


# PRODUCT / PROCESS CHANGE NOTIFICATION

## 1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.	MDG/22/13205	
1.3 Title of PCN	TPM VFQFPN32 – Molding resin upgrade to ULA	
1.4 Product Category	VFQFPN32 package for product lines ST33TPHF20, ST33TPHF2E, ST33TPHF2X	
1.5 Issue date	2022-01-19	

## 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	Marie-France FLORENTIN
2.1.2 Marketing Manager	Denis FARISON
2.1.3 Quality Manager	Mickael DENAIS-ALLICHON

## 3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
General Product & Design	(Not Defined)	Amkor ATP3

## 4. Description of change

	Old	New
4.1 Description	The reference of the resin qualified is "Hitachi CEL 9220 HF13".	In order to meet reliability requirements for industrial and communication equipments, the resin used in the VFQFPN32 package for product lines ST33TPHF20, ST33TPHF2E, ST33TPHF2X will be modified to include a ULA resin. The reference of the ULA resin that will be qualified is "Sumitomo EME-G700SY"
4.2 Anticipated Impact on form, fit, function, quality, reliability or processability?	Impact on reliability. - Form: no impact (no change for visual appearance including colour, marking, surface finish) - Fit: no impact (no change for external dimensions and tolerances) - Function: no impact (no change for electrical, environmental, mechanical, thermal performance characteristics)	

## 5. Reason / motivation for change

5.1 Motivation	The FIT (failure in time) related to alpha particle will be decreased by a factor 10 with the ULA resin.
5.2 Customer Benefit	QUALITY IMPROVEMENT

## 6. Marking of parts / traceability of change

6.1 Description	A new Finished Good codification will be created. This Finished Good codification is present on the label.
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## 7. Timing / schedule

7.1 Date of qualification results	2022-09-05
7.2 Intended start of delivery	2023-01-08
7.3 Qualification sample available?	Upon Request

## 8. Qualification / Validation

8.1 Description	
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8.2 Qualification report and qualification results	In progress	Issue Date	
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9. Attachments (additional documentations)
13205 Public product.pdf 13205 PCN TPM VFQFPN32 - Molding resin upgrade to ULA v1.0.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
	ST33HTPH2032AHD1	

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## PRODUCT CHANGE NOTIFICATION PCN MDG/SMD

### TPM VFQFPN32 – Molding resin upgrade to ULA

#### **VFQFPN32 – Molding resin change for ST33TPHF20, ST33TPHF2E, ST33TPHF2X to Ultra Low Alpha molding resin to improve Soft Error Rate.**

##### **Scope**

Electronic devices may be exposed to various types of radiations (electrons, protons, neutrons and ions). The radiation may produce effects in the electronics ranging from temporary data loss to more important failure. A soft error occurs when a radiation event causes enough of a charge disturbance to reverse or flip the data state of a memory cell, register, latch or flip-flop. The error is “soft” because the circuit/device itself is not permanently damaged by the radiation.

Usually, the soft-error rate (SER) is measured in FIT units (failure in time), where 1 FIT denotes one failure per billion devices hours.

The exposition to alpha radiation can be drastically reduced with the selection of specific materials in the package manufacturing and specific package manufacturing process.

In order to meet reliability requirements for industrial and communication equipments, the resin used in the VFQFPN32 package for product lines ST33TPHF20, ST33TPHF2E, ST33TPHF2X will be modified to include a ULA resin. An Ultra-Low-Alpha resin supports an alpha particle control of maximum 0.002 cph/cm<sup>2</sup> (count/hour-cm<sup>2</sup>).

##### **What are the changes?**

The reference of the resin qualified is “Hitachi CEL 9220 HF13”.

The reference of the ULA resin that will be qualified is “Sumitomo EME-G700SY”.

##### **Why?**

The FIT (failure in time) related to alpha particle will be decreased by a factor 10 with the ULA resin.

##### **When?**

The change will be implemented by Jan/23.

##### **How will the change be qualified?**

The package with the new resin will be qualified by Dec/22.

## What is the impact of the change?

- **Form:** no impact (no change for visual appearance including colour, marking, surface finish)
- **Fit:** no impact (no change for external dimensions and tolerances)
- **Function:** no impact (no change for electrical, environmental, mechanical, thermal performance characteristics)

## How can the change be seen?

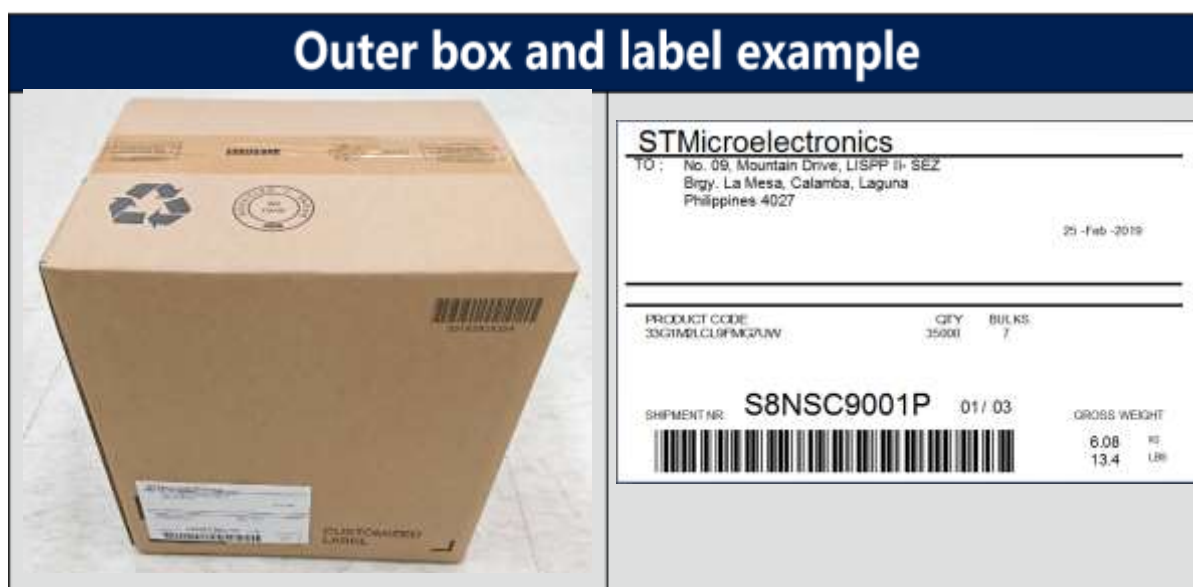
For each Commercial Product impacted by the change, a new Finished Good codification will be created. This Finished Good codification is present on the label.

The following Commercial products will be impacted. The table below provides the list of current Finished Good codifications with standard resin and future codifications with ULA resin

Commercial Product	Finished Good Standard resin	Finished Good ULA resin
ST33HTPH2E32AHA5	33HTPH2E32CHB2CT	33HTPH2E32CHB2CU
ST33HTPH2032AAF3	33HTPH2032CHA3CT	33HTPH2032CHA3CU
ST33HTPH2032GAF3	OIMMY8K42P00875	To be defined later
ST33HTPH2E32AHB4	33HTPH2E32CHB4CT	33HTPH2E32CHB4CU
ST33HTPH2E32AHC2	33HTPH32CHD2CT	33HTPH32CHD2CU
ST33HTPH2032AHC3	33HTPH32CHD3CT	33HTPH32CHD3CU
ST33HTPH2E32AHD0	33HTPH32CHD0CT	33HTPH32CHD0CU
ST33HTPH2032AHD1	33HTPH32CHD1CT	33HTPH32CHD1CU
ST33HTPH2X32AHD4	33HTPH32CHD4CT	33HTPH32CHD4CU
ST33HTPH2X32AHD5	33HTPH32CHD5CT	33HTPH32CHD5CU
ST33HTPH2E32AHD6	33HTPH32CHD6CT	33HTPH32CHD6CU
ST33HTPH2032AHD7	33HTPH32CHD7CT	33HTPH32CHD7CU
ST33HTPH2X32AHD8	33HTPH32CHD8CT	33HTPH32CHD8CU
ST33HTPH2X32AHE0	33HTPH32CHE0CT	33HTPH32CHE0CU
ST33HTPH2X32AHE1	33HTPH32CHE1CT	33HTPH32CHE1CU
ST33HTPH2X32AHE2	33HTPH32CHE2CT	33HTPH32CHE2CU
ST33HTPH2X32AHE4	33HTPH32CHE4CT	33HTPH32CHE4CU

The Finished Good is provided on the labels of the packing

Example of the outer box with PRODUCT CODE providing the Finished Good codification.



Field	Field Type
To	Customer address
<b>Product code</b>	<b>Finished good codification</b>
QTY	Total good dice quantity
Bulk	inner box quantity
Shipment NR.	Shipping number
BAR CODE	Bar code area

**Appendix A- Product Change Notification**

<b>Product family / Commercial products:</b>	ST33TPHF2ESPI <ul style="list-style-type: none"><li>• ST33HTPH2E32AHA5</li><li>• ST33HTPH2E32AHB4</li><li>• ST33HTPH2E32AHD0</li><li>• ST33HTPH2E32AHD6</li></ul> ST33TPHF2EI2C <ul style="list-style-type: none"><li>• ST33HTPH2E32AHC2</li></ul> ST33TPHF20SPI <ul style="list-style-type: none"><li>• ST33HTPH2032AAF3</li><li>• ST33HTPH2032AHD1</li><li>• ST33HTPH2032AHD7</li></ul> ST33TPHF20I2C <ul style="list-style-type: none"><li>• ST33HTPH2032AHC3</li></ul> ST33TPHF2XSPI <ul style="list-style-type: none"><li>• ST33HTPH2X32AHD4</li><li>• ST33HTPH2X32AHD8</li><li>• ST33HTPH2X32AHE0</li><li>• ST33HTPH2X32AHE2</li><li>• ST33HTPH2X32AHE4</li></ul> ST33TPHF2XI2C <ul style="list-style-type: none"><li>• ST33HTPH2X32AHD5</li><li>• ST33HTPH2X32AHE1</li></ul> Custom <ul style="list-style-type: none"><li>• ST33HTPH2032GAF3</li></ul>
<b>Type of change:</b>	Package bill of material change – resin model change
<b>Reason for the change:</b>	Soft Error Rate improvement due to alpha radiations
<b>Description of the change:</b>	Resin model change
<b>Date of notification to the customer:</b>	Jan/22
<b>Forecast date of Qualification samples availability for customer(s):</b>	Jul/22
<b>Forecast date for the internal STMicroelectronics change, Qualification Report availability:</b>	Sep/22
<b>Description of the qualification program</b>	Package qualification over 3 lots. New reliability report release by Sep/22.
<b>Manufacturing location:</b>	Amkor ATP3
<b>Estimated date of first shipment:</b>	Jan/23

Document Revision History		
Date	Rev.	Description of the Revision
16/Dec/21	1.0	First official release





## 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 :** TPM VFQFPN32 – Molding resin upgrade to ULA

**PCN Reference :** MDG/22/13205

**Subject :** Public Products List

Dear Customer,

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

ST33HTPH2X32AHD8	ST33HTPH2E32AHC2	ST33HTPH2X32AHD4
ST33HTPH2E32AHD0	ST33HTPH2X32AHD5	ST33HTPH2032AHC3
ST33HTPH2032AHD1		



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