe (XDLF) - Second level interconnect : e3
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	Lead color and surface finish will change due to different leadframe finishing.	

5. Reason / motivation for change

5.1 Motivation	Pushed by HDLF line obsolescence we will convert to C194 material
5.2 Customer Benefit	SERVICE CONTINUITY

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	2022-10-17
7.2 Intended start of delivery	2023-04-17
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	13702 MDG-GPM-RER2218 PCN13702 ATP1 TSSOP20.pdf
-----------------	---

8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2022-11-03
---	----------------------------	-------------------	------------

9. Attachments (additional documentations)

13702 Public product.pdf
 13702 MDG-GPM-RER2218 PCN13702 ATP1 TSSOP20.pdf
 13702 PCN13702_Aditional 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
	STM8AF6213PCAU	
	STM8AF6213PCU	
	STM8AF6213PCX	
	STM8AF6213PDU	
	STM8AF6223IPCU	
	STM8AF6223IPCX	
	STM8AF6223PAAU	
	STM8AF6223PAU	
	STM8AF6223PAX	
	STM8AF6223PCAU	
	STM8AF6223PCAX	
	STM8AF6223PCU	
	STM8AF6223PCX	
	STM8AF6223PDAU	
	STM8AF6223PDU	
	STM8AF6223PDX	

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



RER2218 for PCN13702 AMKOR ATP1 (Philippines) – TSSOP20 Package HDLF to XDLF conversion for STM8A (79J) Automotive

Reliability Evaluation Plan

October 4th, 2022

MDG GPM Quality & Reliability

RER2218 – ATP1- TSSOP20 Automotive HDLF to XDLF conversion Package Test Vehicles

Package line	Assembly Line	Package	Device (RawLine Code)	Diffusion Process Plant	Number of Reliability Lots
TSSOP	TSSOP20 6.4x6.5	20L	STM8A (YA*79J)	CMOS F9 G01	3

RER2218 – ATP1- TSSOP20 Automotive HDLF to XDLF conversion Package Reliability Trials

Reliability Trial & Standards		Test Conditions	Pass Criteria	Unit per Lot	Lot qty	More critical constraints for components
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 level 1 Convection reflow: 3 passes	3 passes MSL1	308	3	T0 test @ Room
uHAST (*)	UnBiased Highly Accelerated Temperature and Humidity Stress AEC-Q100 - JESD22 A118	130°C, 85%RH, 2 atm	96h	77	3	Read out after PC @ Room Read out 96h @ Room
TC(*)	Thermal Cycling AEC-Q100 - JESD22 A104	-55°C +150°C or equivalent	G1: 1000cy/ G0: 2000cy	77	3	Read out after PC @ Room + Hot Read out 1000cy/2000cy @ Hot
Wire Bond Pull after TC	Mil Std 883 Method 2011	Minimum pull strength after TC=3 grams	0cy/1000cy/ 2000cy	30 bonds from a minimum of 5 devices 30	3	5 devices @ 0cy/ 5 devices @ 1000cy/ 5 devices @ 2000cy
Wire Bond Shear after TC	AEC Q100-001	Min bond shear 15g	0cy/1000cy/ 2000cy		3	5 devices @ 0cy/ 5 devices @ 1000cy/ 5 devices @ 2000cy
THB (*)	Temperature Humidity Bias AEC-Q100 - JESD22-A101	85°C, 85% RH, bias, 5,6V	1000h	27	3	Read out after PC @ Room + Hot Read out 1000h @ Room + Hot
HTSL	High Temperature Storage Life AEC-Q100 - JESD22 A103	150°C- no bias	G1: 1000h G0: 2000h	77	3	T0 test @ Room + Hot Read out 1000h/2000h @ Room + Hot
Construction analysis	JESD 22B102 JESDB100/B108	including Solderability, Physical dimensions, wire bond shear, wire pull test, lead integrity		50	1 full CA	
ESD	ESD Charge Device Model AEC-Q100-011 – ANSI/ESD STM5.3.1	Aligned with device datasheet	500V	3	3	T0 test @ Room + Hot Read out after ESD @ Room + Hot

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.



**PRODUCT/PROCESS
CHANGE NOTIFICATION
PCN13702
– Additional information**

**AMKOR ATP (Philippines) TSSOP20 package HDLF to XDLF
conversion for STM8AF6213x and STM8AF6223x listed
AUTOMOTIVE products**

MDG – General Purpose Microcontrollers Division (GPM)

What are the changes?

Changes described in table below:

	Existing back-end line	Added back-end line
Assembly site	AMKOR ATP (Philippines)	
Leadframe matrix	7x24 = 168 positions	11x32 = 352 positions
Leadframe	Copper Frame PPF	Copper Frame Double Ring Ag Plating
Leadfinishing (1)	PPF (e4)	Pure Tin (e3)
Resin	Sumitomo EME-G700LS	Sumitomo EME-G700LS
Wire	Gold 0.8mil	Gold 0.8mil
Enhanced Traceability with SS marking	N.A.	2 digits

(1) Lead color and surface finish will change due to different leadframe finishing.

How can the change be seen?

The standard marking is:

Existing Marking	Added Marking
 (e4) PP LLL - - - - ● COO YWWR	 (e3) PP LLL - - - - ● COO YWW SS R

Codes already available on existing and added marking:

PP : Assembly Plant code

LLL : BE sequence

WX : Wafer Diffusion Plant code

COO : Country Of Origin code

Y WW : Year Week (manufacturing date)

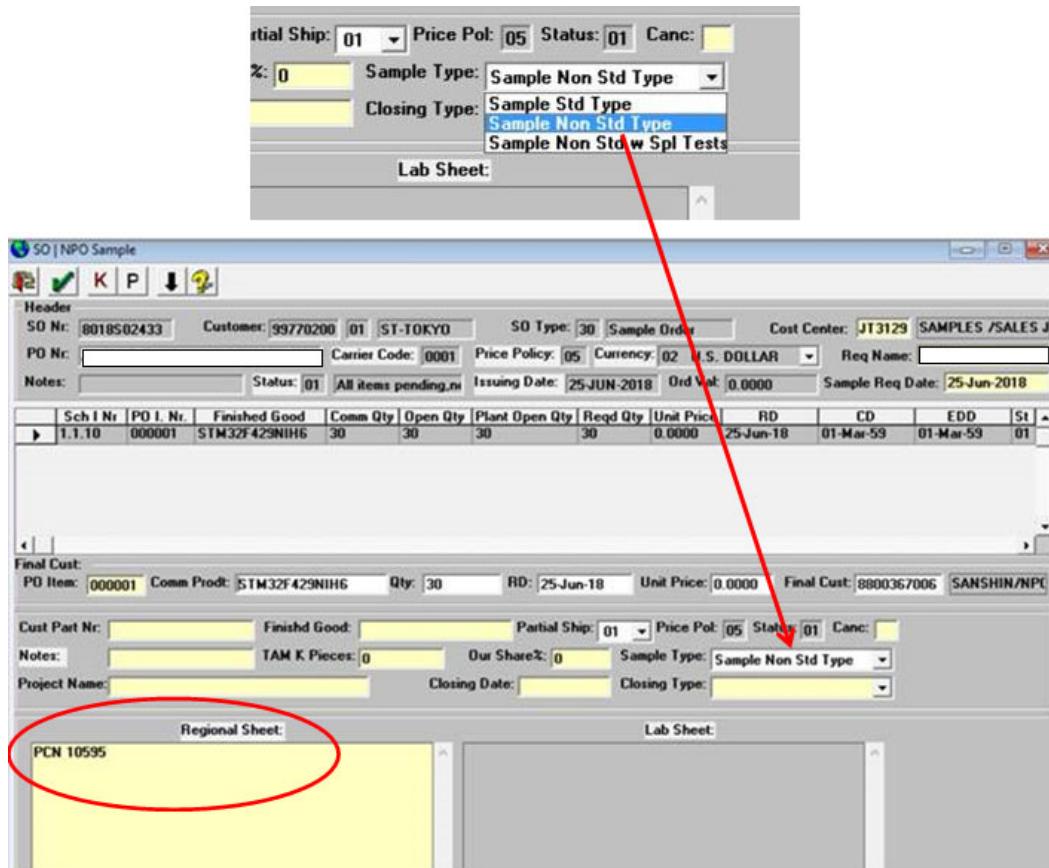
SS : aSsembly Sub-Lots enhanced traceability code

R : Additional Information (Die Version)

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 “**PCN13702**” into the NPO Electronic Sheet/**Regional Sheet**
- request sample(s) through Notice tool, indicating a single Commercial Product for each request



SO | NPO Sample

Header

SO Nr: 8018502433 Customer: 39770200 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, no 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:

PCN 10595



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.



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 : AMKOR ATP (Philippines) TSSOP20 package HDLF to XDLF conversion for STM8AF6213x and STM8AF6223x listed AUTOMOTIVE products

PCN Reference : MDG/22/13702

Subject : Public Products List

Dear Customer,

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

STM8AF6223PDAX	STM8AF6223PCAX	STM8AF6223IPCU
STM8AF6223PDX	STM8AF6223PDU	STM8AF6213PCAX
STM8AF6223PAAU	STM8AF6223PCX	STM8AF6223PDAU
STM8AF6213PCU	STM8AF6223PAU	STM8AF6213PCX
STM8AF6213PDU	STM8AF6223IPCX	STM8AF6223PAX
STM8AF6223PCAU	STM8AF6213PCAU	STM8AF6223PCU



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