

## PRODUCT / PROCESS CHANGE NOTIFICATION

### 1. PCN basic data

1.1 Company	 STMicroelectronics International N.V
1.2 PCN No.	AMS/23/14268
1.3 Title of PCN	Qualification of TFME for Assembly & Test of HTSSOP24/TSSOP24 packages
1.4 Product Category	See product list
1.5 Issue date	2023-09-01

### 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	Marcello SAN BIAGIO
2.2.2 Marketing Manager	Salvatore DI VINCENZO
2.2.3 Quality Manager	Giuseppe LISI

### 3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Transfer	Product transfer from one site to another site, even if test or process line is qualified	Back end : TFME

### 4. Description of change

	Old	New
4.1 Description	- Standard Devices : Assembly and Test in Amkor	- Standard Devices : Assembly and Test in Amkor Assembly and Test in TFME
4.2 Anticipated Impact on form, fit, function, quality, reliability or processability?	No impact	

### 5. Reason / motivation for change

5.1 Motivation	To increase Assembly and Test Volume Capacity for HTSSOP24 and TSSOP24 products
5.2 Customer Benefit	MANUFACTURING FLEXIBILITY

### 6. Marking of parts / traceability of change

6.1 Description	New Finished good codes
-----------------	-------------------------

### 7. Timing / schedule

7.1 Date of qualification results	2023-08-10
7.2 Intended start of delivery	2023-11-23
7.3 Qualification sample available?	Upon Request

### 8. Qualification / Validation

8.1 Description	14268 RER 6088-1765-W-2022_HTSSOP_TSSOP 24 assembled in TFME_ALED1262_ALED1642_STAP16_STP16.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2023-09-01

### 9. Attachments (additional documentations)

14268 Public product.pdf 14268 RER 6088-1765-W-2022_HTSSOP_TSSOP 24 assembled in TFME_ALED1262_ALED1642_STAP16_STP16.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
	STP16DPP05XTTR	

**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 :** Qualification of TFME for Assembly & Test of HTSSOP24/TSSOP24 packages

**PCN Reference :** AMS/23/14268

**Subject :** Public Products List

Dear Customer,

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

STP16DPP05XTTR		
----------------	--	--

**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

## Reliability Evaluation Report

ALED1262XA1TR, ALED1642GWXTTR,  
STAP16DPS05XTTR, STP16CPC26TTR, STP16DPS05XTR

**General Information**

Product Line	U1K2, UI73, UQ40, UA42
C/P	ALED1262XA1TR, ALED1642GWXTTR, STAP16DPS05XTTR, STP16CPC26TTR, STP16DPS05XTR
Product Division	AMS
Package	HTSSOP/ TSSOP 24
Silicon process technology	BCD6, BCD6S

**Location**

Wafer fab	CM5F-Catania CTM8
Assembly Plant	SC - NANTONG FUJITSU - CHINA

**Results**

Reliability Assessment	PASS
------------------------	------

## DOCUMENT INFORMATION

Version	Date	Pages	Comment
1.1	01 Aug 2023	4	

Note: This report is a summary of the reliability trials performed in good faith by STMicroelectronics in order to evaluate the potential reliability risks during the product life using a set of defined test methods.

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. This report and its contents shall not be disclosed to a third party without previous written agreement from STMicroelectronics.

---

## TABLE OF CONTENTS

<b>1</b>	<b>APPLICABLE AND REFERENCE DOCUMENTS .....</b>	<b>3</b>
<b>2</b>	<b>GLOSSARY .....</b>	<b>3</b>
<b>3</b>	<b>RELIABILITY EVALUATION OVERVIEW.....</b>	<b>3</b>
3.1	OBJECTIVES .....	3
3.2	CONCLUSION .....	3
<b>4</b>	<b>TESTS PLAN.....</b>	<b>4</b>
4.1	TEST PLAN AND RESULTS SUMMARY .....	4

## **1 APPLICABLE AND REFERENCE DOCUMENTS**

Document reference	Short description
<b>JESD47</b>	Stress-Test-Driven Qualification of Integrated Circuits
<b>AEC Q100</b>	Failure Mechanism Based stress test Qualification for Integrated Circuits

## **2 GLOSSARY**

Item	Short description
$T_j$	Temperature at junction of the device
$T_A$	Temperature of ambient air
RH	Relative Humidity
Vcc max	Max Operative Voltage

## **3 RELIABILITY EVALUATION OVERVIEW**

### **3.1 Objectives**

Reliability evaluation of the products with the attributes reported in the table below

Attributes	Value				
Product	ALED1262XA1TR	ALED1642GWXTTR	STAP16DPS05XTTR	STP16DPS05XTR	STP16CPC26TTR
Process Technology	BCD6S	BCD6S	BCD6	BCD6	BCD6S
Diffusion Plant	CM5F-Catania CTM8	CM5F-Catania CTM8	CM5F-Catania CTM8	CM5F-Catania CTM8	CM5F-Catania CTM8
Package	HTSSOP 24	HTSSOP 24	HTSSOP 24	HTSSOP 24	TSSOP 24
Assembly Plant	SC - NANTONG FUJITSU - CHINA				
Market Segment	AUTOMOTIVE	AUTOMOTIVE	AUTOMOTIVE	INDUSTRIAL	INDUSTRIAL

### **3.2 Conclusion**

Qualification requirements have been fulfilled without exception. Reliability tests have shown that the devices behave correctly against environmental tests (no failure). The stability of electrical parameters during the accelerated tests demonstrates the ruggedness of the products and safe operation, which is consequently expected during their lifetime.

## 4 TESTS PLAN

ST refers to the AEC Q100 for Automotive products and JEDEC 47 for Industrial products when conducting reliability tests for the qualification of new products.

### 4.1 Test plan and results summary

STRESS	Reference	Test Conditions	AECQ Requirements			Results	Note
			Sample Size/Lot	Number of Lots	Duration or Level		
<b>ACCELERATED ENVIRONMENT STRESS TESTS</b>							
Preconditioning (PC)	JESD22 A113 J-STD-020	Preconditioning: (Test @ Rm) SMD only; Moisture Preconditioning for THB, UHAST, TC, Peak Reflow Temp = 260C			MSL 3 or MSL 1		1
Temperature-Humidity-Bias (THB)	JESD22 A101	THB, 85°C, 85% RH Vcc max Test @ Room/Hot Temperature	77	15	1000hrs	0/1155	2
Unbiased HAST (uHAST)	JESD22 A118	130°C/85%RH Test @ Room Temperature	77	15	96hrs	0/1155	2
Temperature Cycling (TC)	JESD22 A-104	TC, -65°C to +150°C Test @ Hot temperature 5 units Post-T/C WBP sampled	77	15	1000cycles	0/1155	2
High Temperature Storage Life (HTSL)	JESD22 A103	HTSL, Ta=150°C, no bias Test @ Room/Hot Temperature	45	15	1000hrs	0/675	2
High Temperature Operating Life (HTOL)	JESD22 A108	HTOL, T <sub>j</sub> =150°C, Vcc Max Test @ Room/Cold/Hot Temperature	77	15	1000hrs	0/1155	2

STRESS	Reference	Test Conditions	AECQ Requirements			Results	Note
			Sample Size/Lot	Number of Lots	Duration or Level		
<b>PACKAGE ASSEMBLY INTEGRITY TESTS</b>							
Wire Bond Shear (WBS)	AEC-Q100-001 AEC-Q003	WBS, Cpk >1.67	5	15	-	PASS Cpk>1.67	2
Wire Bond Pull (WBS)	Mil-STD-883, Method 2011 AEC-Q003	WBP, Cpk >1.67	5	15	-	PASS Cpk>1.67	2
Solderability (SD)	JSTD-002D	SD, Surface mount process simulation test	15	15	-	PASS	2
Physical Dimension (PD)	JESD22 B100, JESD22 B108 AEC-Q003	PD, Cpk > 1.67	10	15	-	PASS Cpk>1.67	2

Notes:

1. Preconditioning with soak per J-STD-020 at rated moisture sensitivity level prior to acceleration stress testing. MSL level 3 performed for ALED1262XA1TR and ALED1642GWXTTR. MSL level 1 performed for STAP16DPS05XTTR, STP16DPS05XTR and STP16CPC26TTR
2. It has been performed on 3 different lots for each C/P (ALED1262XA1TR, ALED1642GWXTTR, STAP16DPS05XTTR, STP16CPC26TTR, STP16DPS05XTR)