

PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCN No.	ADG/22/13787	
1.3 Title of PCN	PPAK (VIPower): Matrix Leafframe Introduction	
1.4 Product Category	VN750PTTR-E, VN820PTTR-E	
1.5 Issue date	2022-11-21	

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	Mario ASTUTI, Carmelo PISTRITTO
2.1.2 Marketing Manager	Rosario RUGGERI
2.1.3 Quality Manager	Daniela FAZIO

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	ST Shenzhen - China

4. Description of change

	Old	New
4.1 Description	Standard Leadframe	Matrix Leafframe
4.2 Anticipated Impact on form, fit, function, quality, reliability or processability?	No Impact	

5. Reason / motivation for change

5.1 Motivation	Standard Line Leadframe Closure
5.2 Customer Benefit	CAPACITY INCREASE

6. Marking of parts / traceability of change

6.1 Description	Date code
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7. Timing / schedule

7.1 Date of qualification results	2022-11-18
7.2 Intended start of delivery	2023-01-01
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	13787 Validation.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2022-11-21

9. Attachments (additional documentations)

13787 Public product.pdf
13787 Validation.pdf
13787 Details.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
	VN750PTTR-E	
	VN820PTTR-E	

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PRODUCT/PROCESS CHANGE NOTIFICATION

TITLE	PPAK (VIPower): Matrix Leadframe Introduction
IMPACTED PRODUCTS	<p>VIPower Products housed in PPAK</p> <ul style="list-style-type: none"> - VN820PTTR-E - VN750PTTR-E
MANUFACT. STEP	Assembly
INVOLVED PLANT	ST Shenzhen Plant (China)
CHANGE REASON	Standard Line Leadframe Closure
CHANGE DESCRIPTION	<p>Matrix leadframe (same Supplier) will be introduced on PPAK package No change in BOM (Bill Of Material)</p> <p>Additional details on Validation report included to this communication</p>
TRACEABILITY	Dedicated Finished Good Codes (internal part number)
VALIDATION	<p>Enclosed to this communication</p> <p>13787 Validation.pdf</p>



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PPAK Single Raw Lead Frame migration to Matrix Lead Frame Qualification

Agenda

3 Change Description

4 ZVEI Guidelines

5 Bill Of Material Comparison

6 Raw Material Change

7 Selected Test Vehicles

8 Impacted Products List

9/10 Qualification Lots Reliability Program

11 Conclusions

Change description

- Aim of this document is to describe the qualification activity performed to convert the single row 5 leads PPAK lead frame to the matrix 5 leads PPAK lead frame.
- The PPAK package is assembled in Shenzhen Plant.
- Detailed qualification activity has been performed in order to qualify the new matrix 5 leads PPAK lead frame.
- This report shows the positive results achieved. The new material is ensuring the same quality and electrical characteristics as the current products.
- All reliability tests have been completed with positive results.

ZVEI Guidelines

- According to ZVEI recommendations, the notification is required.

		Assessment of impact on Supply Chain regarding following aspects - contractual agreements - technical interface of processability/manufacturability of customer - form, fit, function, quality performance, reliability	Remaining risks within Supply Chain?		Understanding of semiconductors experts	Examples to explain	A: Application level B: Board level C: Component level *: Not relevant for qualification matrix
ID	Type of change	No	Yes				
x SEM-EQ-02	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.	--	P	PCN required for dedicated equipment for sensitive component production. (-): If change does not influence the integrity of the final product. (P): If impact on product integrity is anticipated.	(-): e.g. extension of existing equipment pool (P): e.g. extension of dedicated equipment in case basic technology still need to be proven	C	

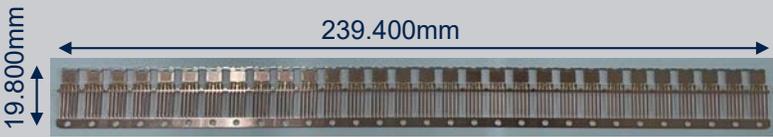
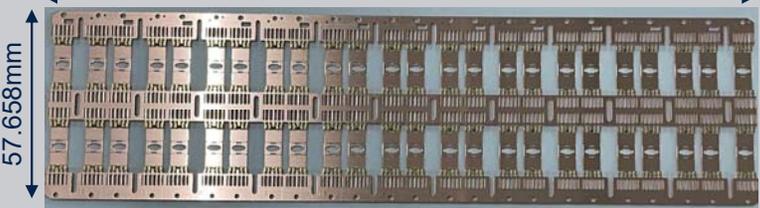
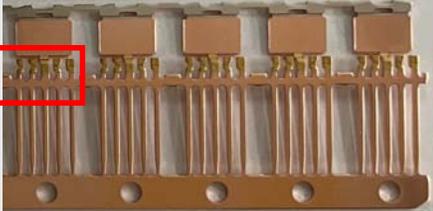
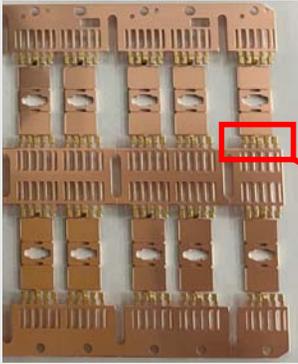
Bill Of Material Comparison

Actual Bill of Material	
ITEM	MATERIAL
WIRE	2.0 MILS Au
FRAME	FRAME PPAK 5L Single row
DIE ATTACH	PREFORM Pb/Ag/Sn 95.5/2.5/2
MOLD COMPOUND	RESIN SUMITOMO EME7026



New Bill of Material	
ITEM	MATERIAL
WIRE	2.0 MILS Au
FRAME	FRAME PPAK 5L Matrix
DIE ATTACH	PREFORM Pb/Ag/Sn 95.5/2.5/2
MOLD COMPOUND	RESIN SUMITOMO EME7026

Current Lead Frame vs new one

SDI Single Row (CURRENT)	SDI Matrix (NEW)
 <p>19.800mm</p> <p>239.400mm</p>	 <p>239.400mm</p> <p>57.658mm</p>
<p>Leads detail</p>  <p>Ni+Au</p> <p>Single row lead frame 1 row x 30 columns 30units</p>	<p>Leads detail</p>  <p>Ni+Au</p> <p>Matrix lead frame 4 rows x 24 columns 96 units</p>

Selected Test Vehicles

- VN750PTTR-E (Silicon Line VN7501)
- VN820PTTR-E (Silicon Line VN8201)

Impacted product list

Commercial products:

- VN750PTTR-E
- VN820PTTR-E

ST silicon line

- (Silicon Line VN7501)
- (Silicon Line VN8201)

VN750PTTR-E - Qualification Lots Reliability Program

Test	Reference	AEC-Q101 STM Test Conditions	VN75 1 st Q. Lot GK2255PYRP	VN75 2 nd Q. Lot GK2255PYRQ	VN75 3 rd Q. Lot GK2255PYRR	VN75 Ref. Lot GK2255PY02	Results
T.C.	JESD22A-104	-55°C/+150°C Duration = 1000TC	0/77	0/77	0/77	0/77	PASSED
E.S.	JESD22A-102	AC (Ta = 121°C, Pa = 2 atm for 96 hours)	0/77	0/77	0/77	0/77	PASSED
HTS		1000h @ 150°C	0/77	0/77	0/77	0/77	PASSED

VN820PTTR-E - Qualification Lots Reliability Program

Test	Reference	AEC-Q101 STM Test Conditions	VN82 1 st Q. Lot GK229EDBRP	VN82 2 nd Q. Lot GK229EDBRQ	VN82 3 rd Q. Lot GK229EDBRR	VN82 Ref. Lot GK229EDB02	Results
T.C.	JESD22A-104	-55°C/+150°C Duration = 1000TC	0/77	0/77	0/77	0/77	PASSED
E.S.	JESD22A-102	AC (Ta = 121°C, Pa = 2 atm for 96 hours)	0/77	0/77	0/77	0/77	PASSED
HTS		1000h @ 150°C	0/77	0/77	0/77	0/77	PASSED

Conclusions

- Detailed qualification activity has been performed in order to qualify the matrix 5 leads PPAK lead frame.
- All reliability tests (AEC-Q100 requirement) have been completed with positive results.
- Neither functional nor parametric rejects were detected at final electrical test.
- This report shows the positive results achieved. The new material is ensuring the same quality and electrical characteristics as the current products assembled in the single row 5 leads PPAK lead frame.



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 : PPAK (VIPower): Matrix Leafframe Introduction

PCN Reference : ADG/22/13787

Subject : Public Products List

Dear Customer,

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

VN820PTTR-E	VN750PTTR-E	
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