



PRODUCT INFORMATION LETTER

PIL CRP/14/8400
Dated 20 Mar 2014

New Cover Tape Sumitomo - Muar Assembly Plant

Sales Type/product family label	NA
Type of change	Package assembly material change
Reason for change	Improved tensile strength and better Visual Inspection
Description	Replacement of existing cover tape (Reference: CP21) used for tape & reel packing by a new one supplied by SUMITOMO (Reference: CSL-Z7302) for QFP, SOIC, TSSOP and QFN packages. Sumitomo cover tape is already qualified and used since 2010 on PSO, PSSO, and BGA package families, and on TQFP and HIQUAD packages since 2011. Note: No change on specification limits for "Peel Strength" parameter, controlled on manufacturing lines.
Forecasted date of implementation	01-Nov-2014
Forecasted date of samples for customer	17-Mar-2014
Forecasted date for STMicroelectronics change Qualification Plan results availability	13-Mar-2014
Involved ST facilities	Muar Assembly Plant

DOCUMENT APPROVAL

Name	Function
Livache, Veronique	Corporate Quality Manager
Low, Patrick	Process Owner

SUMITOMO Cover tape - Muar Assembly Plant

WHAT is the change:

Replacement of existing cover tape (Reference: CP21) used for tape & reel packing by a new one supplied by SUMITOMO (Reference: CSL-Z7302) for QFP, SOIC, TSSOP and QFN packages.

Sumitomo cover tape is already qualified and used since 2010 on PSO, PSSO, and BGA package families, and on TQFP and HIQUAD packages since 2011.

Note: No change on specification limits for “Peel Strength” parameter, controlled on manufacturing lines.

WHY :

The cover tape CSL-Z7302 supplied by SUMITOMO has a better tensile strength, and allows a better and simplified visual Inspection.

	CPAK/PCT (current)	Sumitomo (New)	Comment
Tensile strength	68MPa	92MPa	CSL-Z7302 Better tensile strength
Transparency	Milky 	Semi-transparent 	CSL-Z7302 with better visibility for Visual Inspection

HOW will the change be qualified:

CSL-Z7302 Sumitomo cover tape implementation is following a working plan, detailed below.

Phase 1 – Preparation and risk assessment

- Risk assessment (Appendix 1)

Phase 2 – Qualification Execution

- Qualification & Workability validation (Qualification results in Appendix 2)

Phase 3 – Cover Tape Conversion

IMPACT OF THE CHANGE:

No impacts on **Fit and Function** of the parts with new cover tape.

No impact on **Form** of the parts, but change is visible on packing.

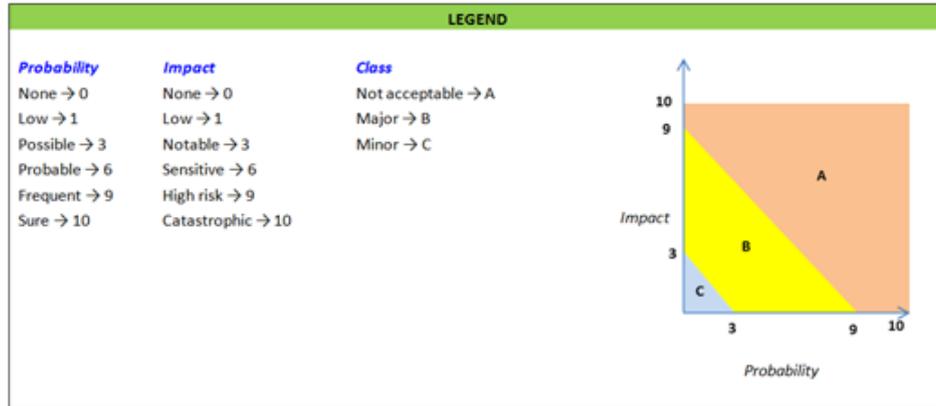
How will this change be identified:

Current cover tape CP21 is “milky”.

The new cover tape is semi-transparent.

Appendix 1: Risk Assessment

#	Risks identified	Potential risk resulting from	Before Action			Considered Action	Who	When	Status	After Action		
			Prob.	Impact	Class					Prob.	Impact	Class
1	Torn Tape	Customer <u>detaping</u>	6	6	A	Fast pull test and peel test	Plant	ww'42	Done	1	1	C
2	Cover tape residue at carrier tape	Customer <u>detaping</u>	6	6	A	Fast pull test and peel test	Plant	ww'42	Done	1	1	C



Note:

- Any risk classified as A/B should be taken relevant effective actions to decrease occurrence frequency or enhance detectability.
- After actions taken, the maximum of **[Prob. X Impact]** should be not greater than 20 (Class A). (B) $(\text{Prob.} \times \text{Impact}) \leq 20$, C) $(\text{Prob.} \times \text{Impact}) \leq 20$

Appendix 2: Qualification execution and results

1) Peel tests

Conclusions: Sumitomo CSL-Z7302 cover tapes passed all peel tests and pull tests.

Summary Table

CP21: current cover Tape

CSL-Z7302: new SUMITOMO cover Tape

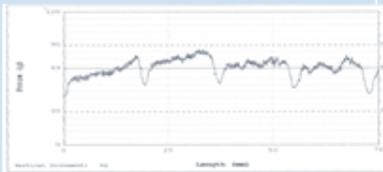
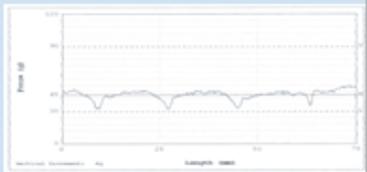
	Package	Machine	Carrier tape	Cover tape	Evaluation results
9.2mm	BGA5x5	MIT	SPK	CP21	Fail
9.2mm	BGA5x5	MIT	SPK	CSL-Z7302	Pass
9.2mm	QFN5x5	STI	SPK	CP21	Pass
9.2mm	QFN5x5	STI	SPK	CSL-Z7302	Pass
13.3mm	SO16L	TMBZ	CPAK	CP21	Pass
13.3mm	SO16L	TMBZ	CPAK	CSL-Z7302	Pass
13.3mm	TSSOP38	ESI	PCT	CP21	Pass
13.3mm	TSSOP38	ESI	PCT	CSL-Z7302	Pass
21.0mm	TQ10	STI	PEAK	CP21	Pass
21.0mm	TQ10	STI	PEAK	CSL-Z7302	Pass

2) **Process control results (“Peel Strength” parameter)**

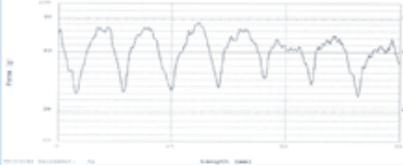
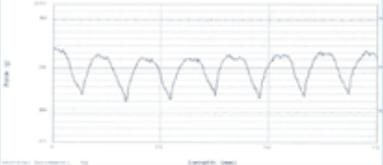
“Peel strength” parameter results are better controlled with Sumitomo cover tape, because showing a better distribution (range of min/max results and standard deviation are improved). Results given below on:

- BGA 5x5
- QFN 5x5
- SO16
- TQFP10x10

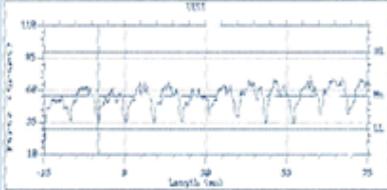
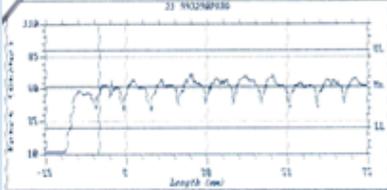
- Package : BGA5x5
- Machine : MIT
- Carrier tape supplier : SPK
- Cover tape width : 9.2mm

	Current (CP21)	New (CSL-Z7302)
Temperature	165	190
Pressure	0.25MPa	0.25MPa
Peel test results (Spec limit: 10~130gf)	Min: 43 Range: 43 Max: 86 Std dev: 6.6	Min: 32 Range: 21 Max: 54 Std dev: 4.0
		
Pull test results (requirement: no torn tape)	Torn tape 	No torn tape 
Results	Fail	Pass

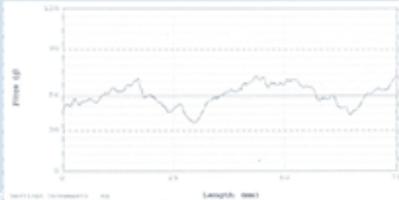
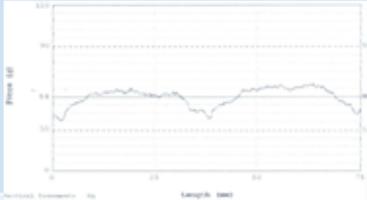
- Package : QFN5x5
- Machine : STI
- Carrier tape supplier : SPK
- Cover tape width : 9.2mm

	Current (CP21)	New (CSL-Z7302)
Temperature	152	155
Pressure	2.8MPa	2.8MPa
Peel test results (Spec limit: 10~130gf)	Min: 39 Range: 60 Max: 88 Std dev: 11 	Min: 37 Range: 35 Max: 72 Std dev: 9 
Pull test results (requirement: no torn tape)	No torn tape 	No torn tape 
Results	Pass	Pass

- Package : SO16L
- Machine : ISMECA- TMBZ
- Carrier tape supplier : CPAK
- Cover tape width : 13.3mm

	Current (CP21)	New (CSL-Z7302)
Temperature	165	175
Pressure	0.54MPa	0.54MPa
Peel test results (Spec limit: 10~130gf)	Min: 34 Range: 37 Max: 71 Std dev: 8.2 	Min: 44 Range: 27 Max: 71 Std dev: 5.2 
Pull test results (requirement: no torn tape)	No torn tape 	No torn tape 
Results	Pass	Pass

- Package : TQ10x10
- Machine : STI
- Carrier tape supplier : PEAK
- Cover tape width : 21.0mm

	Current (CP21)	New (CSL-Z7302)
Temperature	187	187
Pressure	3.5MPa	3.5MPa
Peel test results (Spec limit: 10~130gf)	Min: 35 Range: 34 Max: 70 Std dev: 8	Min: 36 Range: 27 Max: 63 Std dev: 7
		
Pull test results (requirement: no torn tape)	No torn tape 	No torn tape 
Results	Pass	Pass

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PIL Reference : CRP/14/8400

PIL Created on : 02-JUN-2014

Subject : Public Products List

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ST COMMERCIAL PRODUCT

A5970ADTR	A5972D013TR	A6902D13TR
ACS302-6T3-TR	E-L6219DS013TR	E-L6219DSATR
E-L6219R013TR	E-L9338MD/TR	E-L9637D013TR
E-L9823013TR	E-L9826TR	E-TDA7404DTR
E-TEA3718SFPTR	ESDA6V1S3RL	FDA2100LV-T
ITA25B3RL	L2720W13TR	L2726013TR
L272D013TR	L293DD013TR	L297D013TR
L4949EDTR-E	L4949EPTR-E	L4963D013TR
L4971D013TR	L4972AD013TR	L4973D3.3-013TR
L4973D5.1-013TR	L4976D013TR	L4978D013TR
L4979D013TR	L4979MD013TR	L4981AD013TR
L4981BD013TR	L4988DTR	L4988MDTR
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L4993MDTR	L5150CSTR	L5970ADTR
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L5981TR	L5983TR	L5985TR
L5986TR	L5987TR	L5991AD13TR
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L6206D013TR	L6206QTR	L6207D013TR
L6207QTR	L6208D013TR	L6208QTR
L6225DTR	L6226DTR	L6227DTR
L6228DTR	L6229DTR	L6235D013TR
L6235QTR	L6370QTR	L6374FP013TR
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L6520TR	L6521TR	L6561D013TR
L6562ADTR	L6562DTR	L6563ATR
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L6571BD013TR	L6572D013TR	L6574D013TR
L6585DETR	L6598D013TR	L6599DTR



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L6747ATR	L6747CTR	L6902D013TR
L6910GTR	L6910TR	L6932D1.2TR
L6932D1.8TR	L6932D2.5TR	L7980TR
L7981TR	L7985TR	L7986TR
L9333MD-TR	L9339-TR	L9380-TR-LF
L9524C-TR	L9613B013TR	L9615D013TR
L9616-TR	L9658TR	L9659TR
L9660TR	L9700DTR-E	L9820D013TR
L9826TR	L9848TR	L9856-TR
L9856-TR-LF	L9903TR	L9904TR
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LM234DT	LM235DT	LM2901DT
LM334DT	LM335DT	M41ST85WMH6F
M41T11MH6F	M41T94MH6F	M48T08Y-10MH1F
M48T201V-85MH1F	M48T201Y-70MH1F	M48T35AV-10MH1F
M48T35Y-70MH1F	M48T37V-10MH1F	M48T37Y-70MH1F
M48T58Y-70MH1F	M48Z35Y-70MH1F	M48Z58Y-70MH1F
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SPC56AP60L3BEABR	SPC56AP60L3BEFBR	SPC56AP60L3CEFAR
SPC56AP60L3CEFBR	ST1S03PUR	ST1S06PUR
ST1S06PUR/1LW	ST1S09IPUR	ST1S09PUR
ST202EBWR	ST232BWR	ST232CWR
ST3232BWR	ST3232CWR	ST72F321AR6TAXS
ST72F321AR9TAXS	ST72F321AR9TCTXS	ST72F321J9TCXS
ST72F324BJ2TAXS	ST72F324BJ6TCXS	ST72F324BK2TCXS
ST72F324BK4TCXS	ST72F324BK6TAXS	ST72F324BK6TCTXS
ST72F361AR9TAXS	ST72F521R9TCXS	ST72F561AR9TCXS
ST72F561J9TBXS	ST72F561J9TCXS	ST72F561R9TAXS
ST72F561R9TCXS	ST75185CDR	ST7538QTR
ST7570TR	ST7580TR	ST7FLITE49K2T6TR
ST8004CDR	ST8024CDR	ST8024LACDR
ST8024LCDR	STA013\$013TR	STA013T\$013TR
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STM8AF6246TASSSX	STM8AF6246TCSSSX	STM8AF6246TDSSSX
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STM8AF6286TCX	STM8AF6288TAX	STM8AF6288TCX
STM8AF6288TDX	STM8AF62A8TCX	STM8AF62A8TDX
STM8AP52A8TCIFBX	STM8L151C4T6TR	STM8L152C4T6TR
STM8S003K3T6CTR	STM8S005C6T6TR	STM8S005K6T6CTR
STM8S103F2M6TR	STM8S103K3T3CTR	STM8S103K3T6CTR
STM8S105C4T6TR	STM8S105C6T6TR	STM8S105K4T3CTR
STM8S105K4T6CTR	STM8S105K6T3CTR	STM8S105K6T6CTR
STM8S105S4T6CTR	STM8S105S6T6CTR	STM8S207C6T6TR
STM8S207C8T6TR	STM8S207CBT6TR	STM8S207K6T3CTR
STM8S207K6T6CTR	STM8S207K8T3CTR	STM8S207K8T6CTR
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STM8S207RBT6CTR	STM8S207RBT6TR	STM8S207S6T3CTR
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STM8S903F3M3TR	STM8S903F3M6TR	STM8S903K3T3CTR
STM8S903K3T6CTR	STP16CP05MTR	STP16CPC05MTR
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STP16DPPS05MTR	STP16DPS05MTR	STSR2PCD-TR
STSR2PMCD-TR	STSR30D-TR	STV6417AGT
STV6432AJT	STV6437AJT	STV6440AJT
TD310IDT	TD350ETR	TDA2822D013TR
TDA7233D013TR	TDA7309D013TR	TDA7415CBTR
TDA7418TR	TDA7419TR	TDA7439DS13TR
TDA7440D013TR	TDA744813TR	TDA7468D13TR
TDA7529TX	TDA7540NTR	TDE1707BFPT
TDE1747FPT	TDE1897RFPT	TDE1898CFPT
TDE3247FPT	TEA6422DT	TS4871IDT
TS4990IQT	TS914AIDT	TS914AIYDT
TS914IDT	TS914IYDT	TSA1203IFT
TSM102AIDT	TSM102IDT	TSM108IDT
TSM109AIDT	TSM109IDT	UC2842BD1013TR
UC2843BD1013TR	UC2844BD1013TR	



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UC2845BD1013TR	UC3842BD1013TR	UC3843BD1013TR
UC3844BD1013TR	UC3845BD1013TR	VIPER12ASTR-E
VN5770AKPTR-E	VN5772AKTR-E	VN5E025ASOTR-E
VN5E050ASOTR-E	VN5E160ASOTR-E	VN770KPTR-E
VN771KPTR-E	VN772KPTR-E	VND5E025ASTR-E
VND5E050ASOTR-E	VND5E160ASOTR-E	VND60013TR
VND600PTR-E	VND830PTR-E	VND920PTR-E
VNQ600APTR-E	VNQ600PTR-E	VNQ81013TR
VNQ830PTR-E	VNQ860TR-E	

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