



PCI AMS/19/11695
Cover tape change for SO8 package in ST Bouskoura

WHAT:

To change cover tape of the reel for SO8 package produced in ST Bouskoura (Morocco)

WHY:

The goal of this change is to reach a better transparency in order to authorize observation of the units through the cover tape.

HOW:

Internal ST Documentation will be updated to reflect this change and qualification has been achieved through the test described below

WHEN:

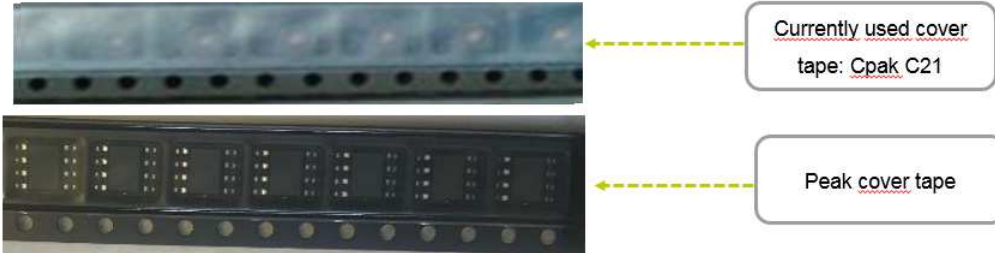
Plan to implement the new cover in August 2019

DEVICES INVOLVED:

All in SO 8 Bouskoura for Analog products

Description of test results

Previous cover: CP21
New cover tape: Peak

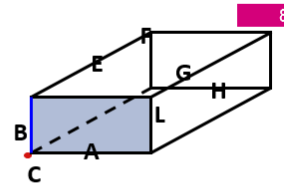


Transparent cover tape.

Drop test passed with no anomaly

- ✓ Drop test procedure spec : 0018968
 - ❖ 3 reels with unit prepared as normal production packing (2500 DEVICES)
 - ❖ The reel drop at 1.2 meters height for 3 times
 - First drop: flat on the bottom (Face A)
 - Second drop: on an edge (Edge B)
 - Third drop: on an angle (Angle C)
 - ❖ The 3 reels were re inspected to determine the integrity of the quality

Drop test



✓ Inspection after drop test:

Inspection	Criteria	Yes	No	Remarks
Cover tape Peel off	Should not be any peel off		X	NO ANOMALIES
Cover damaged	Should not have any damage		X	
Cover tape scratched	should not be any scratches on cover tape		X	
Contain stain or foreign material(Dent, deformation, oily and dirty)	The answer should be no		X	
Presence of hole	The answer should be no		X	
Color	The answer should be yes in case of transparent	X		



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Vision test positive

Vision Test

PACKED REEL	1807	1817	1827
REEL NO	Reel#1	Reel#2	Reel#3
VISION TEST			
Yield	99.88%	99.92%	99.93%
Failed*	3	4	5
Passed	2520	5020	7503
Inspected	2523	5024	7508
Missed	0	0	0
2D View	Pass	Pass	Pass
Failed	2	3	4
Dwell Time	55	55	55
Sealing Line	Pass	Pass	Pass

Start, Mid, End:

Machine	Tape	MIN	MAX	MEAN	Comment
T17	Tape 2	22g	93g	70g	Start
	Tape 2	39g	77g	60g	Middle
	Tape 2	56g	96g	83g	End



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Peeling test passed after ageing

Ageing test

Machine : ISMECA NY
 Temp :200°C
 Pressure : 2.4 bar
 Dwell time : 55 ms

Tests @T0 Results:

PEEL TEST					
MC	Tape	MIN	MAX	MEAN	Comment
T17	Tape 2	51,09	87,12	72,25	Before

HALF PEEL TEST					
Mc	Tape	MIN	MAX	MEAN	Comment
T17	Tape 2	24,01	50,25	44,19	Sprocket side
	Tape 2	33,51	51,03	43,66	None sprocket side

Tests after 72 H@60° C 60%RH Results:

PEEL TEST					
MC	Tape	MIN	MAX	MEAN	Comment
T17	Tape 2	44,16g	86,03g	67,13g	After

HALF PEEL TEST					
Mc	Tape	MIN	MAX	MEAN	Comment
T17	Tape 2	25,88g	52,08g	46,57g	Sprocket side
	Tape 2	35,64g	47,20g	40,38g	None sprocket side

No Peel force deviation @T=0 and after ageing test



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Workability test passed

Cover tape Workability tests

Process	Procedure	Samples	Defect criteria	Result
Bend test	Bend <u>both edge of carrier tape with units</u>	100 units packed in carrier tape	<ul style="list-style-type: none"> Misplace unit Breakage of the cover tape 	Pass
Twist test	Take carrier tape with unit, hold one side and twist the opposite side around 360 degree	100 units packed in carrier tape	<ul style="list-style-type: none"> Breakage of cover tape 	Pass
Marking reading	Marking reading trough cover tape by using lamp scope	3 reels (2500 devices /reel)	<ul style="list-style-type: none"> No visible marking character 	pass
Sealing quality	Inspect the cover tape sealing quality	3 reels (2500 devices /reel)	<ul style="list-style-type: none"> Cover tape scratches Uncomplete sealing Over sealing Cover tape misplacement 	Pass



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Dimensional verification passed

Dimensional & visual inspection: PEAK Cover tape

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PEAK PART REF: VH-12-9-2-500-H82
DIMENSION RESULTS

PEAK PART REF: CT3-S0IC08-13-8-0817-500
DIMENSION RESULTS

G.P.	W	T
Nom	9.20	0.055
Tol+	0.10	0.005
Tol-	-0.10	-0.005
1	9.21	0.059
2	9.21	0.059
3	9.21	0.059
4	9.20	0.059
5	9.21	0.059
6	9.20	0.059
7	9.21	0.059
8	9.21	0.059
9	9.20	0.059
10	9.21	0.059
11	9.21	0.059
12	9.21	0.059
13	9.20	0.059
14	9.21	0.059
15	9.21	0.059
16	9.21	0.058
17	9.20	0.059
18	9.21	0.059
19	9.20	0.059
20	9.21	0.059
21	9.21	0.059
22	9.20	0.059
23	9.21	0.059
24	9.21	0.059
25	9.20	0.059
26	9.21	0.059
27	9.21	0.059
28	9.20	0.059
29	9.21	0.059
30	9.21	0.059
Avg	9.21	0.059
Max	9.21	0.059
Min	9.20	0.058
Sigma	0.005	0.000
Cp	7.152	9.129
Cpk	6.651	1.887


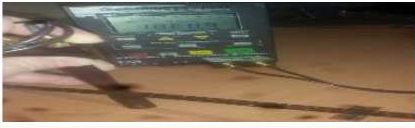
G.P.	AO	BO	KO	KI	DO	D1	P1	P2	PO	E1	F	T	W	10XPO
Nom	5.50	5.10	2.20	1.90	1.55	1.60	8.00	2.00	4.00	1.75	5.50	0.30	12.00	40.00
Tol+	0.10	0.10	0.10	0.10	0.05	0.10	0.10	0.10	0.10	0.10	0.05	0.30	0.30	0.20
Tol-	-0.10	-0.10	-0.10	-0.10	-0.05	-0.10	-0.10	-0.10	-0.10	-0.10	-0.05	-0.30	-0.30	-0.20
1	6.55	5.32	2.20	1.91	1.55	1.58	8.00	2.04	4.00	1.79	5.48	0.30	12.08	40.01
2	6.57	5.31	2.18	1.92	1.54	1.57	8.01	2.03	4.01	1.81	5.47	0.30	12.07	39.99
3	6.56	5.32	2.19	1.93	1.56	1.58	8.01	2.03	4.00	1.79	5.46	0.30	12.08	40.02
4	6.56	5.33	2.21	1.92	1.55	1.57	7.99	2.02	4.00	1.77	5.47	0.31	12.05	40.02
5	6.57	5.33	2.19	1.91	1.57	1.58	8.01	2.03	4.01	1.79	5.50	0.30	12.06	40.02
6	6.56	5.32	2.18	1.92	1.55	1.57	7.98	2.04	4.00	1.78	5.51	0.31	12.07	40.01
7	6.56	5.31	2.21	1.93	1.56	1.58	8.01	2.06	4.00	1.80	5.49	0.31	12.06	40.03
8	6.57	5.32	2.22	1.93	1.54	1.57	8.00	2.02	4.01	1.79	5.47	0.30	12.07	40.00
9	6.56	5.33	2.18	1.91	1.56	1.58	7.99	2.01	4.00	1.77	5.46	0.31	12.05	40.02
10	6.58	5.31	2.19	1.93	1.56	1.57	8.01	2.03	4.01	1.81	5.45	0.30	12.06	40.02
11	6.55	5.32	2.20	1.92	1.54	1.58	7.99	2.01	4.00	1.79	5.47	0.30	12.05	39.99
12	6.56	5.32	2.21	1.92	1.55	1.57	8.02	2.02	4.00	1.80	5.48	0.30	12.08	40.05
13	6.57	5.31	2.20	1.91	1.55	1.57	8.01	2.00	3.99	1.79	5.46	0.30	12.06	39.99
14	6.56	5.32	2.22	1.93	1.54	1.57	8.00	2.01	4.01	1.78	5.47	0.31	12.07	40.01
15	6.57	5.31	2.19	1.92	1.56	1.58	8.02	2.02	4.00	1.81	5.46	0.30	12.08	40.02
16	6.57	5.32	2.21	1.91	1.54	1.57	7.99	2.04	4.00	1.80	5.46	0.31	12.06	40.01
17	6.57	5.32	2.20	1.93	1.56	1.58	8.02	2.02	4.00	1.79	5.47	0.30	12.07	40.03
18	6.56	5.31	2.21	1.92	1.55	1.57	8.02	2.02	4.00	1.79	5.46	0.31	12.06	40.02
19	6.57	5.32	2.21	1.93	1.57	1.57	8.01	2.03	4.01	1.77	5.47	0.31	12.07	39.99
20	6.56	5.32	2.19	1.92	1.54	1.57	7.98	2.01	4.01	1.80	5.46	0.30	12.06	40.03
21	6.57	5.31	2.22	1.91	1.56	1.57	8.02	2.00	4.00	1.79	5.45	0.31	12.07	39.99
22	6.56	5.32	2.21	1.93	1.54	1.56	8.01	2.02	4.01	1.78	5.46	0.30	12.06	40.03
23	6.55	5.32	2.19	1.93	1.55	1.56	7.99	2.03	4.00	1.78	5.47	0.31	12.05	40.05
24	6.56	5.31	2.20	1.92	1.56	1.57	8.02	2.05	3.99	1.79	5.46	0.31	12.06	40.01
25	6.56	5.31	2.21	1.92	1.56	1.57	8.03	2.01	4.01	1.78	5.46	0.31	12.06	40.05
26	6.56	5.32	2.19	1.93	1.55	1.57	8.01	2.03	4.00	1.79	5.47	0.30	12.07	40.02
27	6.57	5.32	2.22	1.91	1.54	1.58	7.99	2.04	4.01	1.78	5.46	0.30	12.08	40.01
28	6.56	5.31	2.18	1.93	1.56	1.58	8.00	2.02	4.00	1.77	5.46	0.30	12.05	40.03
29	6.57	5.32	2.21	1.92	1.55	1.57	8.01	2.06	4.01	1.78	5.48	0.31	12.08	40.02
30	6.56	5.32	2.21	1.93	1.56	1.57	7.99	2.04	4.01	1.81	5.47	0.30	12.06	40.03
Avg	6.56	5.32	2.20	1.92	1.55	1.57	8.00	2.03	4.00	1.79	5.47	0.30	12.06	40.02
Max	6.58	5.33	2.22	1.93	1.57	1.58	8.02	2.06	4.01	1.81	5.51	0.31	12.08	40.05
Min	6.55	5.31	2.18	1.91	1.54	1.56	7.98	2.00	3.99	1.77	5.45	0.30	12.05	39.99
Sigma	0.007	0.007	0.013	0.008	0.009	0.006	0.013	0.015	0.006	0.012	0.013	0.005	0.010	0.017
Cp	4.687	5.017	2.372	4.212	1.782	1.715	2.502	2.158	5.211	2.747	2.500	3.107	9.527	3.874
Cpk	1.719	4.114	2.547	3.299	1.699	4.153	2.385	1.671	5.072	1.676	1.712	3.020	7.806	3.539



Peak carrier & Cover tape 16/07/2019

ESD verification for dissipative material: passed

ESD :Product Details 14

RESISTANCE MEASUREMENT (Ohms)				
ITEMS	MEASUREMENT VALUE (OHMS)	SPEC 0019256	STATUS	COMMENTS
Carrier tape surface resistance	4,40E+07	1.0E05<= R<1.0E10	PASS	
Cover tape surface resistance	1,80E+09	1.0E05<= R<1.0E10	PASS	
FIELD MEASUREMENT (Volt/inch)				
ITEMS	MEASUREMENT VALUE (Volt/inch)	SPEC 0019256	STATUS	COMMENTS
FIELD AFTER PULL TEST	0 volt /inch	FIELD < 1 +/-100 V/inch	PASS	