



# PRODUCT/PROCESS CHANGE NOTIFICATION

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PCN APM-IPC/08/3695  
Notification Date 05/21/2008

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**TSM-BIPOLAR FAMILY - MSL3 (Moisture Sensitive Level)**  
**compliance for SOIC 8/14/16 leads in ST BSK2/STS/MUAR B-End plants**  
**IPC - IND.& POWER CONV.**

**Table 1. Change Implementation Schedule**

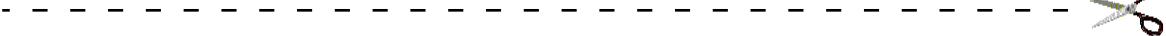
Forecasted implementation date for change	14-May-2008
Forecasted availability date of samples for customer	20-May-2008
Forecasted date for <b>STMicroelectronics</b> change Qualification Plan results availability	14-May-2008
Estimated date of changed product first shipment	20-Aug-2008

**Table 2. Change Identification**

Product Identification (Product Family/Commercial Product)	TSM-Bipolar family as per attached list
Type of change	Logistics material (label & box)
Reason for change	process standardization
Description of the change	All TSM-BIPOLAR devices in SOIC 8/14/16 lds - ppf, std & mtx - which are manufactured in Bouskoura, Shenzhen and Muar plants will be packed in compliance with IPC/JEDEC J-STD-020C specs. In particular the activity is referring to MSL3 compliance.
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	dry-pack packing
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt		PCN APM-IPC/08/3695
Please sign and return to STMicroelectronics Sales Office		Notification Date 05/21/2008
<input type="checkbox"/> Qualification Plan Denied	Name:	
<input type="checkbox"/> Qualification Plan Approved	Title:	
<input type="checkbox"/> Change Denied	Company:	
<input type="checkbox"/> Change Approved	Date:	
	Signature:	
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## DOCUMENT APPROVAL

Name	Function
Gherdovich, Gabriele	Division Marketing Manager
Gattavari, Giuseppe	Division Product Manager
Motta, Antonino	Division Q.A. Manager



ATTACHMENT TO PCN APM-IPC/08/3695

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Product Line	Commercial Product	Finished good
010271	TSM102AID	TSM102AID\$9BF
010271	TSM102AID	TSM102AID-LF
010271	TSM102AIDT	TSM102AIDT\$9BF
010271	TSM102AIDT	TSM102AIDT-LF
010271	TSM102ID	TSM102ID\$9BF
010271	TSM102ID	TSM102ID-LF
010271	TSM102IDT	TSM102IDT\$9BF
010271	TSM102IDT	TSM102IDT-LF
010371	TSM103AID	TSM103AID-LF/
010371	TSM103AIDT	TSM103AIDT-LF/
010371	TSM103ID	TSM103ID-LF/
010371	TSM103IDT	TSM103IDT-LF/
010471	TSM104AID	TSM104AID1-LF
010471	TSM104AIDT	TSM104AID1T-LF
010471	TSM104WAID	TSM104WAID1-LF
010471	TSM104WAIDT	TSM104WAID1T-LF
010671	TSM106ID	TSM106ID\$DBE
010671	TSM106ID	TSM106ID\$DBF
010671	TSM106IDT	TSM106IDT\$DBE
010671	TSM106IDT	TSM106IDT\$DBF
010971	TSM109AID	TSM109AID-LF/
010971	TSM109AIDT	TSM109AIDT-LF/
010971	TSM109ID	TSM109ID-LF/
010971	TSM109IDT	TSM109IDT-LF/
011171	TSM111CD	TSM111CD\$9CF
011171	TSM111CDT	TSM111CDT\$9CF
030301	TSM103WAID	TSM103WAID\$DCE
030301	TSM103WAID	TSM103WAID\$KAE
030301	TSM103WAID	TSM103WAID\$KCE
030301	TSM103WAID	TSM103WAID-LF/
030301	TSM103WAIDT	TSM103WAIDT\$DCE
030301	TSM103WAIDT	TSM103WAIDT\$KAE
030301	TSM103WAIDT	TSM103WAIDT\$KCE
030301	TSM103WAIDT	TSM103WAIDT-LF/
030301	TSM103WID	TSM103WID\$DCE
030301	TSM103WID	TSM103WID\$KAE
030301	TSM103WID	TSM103WID\$KCE
030301	TSM103WIDT	TSM103WIDT\$DCE
030301	TSM103WIDT	TSM103WIDT\$KAE
030301	TSM103WIDT	TSM103WIDT\$KCE
SL0101	TSM101ACD	TSM101ACD\$DCF
SL0101	TSM101ACDT	TSM101ACDT\$DCF
SL0101	TSM101AID	TSM101AID\$DCF
SL0101	TSM101AIDT	TSM101AIDT\$DCF
SL0101	TSM101CD	TSM101CD\$DCF
SL0101	TSM101CDT	TSM101CDT\$DCF
SL0101	TSM101ID	TSM101ID\$DCF
SL0101	TSM101IDT	TSM101IDT\$DCF



Q&R Project date : 25-March-2008

Q&R Project Code : : RR000408CT6017

## **MSL (Moisture Sensitive Level) Evaluation for SOIC 8/14/16L PPF STD-MTX ST- BSK2/STS/MUAR B-END MANUFACTURING**

### **QUALITY & RELIABILITY EVALUATION REPORT**

#### **Abstract**

This report is oriented to summarize latest activities(2005-2008) done in all ST manufacturing site (BSK2 MOROCCO-STS SHENZHEN-MUAR MALAYSIA) having as per object PKGS compliance Vs IPC/JEDEC J-STD-020C. In particular activity/report is referring to MSL@3 compliance.

#### **Conclusion**

The control of endurance to soldering heat has been done in accordance with the IPC/JEDEC 020-C standard. On the basis of the already achieved positive results; Workability & testing reports, Reliability evaluation, TSM –BIP Family products were passed with positive results a **MSL@3** stress conditioning.

#### **Issued by**

**Francesco Ventura**  
AMP-I&PC  
QA&R B-END

#### **Approved by**

**Antonino Motta**  
APM-IPC  
QA&R DIR.

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Reliability test conditions and results for **\*0303 test vehicle SO8N PKG ST-ST5**

N	TEST NAME	CONDITIONS [SPEC]	SAMPLE SIZE	DEFECTS*	NOTES
1	<b>Preconditioning JL3</b>	24h bake @ 125°C 192hrs @ 30°C / 60% RH IR reflow (3 times) 260°C [JEDEC -J-STD-020C]	150 pcs	0*	1

\* No delamination was discovered as per JEDEC STD-020C

Device construction note **\*TSM103WAIDT**

DIE FEATURES	
<b>Die Code</b>	: EDO7*0303AC6
<b>Diffusion process</b>	:
<b>Wafer diameter</b>	: 5"
<b>Diffusion site</b>	: AMOKIO5"
<b>Die size</b>	: 1940*2170 micron
<b>Matal level</b>	: AlSi 1.00 micron
<b>Intermetal dielectric</b>	:
<b>Passivation</b>	: SiN
<b>Back finishing</b>	: Rawsilicon –back grinding
<b>Diffusion lot</b>	: 65395FF

PACKAGE FEATURES	
<b>Technical code</b>	: O7
<b>Package name</b>	: SO 08
<b>Assembly site</b>	: ST-SHENZHEN
<b>Leadframe / substrate</b>	: Frame SO8I 94 x 125 MTX Ni/Pd/Au 5Ft34342
<b>Die attach</b>	: Epoxy glue EN4900 ST10
<b>Wire Bonding</b>	: Au D1 BL8-12g
<b>Molding compound</b>	: MP8000-CH42A
<b>Solder balls / plating</b>	: N/A
<b>Assy lot</b>	: CZ5430A502
	:



Reliability test conditions and results for **\*0102 test vehicle SO16N PKG ST- MUAR**

N	TEST NAME	CONDITIONS [SPEC]	SAMPLE SIZE	DEFECTS*	NOTES
1	<b>Preconditioning JL3</b>	24h bake @ 125°C 192hrs @ 30°C / 60% RH IR reflow (3 times) 260°C [JEDEC -J-STD-020C]	150 pcs	0*	1

\* No delamination was discovered as per JEDEC STD-020C

Device construction note **\*TSM102AIDT**

DIE FEATURES	
Die Code	:
Diffusion process	: BIP
Wafer diameter	: 6"
Diffusion site	: AMOKIO 6
Die size	: 1860*3400 micron
Matal level	: AlSi 1.00 micron
Intermetal dielectric	:
Passivation	: (SION)
Back finishing	: Rawsilicon –back grinding
Diffusion lot	: V6505827

PACKAGE FEATURES	
Technical code	: Q7
Package name	: SO 16
Assembly site	: ST MUAR
Leadframe / substrate	: Frame SO16 94 x 200 FLO Ni/Pd/Au 5FT34604
Die attach	: Epoxy glue EN4900 ST10
Wire Bonding	: Au D1 BL8-12g
Molding compound	: MP8000-CH42A
Solder balls / plating	: N/A
Assy lot	: CZ5430A502
	:





Reliability test conditions and results for \*0104 test vehicle SO16N PKG ST-BSK2

N	TEST NAME	CONDITIONS [SPEC]	SAMPLE SIZE	DEFECTS*	NOTES
1	<b>Preconditioning JL3</b>	24h bake @ 125°C 192hrs @ 30°C / 60% RH IR reflow (3 times) 260°C [JEDEC -J-STD-020C]	150 pcs	0*	1

\* No delamination was discovered as per JEDEC STD-020C

Device construction note \*TSM104WAIDT

DIE FEATURES	
Die Code	:
Diffusion process	: C6 BIP
Wafer diameter	: 6"
Diffusion site	:
Die size	: 1900 X 2700 µm
Matal level	: 280 ± 25 µm
Intermetal dielectric	:
Passivation	: NITRIDE (SiN)
Back finishing	: Raw Silicon (Back Grinding)
Diffusion lot	: N/A

PACKAGE FEATURES	
Technical code	: Q7
Package name	: SO16L
Assembly site	: ST-BOSKOURA 2000
Leadframe / substrate	: MHT 94 x 200 mils 5FT34604 FLO Ni/Pd/Au
Die attach	: Hitachi EN4900 ST10
Wire Bonding	: 1.0 mils
Molding compound	: MP8000CH4-2A
Solder balls / plating	: N/A
Assy lot	: N/A
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NOTES: FOR ALL THE ABOVE EVALUATIONS A SAM INSPECTION HAS BEEN PERFORMED AS FOLLOWING:

- <sup>0</sup> C-SAM (Top)
- C-SAM (Bot)
- T-SAM
- <sup>0</sup> Evaluation at t=0
- <sup>1a</sup> Evaluation after preconditioning
- <sup>2</sup> **ALL TRIALS PASSED JL3 @260°C**



### ATTACHMENT 1: RELIABILITY TEST DESCRIPTION

TEST NAME	DESCRIPTION	PURPOSE
<b>JLn:</b> Jedec Level n surface mounting simulation	The device is submitted to a typical temperature profile used for surface mounting, after a controlled moisture absorption.	As stand-alone test: to investigate the level of moisture sensitivity. As preconditioning before other reliability tests: to verify that the surface mounting stress does not impact on the subsequent reliability performance. The typical failure modes are "pop corn" effect and delamination.

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