

PRODUCT / PROCESS CHANGE INFORMATION

1. PCI basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCI No.		ADG/20/12410
1.3 Title of PCI		Tape&Reel Cover Tape Replace on BGA Products (Testing and Finishing Plant UTAC)
1.4 Product Category		see list
1.5 Issue date		2020-12-09

2. PCI 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	Luca RODESCHINI, Martin Russell DUNCAN
2.2.2 Marketing Manager	Matteo MOIOLI, Yatao YANG
2.2.3 Quality Manager	Alberto MERVIC

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Materials	New Indirect material part number (same supplier or different supplier): Boxes, trays, carriers, back grinding tape, wafer mounting tape, mold tape, etc..	UTAC Subcontractor (Singapore)

4. Description of change

	Old	New
4.1 Description	Cover Tape CP36	Cover Tape CP38
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	Color of Current Material (CP36) : Greyish blue Color of New Material (CP38) : Greyish No other impact	

5. Reason / motivation for change

5.1 Motivation	Supplier material discontinuance
5.2 Customer Benefit	SERVICE CONTINUITY

6. Marking of parts / traceability of change

6.1 Description	Dated Code and Visible Greyish Color of New Material
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7. Timing / schedule

7.1 Date of qualification results	2020-10-22
7.2 Intended start of delivery	2020-11-15
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	12410 Validation.pdf	
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date 2020-12-09

9. Attachments (additional documentations)

12410 Public product.pdf
12410 Validation.pdf
12410 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
	STA1385EOAS1TR	

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C-Pak CP38

Cover Tape Qualification

Objective:

To qualify CP38 cover tape as a replacement for CP36 cover tape use on STM devices.

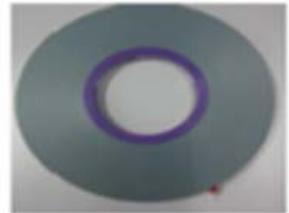
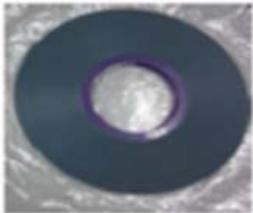
Material Description

C-PAK TYPE CP38 cover tape is transparent polyester film with static dissipative properties on both sides and heat sealable over a wide range of temperatures, thus making it immensely suitable for different materials of carrier tape. The adhesive system is specially developed for tight range in seal strength, as an addition to its stable seal strength.

New cover tape CP38 is developed to meet the stringent requirement specified by customer such as ESD and product performance like peel force strength consistency and clarity.

Note : C-PAK is STM Qualified supplier

Materials Comparison

Cover tapes CP38 , CP36 Comparison		
	CP38	CP36
1 Base Material (Polyester)	PET	PET
2 Tensile Strength (kg/mm ²)	6.4	5.1
3 Elongation %	75	75
4 Luminous Transmittance %	85	89
5 Haze %	<=25	30
6 Surface resistivity (Ohms/sq) Adhesive, Top	10 ⁹ , 10 ¹¹	10 ⁹ , 10 ¹¹
7 Tribo charge test (volt)	0	0
8 Static decay test (sec)	0.01	0.01
9 Baredies sticking test result	Good	Good
10 Compatibility with C-pak materials	PS, PC	PS
11 EIA-481 peel force test (g), 300mm/min	20 - 80	20-80
12 Recommended Sealing Temperature	145 to 195 Deg C	145 to 195 Deg C
13 Length (m)	300,500	300,500
14 3" Core	Purple Plastic	Purple Plastic
15 Natural Color	 Greyish	 Greyish blue
16 RoHs Compliance	Yes	Yes

Visual Inspection Report

Check Item	Criteria	Result
Damage Cover Tape	Answer must be No	no
Contain stain or foreign material (dent, deformation, oil, and dirt)	Answer must be No	no
The component can be removed from the cavity in a vertical direction without mechanical restriction, after the top cover tape has been removed.	Answer must be Yes	yes
HA cover tape. No delaminating after seal at 230 deg C.	Answer must be No	no delamination
Cover tape width tolerance	$\pm 0.1\text{mm}$ (see supplier drawing)	$\pm 0.1\text{mm}$
Thickness HA	0.040 to 0.070 mm	0.041 to 0.051 mm
Cover tape dimension	Refer to spec doc# 0083826	21.3 mm
Color	Transparent or Milky	Transparent
Presence of hole	Answer must be No	no
Others (please define)		no deformities found

Peel Test 1/2 (storage at normal production environment)

Peel test at Zero Time

Peel test after 2 weeks. (Aging) Parts are store at normal production environment.

	DURATION	0 DAY	15 DAY
1	MAXIMUM	67.3	74.4
	MINIMUM	40.5	50.1
	AVERAGE	60.09	66.09
	RANGE	26.8	24.3
2	MAXIMUM	69.3	73.5
	MINIMUM	43.5	53.8
	AVERAGE	61.5	67.3
	RANGE	25.8	19.7
3	MAXIMUM	68.7	74.9
	MINIMUM	42.1	54.9
	AVERAGE	60.5	68.6
	RANGE	26.6	20

Peel Strength Spec : 20 – 80 gm

Result:

PASSED. All readings are within the spec.

Peel Test 2/2 (storage at 50°C / 60% RH)

Peel test at Zero Time

Peel test after 72 hours (Aging) Parts are stored at 55 C 60% RH

	DURATION	0 DAY	After 72 hrs @ 55C / 60% RH
1	MAXIMUM	67.3	74.1
	MINIMUM	39.7	39.9
	AVERAGE	58.8	62.9
	RANGE	27.6	34.2
2	MAXIMUM	69.0	74.7
	MINIMUM	38.5	36.6
	AVERAGE	58.3	63.5
	RANGE	30.5	38.1
3	MAXIMUM	72.9	73.7
	MINIMUM	39.1	39.3
	AVERAGE	60.8	64.3
	RANGE	33.8	34.4

Peel Strength Spec : 20 – 80 gm

Result:

PASSED. All readings are within the spec.

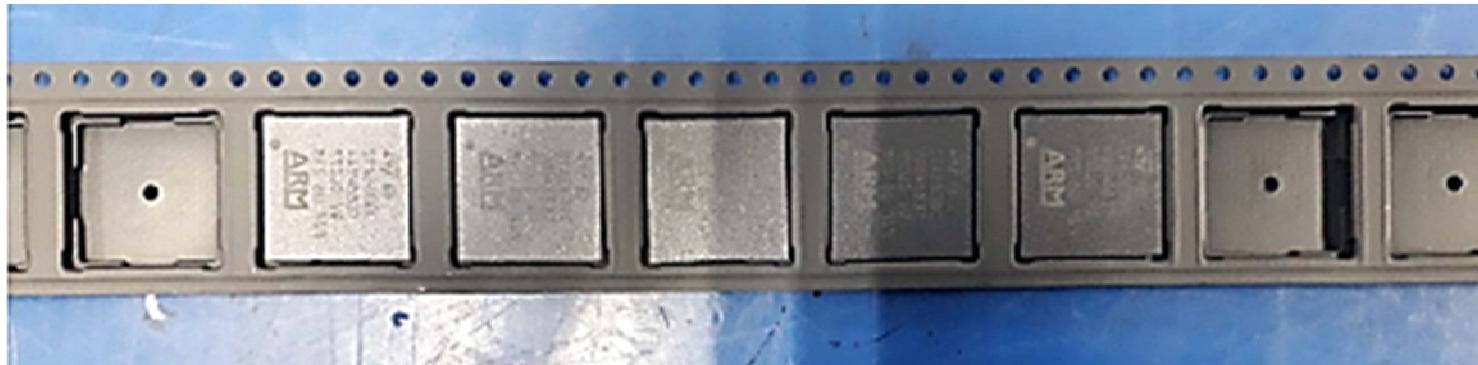
Die Stick Test

Requirement : No unit should stick at carrier tape while peeling the cover tape

Device in the Tape pocket before die stick TEST



Device in the Tape pocket after die stick TEST



TEST Results: Die Stick TEST pass as the units did not stick to cover tape

ESD Test

Surface resistivity for Cover Tape (ohms / Sq)					
Item No	1	2	3	4	5
Reading	1.71E+10	1.30E+10	1.26E+10	1.10E+10	1.58E+10

Surface Resistivity Spec : E+5 to E+11 ohm/sq

Actual readings : E+10

Results : Passed

Workability Test

Workability test should carrier out at each different taping machine in the process where it applicable.

Result : Passed peel strength req't
(20-80 gm)

	DURATION	0 DAY	15 DAY
1	MAXIMUM	67.3	74.4
	MINIMUM	40.5	50.1
	AVERAGE	60.09	66.09
	RANGE	26.8	24.3
2	MAXIMUM	69.3	73.5
	MINIMUM	43.5	53.8
	AVERAGE	61.5	67.3
	RANGE	25.8	19.7
3	MAXIMUM	68.7	74.9
	MINIMUM	42.1	54.9
	AVERAGE	60.5	68.6
	RANGE	26.6	20

After cover tape is seal on carrier tape, units marking are able to read under light.



Outgas Material Test 1/2

Place 10 units at the centre of carrier tape and seal with cover tape
Then Storage 24 hours at 30 C with 60% RH

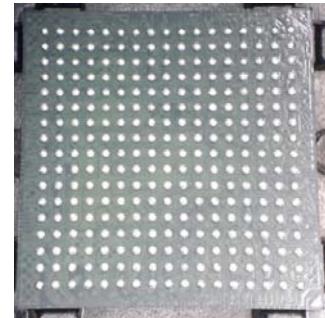
Inspect units and leads/ball to ensure there is no discolor or outgas effect because of carrier tape material after storage.

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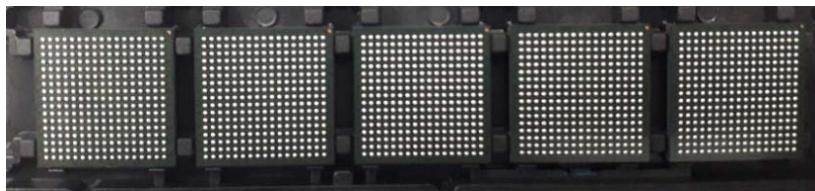
Inspection before Seal with cover tape

Outgassing Test Results:

- The cover tape pass the Outgassing test as it does not generate the ball/package discoloration

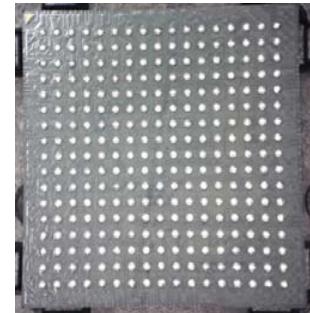


Device : V587
Result : No Discolouration



Outgas Material Test 2/2

Inspection result after reel for 24 hrs



Device : V587

Result : No Discolouration

Outgassing Test Results:

- The cover tape pass the Outgassing test as it does not generate the ball/package discoloration

Conclusion

This qualification test is meant for CP38 cover tape to be used for STM devices.

CP38 cover tape have met the requirements and passed on all qualification tests done, therefore, it is recommended for production use

PRODUCT/PROCESS CHANGE INFORMATION

TITLE	Tape&Reel Cover Tape Replace on BGA Products (Testing and Finishing Plant UTAC)
IMPACTED PRODUCTS	See list.
MANUFACTURING STEP	Packaging (Tape and Reel).
INVOLVED PLANT	UTAC Subcontracor (Singapore).
CHANGE REASON	Supplier material discontinuance.
CHANGE DESCRIPTION	<p>UTAC Singapore Test & Finishing Plant is replacing the cover tape of Tape & Reel from P/N CP36 to P/N CP38</p> <p>Color of Current Material (CP36) : Greyish blue</p>  <p>Color of New Material (CP38) : Greyish</p> 
TRACEABILITY	Dated Code and Visible Greyish Color of New Material
REPORTS	12410 Validation.pdf



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

PCI Title : Tape&Reel Cover Tape Replace on BGA Products (Testing and Finishing Plant UTAC)

PCI Reference : ADG/20/12410

Subject : Public Products List

Dear Customer,

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

STA1085EOATR	STA1085POA3TR	STA1080EOATR
STA1085EOA3TR	STA1080HOATR	



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