PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data	
1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	ADG/17/10491
1.3 Title of PCN	VN7016AJTR: Product Optimization
1.4 Product Category	VN7016AJTR
1.5 Issue date	2017-12-15

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	Nicola LIPORACE
2.1.2 Marketing Manager	Roberto CRISAFULLI
2.1.3 Quality Manager	Francesco MINERVA

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 Bouskoura and ST Shenzhen

4. Description of change		
	Old	New
4.1 Description	PowerSSO-16 Dual Gauge (DG) version	PowerSSO-16 Deep Down Set (DDS) version
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	No Impact	

5. Reason / motivation for change	
5.1 Motivation	Service Improvement, product portfolio optimization
5.2 Customer Benefit	SERVICE IMPROVEMENT

6. Marking of parts / traceability of change	
6.1 Description	New part number VN7016AJEPTR

7. Timing / schedule	
7.1 Date of qualification results	2017-12-14
7.2 Intended start of delivery	2018-06-30
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation			
8.1 Description	10491 RR003017CT2235_1.0_VN7016AJ_XV08_PSSO16 Deep Down Set Large Die Pad.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2017-12-15

9. Attachments (additional documentations)

10491 Public product.pdf
10491 RR003017CT2235_1.0_VN7016AJ_XV08_PSSO16 Deep Down Set Large Die Pad.pdf
10491 5W and 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
	VN7016AJ-E	
	VN7016AJTR	

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VN7016AJTR: Product Optimization

WHAT*:*

Please be informed that in order to rationalize our product portfolio related to VIPower M0-7 family, and following PCN 9126 dated March 2105, New Ordering Code (Commercial Part-numbers) have been introduced.

New part number VN7016AJEPTR will be assembled in dual source PowerSSO-16 assembly line: Bouskoura-Morocco and Shenzhen-China introducing the PSSO-16 Deep Down Set (DDS) lead frame version.

Strip test* will be introduced as well.
Strip test* consists in testing the device directly on the Lead Frame form (strip) before singulating it (2nd crop).
Same test coverage and quality will be applied.

*see below details about strip test

WHY:
Service Improvement, product portfolio optimization

HOW:
See enclosed presentation

WHEN:

Optimized Product version VN7016AJEPTR is already available. We strongly recommend to replace old version with new for a better service

VN7016AJTR vs VN7016AJEPTR
Product Optimization

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VN7016AJTR vs VN7016AJEPTR

Optimized version

- New Ordering Code (Commercial Part-number) have been introduced for Optimized Product version:
- Current Ordering Code is now Not Recommended for New Designs (NRND)
- New Ordering Code is the one to be used for qualification and production in any new project
- Current Ordering Code are strongly recommended to be replaced by New Ordering Code in running projects taking advantage of better service.

VN7016AJTR vs VN7016AJEPTR

Optimized version

- New part number will be assembled in dual source PowerSSO-16 assembly line: Bouskoura-Morocco and Shenzhen-China.

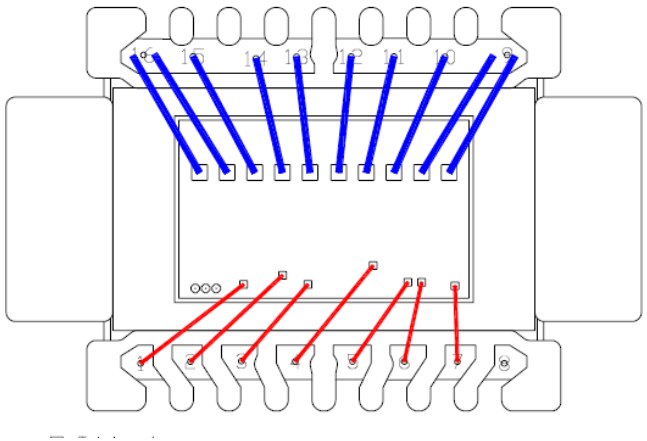
	Current Ordering Code (VN7016AJTR)	New Ordering Code (VN7016AJEPTR)
Silicon	-	No change
Assembly Strategy	ST Bouskoura	PCN 9126 (PSSO-16 Shenzhen second site activation)
Datasheet	No differences (excluded p/n itself and Exposed Pad Dimensions)	
Device Marking	VS7016A	VS7016L
Product status	Qualified and in mass production	
Marketing Status	NRND (Not recommended for new design)	Active

VN7016AJTR vs VN7016AJEPTR

Optimized version

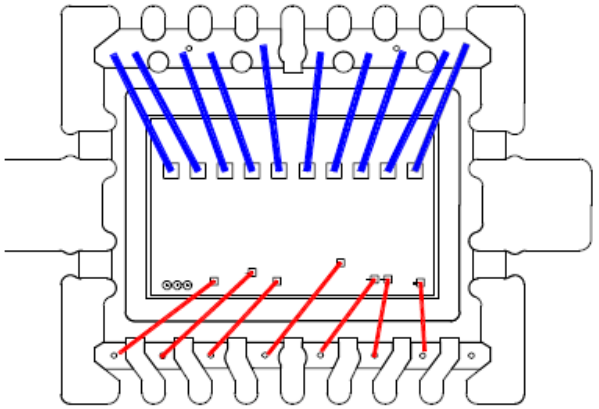
Current Lead Frame Version (ST Bouskoura only)

Pad size: 4.45 x 2.56 mm



New Deep Down Set Lead Frame Version (ST Bouskoura /ST Shenzhen)

Pad size: 3.61 x 2.49 mm



VN7016AJTR vs VN7016AJEPTR

Optimized version

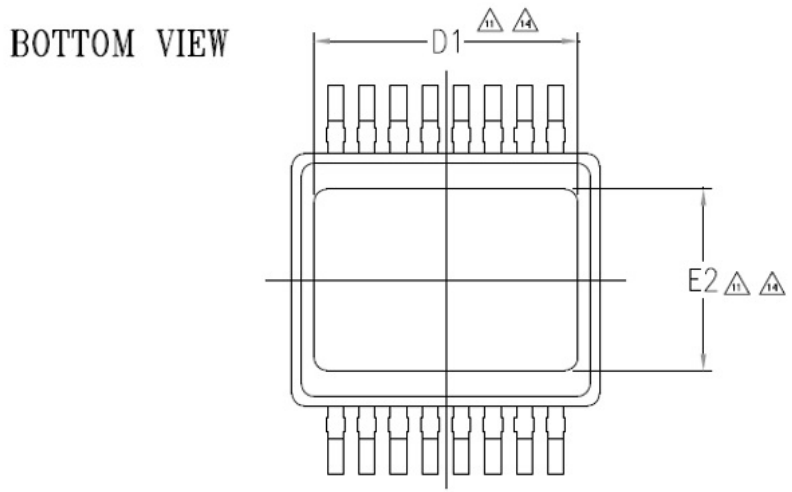
Exposed Pad Dimensions Difference

Current

	min	typ	max
D1	2.6		4.2
E2	1.9		2.5

New

	min	typ	max
D1	2.9		3.5
E2	2.2		2.8



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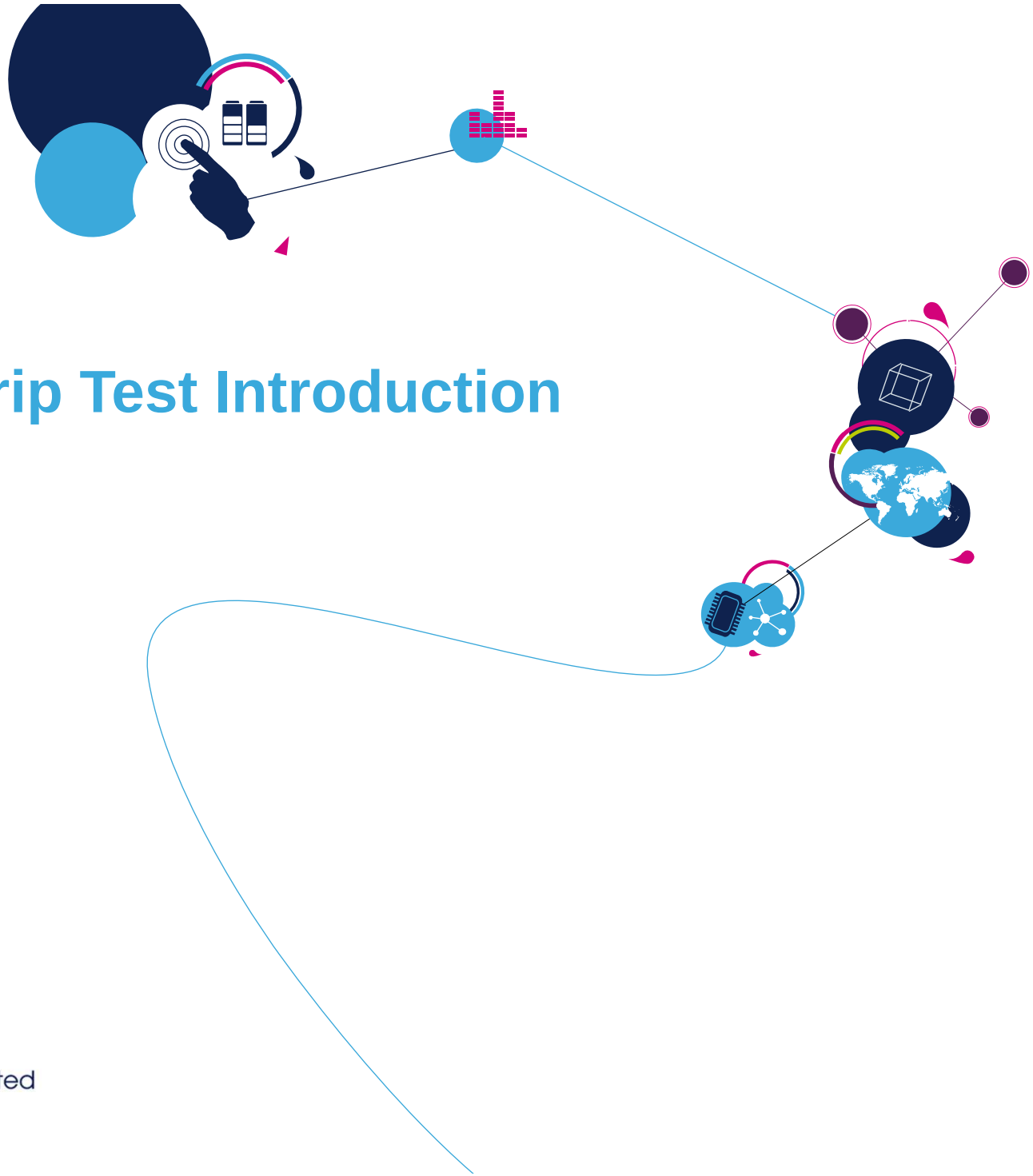

PSSOxx: Strip Test Introduction

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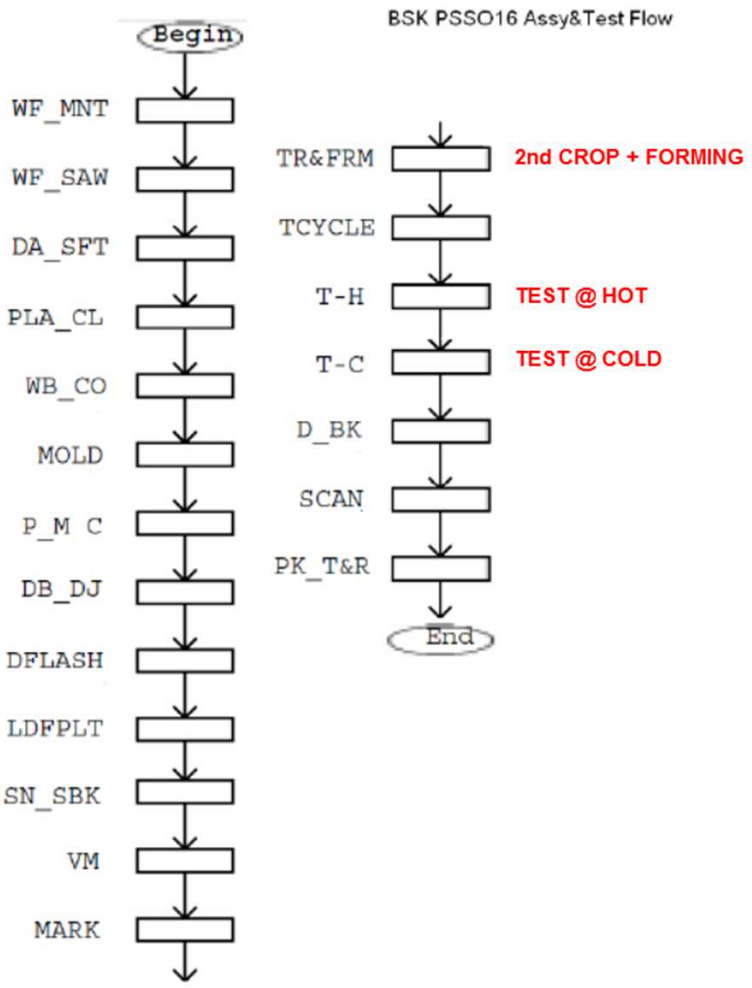
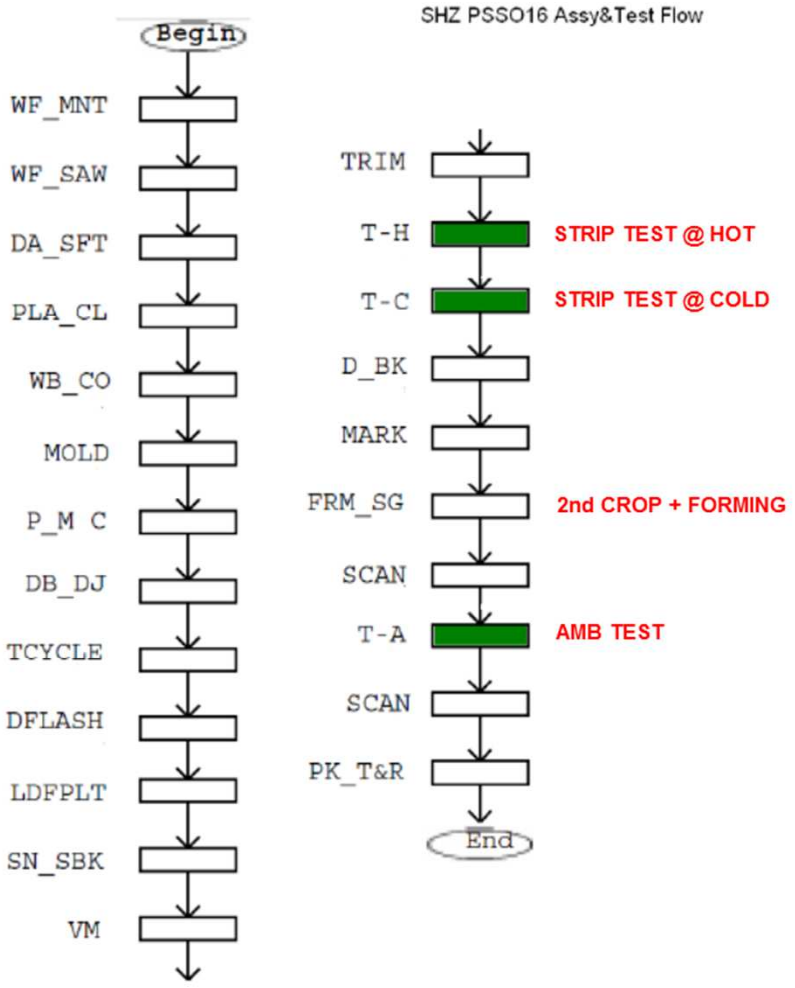
PSSO Strip Test Introduction

- Strip test is a new testing methodology that does not impact fit, form and function nor reliability of the products.
- Materials and equipments are not changed neither at FE nor at BE level
- Strip test is performed in between 1st crop (dam-bar cut) and 2nd crop (Trim&Form and final singulation)
- Further test step at ambient temperature is inserted after vision check

Here follows some slides to explain this new testing methodology.

PSSO OLD vs NEW Flow





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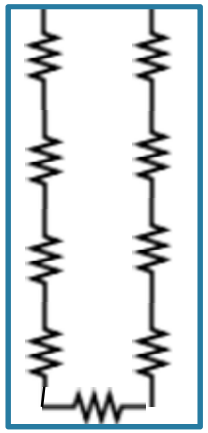
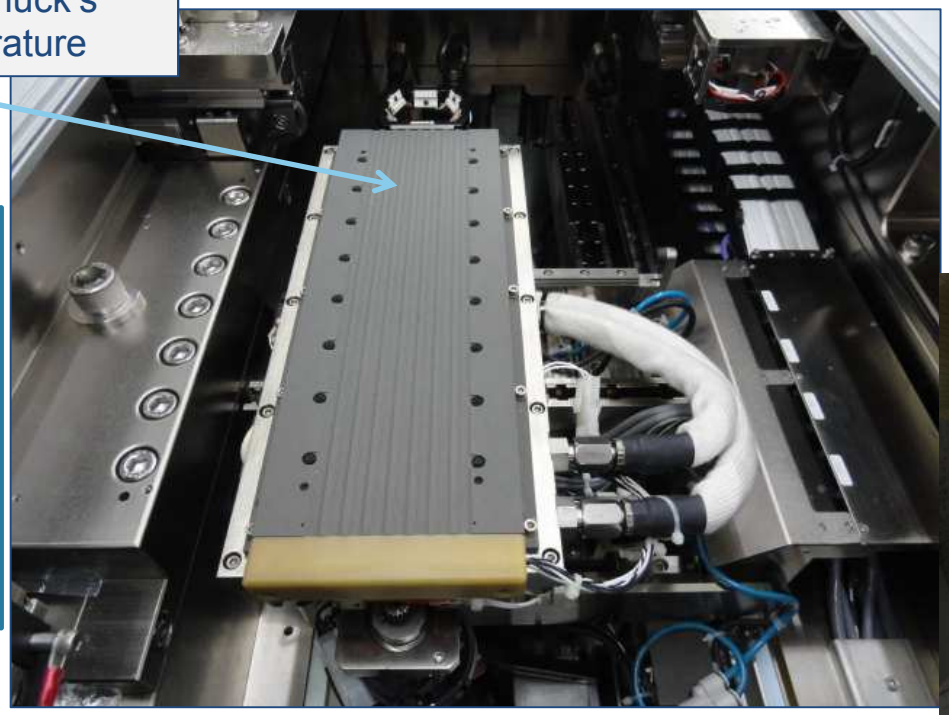
PSSO Strip Test

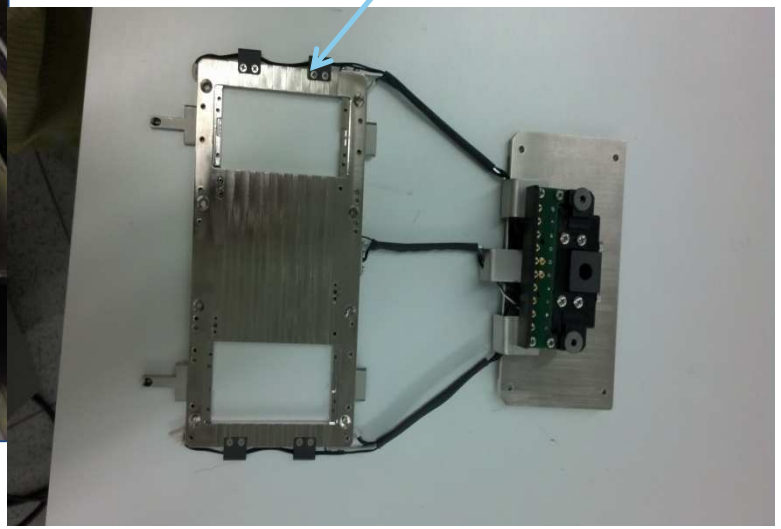
How uniform temperature is ensured?

Resistance used to settle chuck's temperature





Tccf tool used to stabilize frame's temperature



- Same concept used in EWS for the wafer.
- The frame is uniformly heated or cold down and the temperature is stable (T=130degC or T=-40degC)

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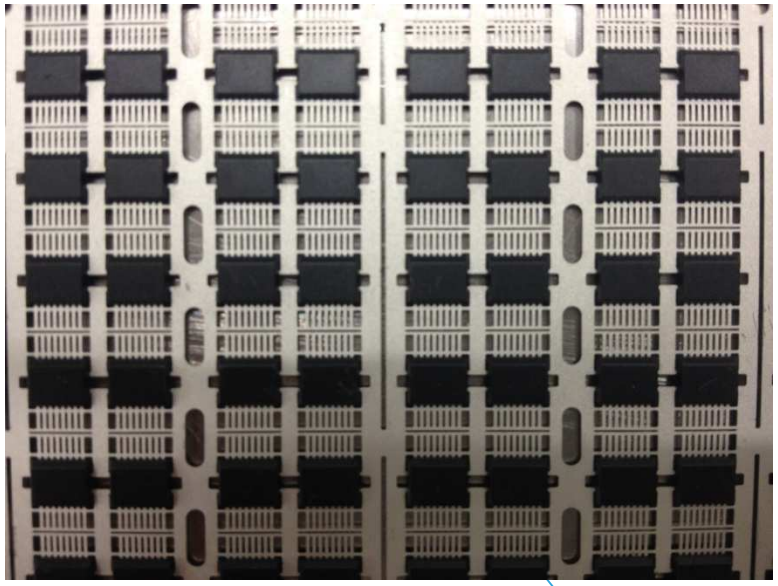
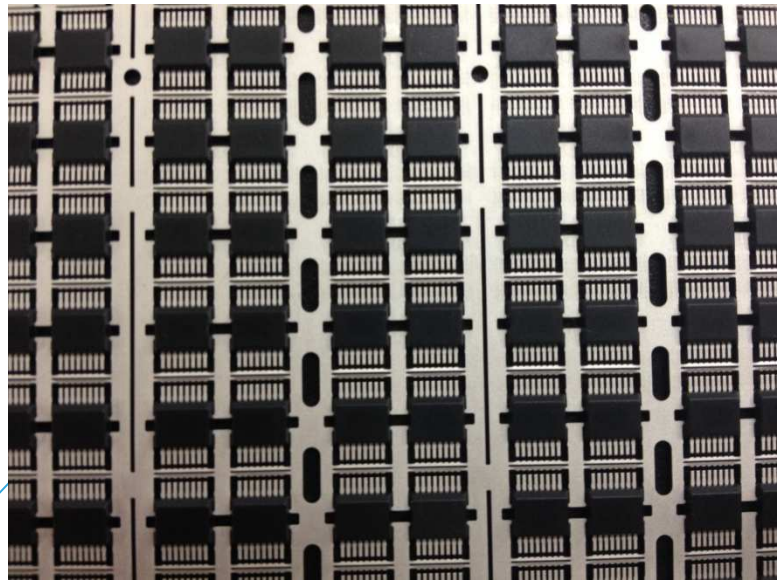
PSSO Strip Test

Leadframe before and after 1st crop

BEFORE 1st CROP



AFTER 1st CROP

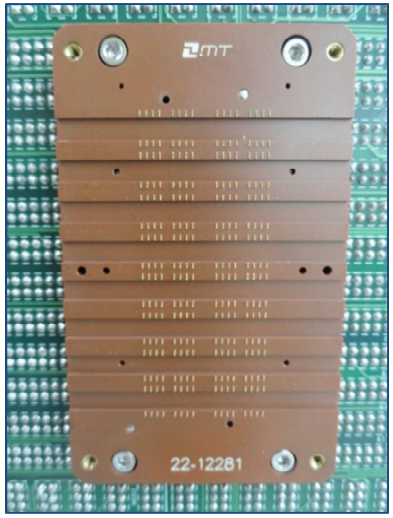


Dam-bar in between leads is cut during the 1st crop
As consequence pins are singulated

PSSO Strip Test

Strip Jig/Contact

Testing Jig



Contact Pogo Pin 32 sites

Test Head + Handler

- Pins are not clamped
- Contact Pogo Pins system is used

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