PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	ADG/18/10736
1.3 Title of PCN	Package Outline Change on PowerFLATTM ribbon version Products
1.4 Product Category	Power MOSFET
1.5 Issue date	2018-02-20

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	Riccardo NICOLOSO
2.1.2 Marketing Manager	Antonino PELLEGRINO
2.1.3 Quality Manager	Vincenzo MILITANO

3. Change

3.1 Category	**3.2 Type of change**	**3.3 Manufacturing Location**
General Product & Design	Modification of datasheet :parameters/electrical specification (min./max./typ. values) and/or AC/DC specification	Shenzhen

4. Description of change

	Old	**New**
4.1 Description	POA for PowerFLATTM ribbon version Products - Etched version	POA for PowerFLATTM ribbon version Products - Stamped version
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No Impact in terms of electrical, physical and functional aspects	

5. Reason / motivation for change

5.1 Motivation	Production flow change at supplier level to improve throughput and reduce cost
5.2 Customer Benefit	CAPACITY INCREASE

6. Marking of parts / traceability of change

6.1 Description	by Q.A. number

7. Timing / schedule

7.1 Date of qualification results	2018-02-14
7.2 Intended start of delivery	2019-02-07
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description			
8.2 Qualification report and qualification results	In progress	**Issue Date**	

9. Attachments (additional documentations)

10736 Public product.pdf
10736 PCN - Package Outline Change for PowerFLAT Ribbon Version.doc

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**
	STL120N4F6AG	
	STL120N4LF6AG	
	STL20DNF06LAG	
	STL20NF06LAG	
	STL40DN3LLH5	
	STL45N10F7AG	
	STL58N3LLH5	
	STL7DN6LF3	
	STL7N6LF3	
	STL86N3LLH6AG	
	STL8DN10LF3	
	STL8DN6LF3	
	STL8DN6LF6AG	
	STL8N10LF3	
	STL8N6LF3	
	STL8N6LF6AG	
	STL92N10F7AG	

Automotive Discrete Group (ADG)
Power Transistor Division

Process Change Notification

Package Outline Change on PowerFLAT^{TM} ribbon version Products

Dear Customer,

We inform you that according to our continuous improvement plan and to improve our service versus customer we have decided to introduce a new frame type for our PowerFLAT^{TM} ribbon version products. The change will have a light impact on package outline and no one on all the electrical characteristics both static and dynamic.

In the next page you will find a detailed report of the change.

According to the ZVEI and ST internal rules, we have classified the change as class 2:

	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 on Supply Chain?**	
ID	**Type of change**	**No**	**Yes**
SEM-PA-03	Change in leadframe dimensions	**P**	**P**

The qualification will be completed by wk39/2018

Sincerely yours!

Package Outline Change on PowerFLAT^{TM} ribbon version Products

ST Part number:

Package: **PowerFLAT^{TM} Ribbon Version**
Back End plant: **Shenzhen**

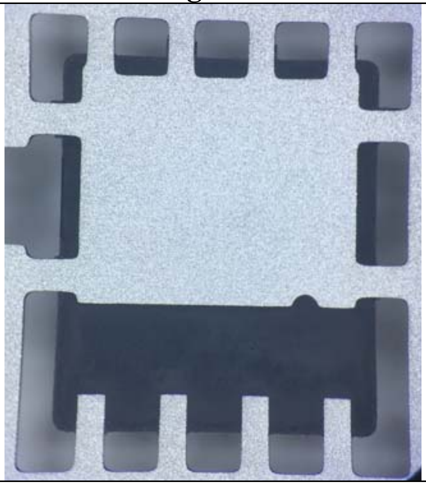
Reason and background of the changes

To enlarge material availability introducing a new frame type to be used for all the ribbon version products in PowerFLAT^{TM}.

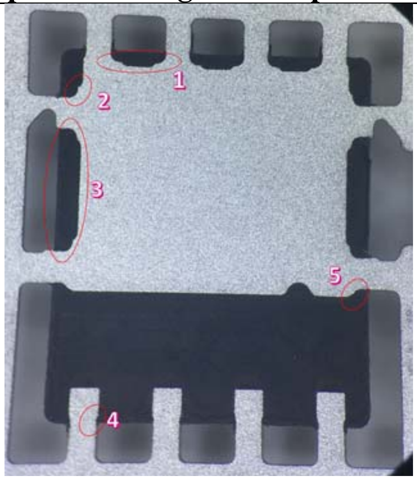
Impact on form, fit, function, or reliability.

No change in terms of electrical behavior and reliability performances.
A small change in the package outline will be visible as reported in the comparison below:

Current Package – Etched Frame

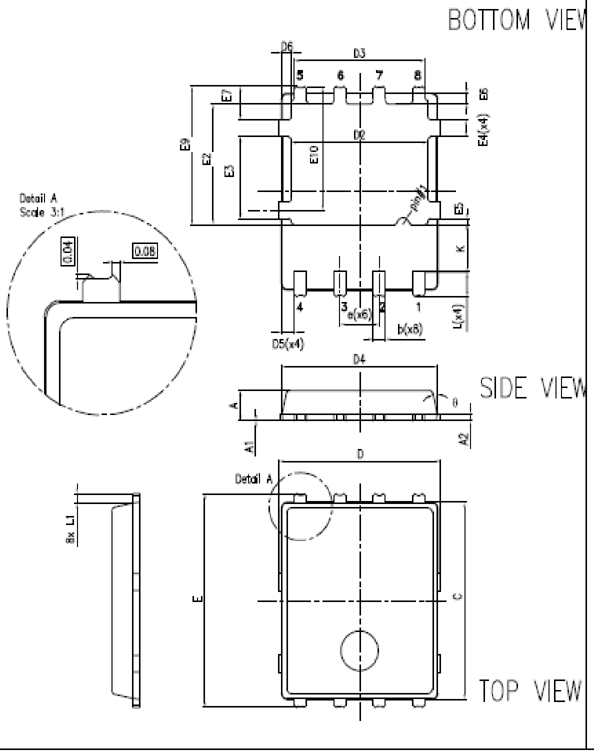


Proposed Package – Stamped Frame



Datasheet

- No impact on all the electrical parameters.
- Both the package outline are within current spec



Dim.	DATA BOOK (mm)				
	NOM	MIN	MAX	Current	Proposed
A		0.80	1.00	0.92	0.95
A1		0.02	0.05	0.04	0.03
A2	0.25			0.26	0.27
b		0.30	0.50	0.41	0.41
C	6.00	5.80	6.20	5.87	5.85
D	5.20	5.000	5.40	5.20	5.13
D2		4.15	4.45	4.29	4.40
D3	4.20	4.05	4.35	4.20	4.23
D4	5.00	4.80	5.20	4.91	4.89
D5	0.40	0.25	0.55	0.35	0.31
D6	0.30	0.15	0.45	0.32	0.29
e	1.27			1.26	1.27
E	6.40	6,20	6,60	6.41	6.39
E2		3.50	3.70	3.60	3.61
E3		2.35	2.55	2.46	2.44
E4		0.40	0.60	0.48	0.49
E5		0.08	0.28	0.14	0.17
E6	0.325	0.20	0.45	0.36	0.43
E7	0.90	0.75	1.05	0.91	0.90
K		1.275	1.575	1.440	1.370
L		0.60	0.80	0.67	0.68
L1	0.15	0.05	0.25	0.20	0.18
θ		0°	12°	11.9°	11.7°

<table>
<tr><td rowspan="2">Benefit of the change</td><td>Double frame version availability to improve production throughput / flexibility.</td></tr>
<tr><td>Here following the comparison between current frame and proposed one:
<table>
<tr><th>Item</th><th>Current</th><th>New</th></tr>
<tr><td>Supplier</td><td>SHM</td><td>SHM</td></tr>
<tr><td>Type</td><td>Post-Plated Ni/NiP</td><td>Pre-Plated Ni/NiP</td></tr>
<tr><td>Manufacturing Type</td><td>Etched</td><td>Stamped</td></tr>
<tr><td>Manufacturing Location</td><td>Japan</td><td>Malaysia</td></tr>
</table></td></tr>
<tr><td>Planned Implementation date for change</td><td>Week 07/2019</td></tr>
<tr><td>Qualification Plan</td><td>
<table>
<tr><th>CP</th><th>Rel. Plan</th><th>TC</th><th>IOLT</th><th>THB</th><th>HTS 175°C</th><th>Wire Pull & Bond Shear</th><th>UIS</th><th>Parametric Verification</th></tr>
<tr><td>STL40DN3LLH5</td><td>1 lot</td><td>X</td><td>X</td><td></td><td></td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>STL120N4F6AG</td><td>1 lot</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>STL86N3LLH6AG</td><td>1 lot</td><td>X</td><td>X</td><td></td><td></td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>STL52DN4LF7AG</td><td>1 lot</td><td>X</td><td>X</td><td></td><td></td><td>X</td><td>X</td><td>X</td></tr>
</table>
Qualification will be completed by week 39/2018</td></tr>
<tr><td>PPAP</td><td>PPAP will be updated accordingly</td></tr>
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