PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-SLI/09/4559
Notification Date 05/12/2009

PRODUCTS TRASFERRING FROM AMK5 TO AMK6 (FROM 5" TO 6" WAFERS)

Table 1. Change Implementation Schedule

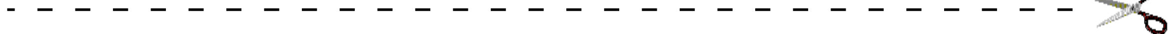
Forecasted implementation date for change	28-Jul-2009
Forecasted availabillity date of samples for customer	05-May-2009
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	05-May-2009
Estimated date of changed product first shipment	11-Aug-2009

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	see attached list
Type of change	Waferfab location change
Reason for change	Capacity increase.
Description of the change	Following the continuous improvement of our service and with reference to the PCN TPA03/199 and the PCN DSG-COM/04/474 where it was communicated respectively the extension of production for LAAT/BT100 processes in SINGAPORE Ang Mo Kio - from 5" (AMK5) to 6 (AMK6) facilities and the New Diffusion Line for L7805 Device in LAAT technology, we decided to expand the production in the Ang Mo Kio 6" (AMK6) facility. So, the products today diffused in the Ang Mo Kio 5" fab (AMK5) will be transferred to Ang Mo Kio 6" (AMK6).
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	V6 are the digits used to identify AMK6 FAB in trace code
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN APM-SLI/09/4559**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 05/12/2009**
☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Riviera, Antonio	Division Marketing Manager
Naso, Lorenzo	Division Product Manager
Calderoni, Michele	Division Q.A. Manager

BIPOLAR PROCESS CONVERSION FROM 5" TO 6" – AMK (LAAT/BT100/MT100)

WHAT*:*

As a part of the running project to convert to 6" the old Bipolar diffusion processes we have in Ang Mo Kio (already completed for BI20II, B30, B50 & POWR431), we are now going to pursue the conversion to 6" of the LAAT/BT100/MT100 processes.

WHY:

Capacity increase

HOW:

Three test vehicles have been chosen to qualify the 6"

1) L203 die size (2340x1300 um)

Reliability tests for L203 have been positively ended. See attached report TR 7.03/1150

2) L613 die size (2640x1350 um)

L613: HTRB, 50pcs, 1000h.

Reliability tests for L613 will be completed by mid April 03.

3) L372 die size (2420x2140 um)

L372: HTRB, 120pcs, 1000h.

Reliability tests for L372 will be completed by mid April 03.

WHEN:

Progressively from May 03 onward after the end of the qualification.

RELIABILITY EVALUATION
on L203 LAAT process Ang-Mo-Kio 6”

Abstract

The L203 diffused in Ang-Mo-Kio 6” have been positively evaluated from the Reliability point of view.
A HTRB test has been performed on one lot.

Conclusion

The results obtained in the stress test performed, as shown in detail at page 2, point out that the diffusion wafer change from 5” to 6” in Ang-Mo-Kio of LAAT process does not generate any weakness on L203 device from the reliability viewpoint.

Reliability test conditions and results

N	TEST NAME	Device	CONDITIONS [SPEC]	SAMPLE SIZE x Lot	DEFECTS*	NOTES
1	HTRB	L203	Vs=50V, Tj=150°C, 1000h	50 pcs	0	-

* Defect is any device rejected at the readout electrical testing or failing additional acceptance criteria according to the specified procedure.

Device construction note:

DIE FEATURES		
Die Code	:	L203CA6
Diffusion process	:	LAAT
Wafer diameter	:	6”
Diffusion site	:	Ang-Mo-Kio
Die size	:	2.34 x 1.3 mm^2
Metal level	:	1, Al
Passivation	:	Nitride
Back finishing	:	Cr/Ni/Au
Diffusion lot	:	6240L5F

PACKAGE FEATURES		
Technical code	:	AB17*L203CA6
Package name	:	PDIP 16L 0.25
Assembly site	:	MUAR
Die attach	:	Ablebond 8390
Wire Bonding	:	Au, 1.3 mils
Moulding compound	:	HYSOL MG46F

Attachments:

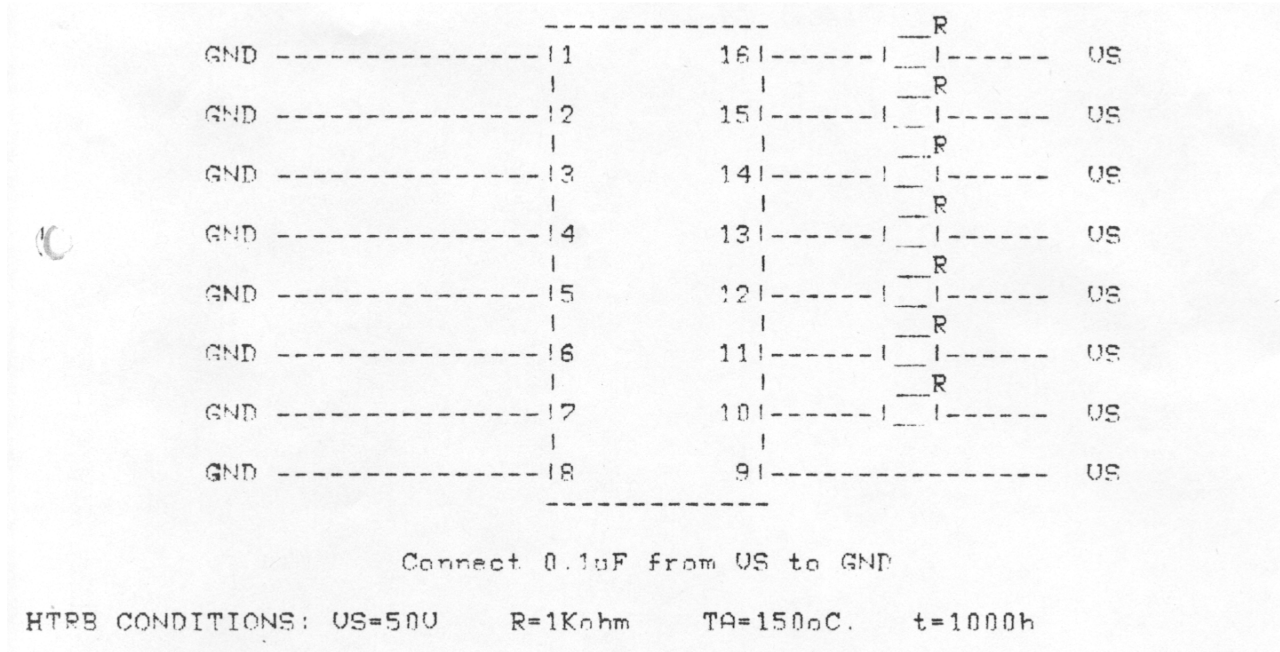
1) Reliability tests description
2) Electrical stress tests schematics and pin configuration

ATTACHMENT 1: RELIABILITY TEST DESCRIPTION

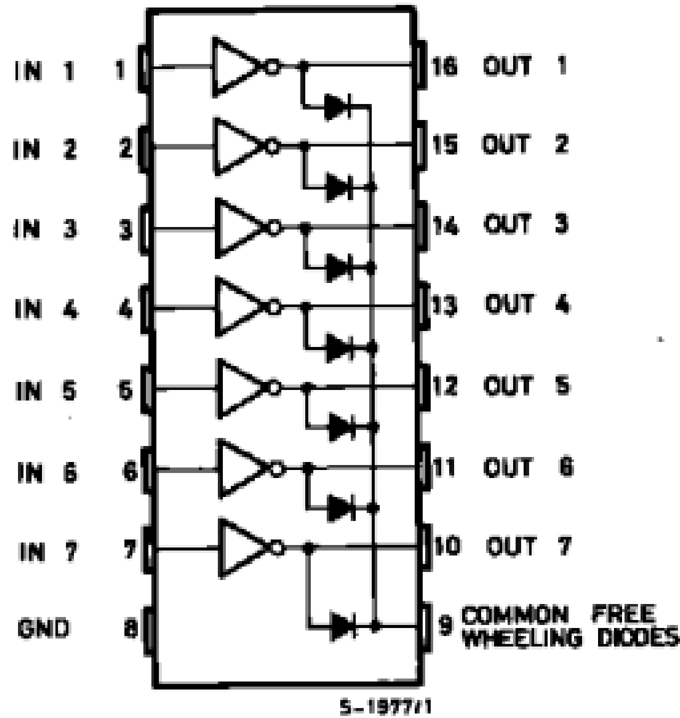
TEST NAME	DESCRIPTION	PURPOSE
HTRB: High Temperature Reverse Bias Test	The device is stressed in static configuration, trying to satisfy as much as possible the following conditions: -) low power dissipation; -) max. supply voltage compatible with diffusion process and internal circuitry limitations; -) max. junction temperature.	To maximize the electrical field across either reverse-biased junctions or dielectric layers, in order to investigate the failure modes linked to mobile contamination, oxide ageing, layout sensitivity to surface effects.

ATTACHEMENT 2:

HTRB DIAGRAM



PIN CONFIGURATION



RELIABILITY EVALUATION
on L613 LAAT process Ang-Mo-Kio 6”

Abstract

The L613 diffused in Ang-Mo-Kio 6” have been positively evaluated from the Reliability point of view.
A HTRB test has been performed on one lot.

Conclusion

The results obtained in the stress test performed, as shown in detail at page 2, point out that the diffusion wafer change from 5” to 6” in Ang-Mo-Kio of LAAT process does not generate any weakness on L613 device from the reliability viewpoint.

Reliability test conditions and results

N	TEST NAME	Device	CONDITIONS [SPEC]	SAMPLE SIZE x Lot	DEFECTS*	NOTES
1	HTRB	L613	Vs=50V, Tj=150°C, 1000h	50 pcs	0	-

* Defect is any device rejected at the readout electrical testing or failing additional acceptance criteria according to the specified procedure.

Device construction note:

DIE FEATURES		
Die Code	:	L613AA6
Diffusion process	:	LAAT
Wafer diameter	:	6”
Diffusion site	:	Ang-Mo-Kio
Die size	:	2.64 x 1.35 mm^2
Metal level	:	1, Al
Passivation	:	Nitride
Back finishing	:	Cr/Ni/Au
Diffusion lot	:	6240L5F

PACKAGE FEATURES		
Technical code	:	ACC7*L613AA6
Package name	:	PDIP 18L 0.25
Assembly site	:	MUAR
Die attach	:	Ablebond 8390
Wire Bonding	:	Au, 1 mil
Moulding compound	:	Nitto MP180

Attachments:

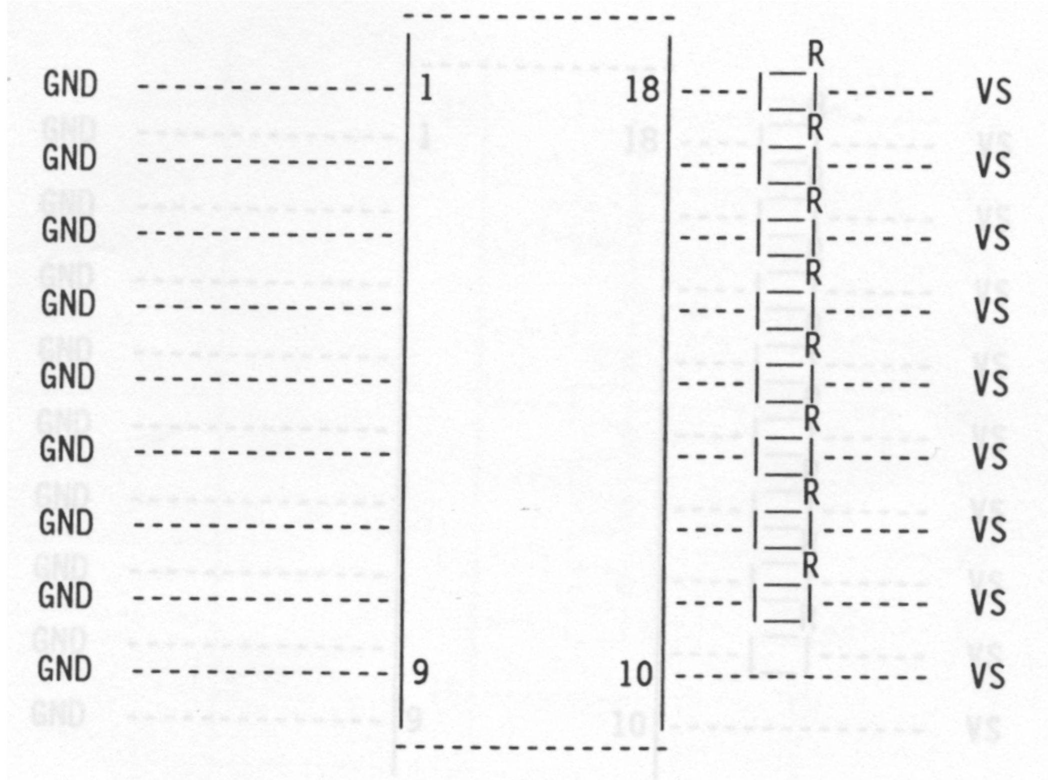
1) Reliability tests description
2) Electrical stress tests schematics and pin configuration

ATTACHMENT 1: RELIABILITY TEST DESCRIPTION

TEST NAME	DESCRIPTION	PURPOSE
HTRB: High Temperature Reverse Bias Test	The device is stressed in static configuration, trying to satisfy as much as possible the following conditions: -) low power dissipation; -) max. supply voltage compatible with diffusion process and internal circuitry limitations; -) max. junction temperature.	To maximize the electrical field across either reverse-biased junctions or dielectric layers, in order to investigate the failure modes linked to mobile contamination, oxide ageing, layout sensitivity to surface effects.

ATTACHEMENT 2:

HTRB DIAGRAM



R= 1Kohm

PIN CONFIGURATION

PIN	DESCRIPTION	PIN	DESCRIPTION
1	INPUT 1	10	COMMON DIODES
2	INPUT 2	11	OUTPUT 8
3	INPUT 3	12	OUTPUT 7
4	INPUT 4	13	OUTPUT 6
5	INPUT 5	14	OUTPUT 5
6	INPUT 6	15	OUTPUT 4
7	INPUT 7	16	OUTPUT 3
8	INPUT 8	17	OUTPUT 2
9	GND	18	OUTPUT 1

RELIABILITY EVALUATION
on L372 LAMT process Ang-Mo-Kio 6”

Abstract

The L372 diffused in Ang-Mo-Kio 6” have been positively evaluated from the Reliability point of view.
A HTRB test has been performed on one diffusion lot.

Conclusion

The results obtained in the stress test performed, as shown in detail at page 2, point out that the diffusion wafer change from 5” to 6” in Ang-Mo-Kio of LAMT process does not generate any weakness on L372 device from the reliability viewpoint.

Reliability test conditions and results

N	TEST NAME	Device	CONDITIONS [SPEC]	SAMPLE SIZE	DEFECTS *	NOTES
1	HTRB	L372	Vs=28V, Tj=150°C, Ta=125°C,t=1000h	120 pcs	0	-

* Defect is any device rejected at the readout electrical testing or failing additional acceptance criteria according to the specified procedure.

Device construction note:

DIE FEATURES		
Die Code	:	L372FA6
Diffusion process	:	LAMT
Wafer diameter	:	6”
Diffusion site	:	Ang-Mo-Kio
Die size	:	2,42 X 2,14 mm^2
Metal level	:	1, Al/Si
Passivation	:	Nitride
Back finishing	:	Cr/Ni/Au
Diffusion lot	:	6242044

PACKAGE FEATURES		
Technical code	:	BA37*L372FA6
Package name	:	PDIP 8
Assembly site	:	ST Muar Malaysia
Die attach	:	Ablebond 8390
Wire Bonding	:	Au, 1 mils
Moulding compound	:	NITTO MP180S

Attachments:

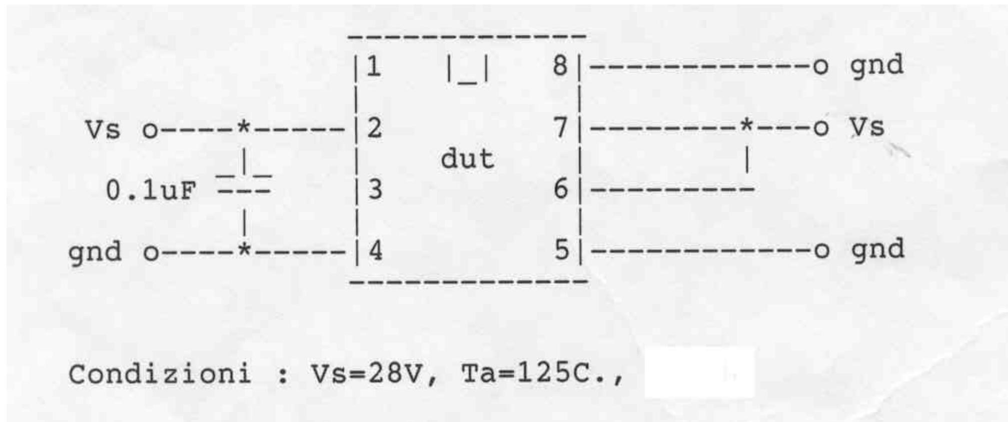
1) Reliability tests description
2) HTRB diagram and pin configuration

ATTACHMENT 1: RELIABILITY TEST DESCRIPTION

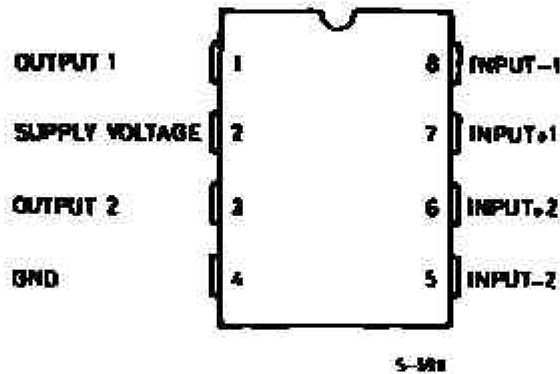
TEST NAME	DESCRIPTION	PURPOSE
HTRB: High Temperature Reverse Bias Test	The device is stressed in static configuration, trying to satisfy as much as possible the following conditions: -) low power dissipation; -) max. supply voltage compatible with diffusion process and internal circuitry limitations; -) max. junction temperature.	To maximize the electrical field across either reverse-biased junctions or dielectric layers, in order to investigate the failure modes linked to mobile contamination, oxide ageing, layout sensitivity to surface effects.

ATTACHEMENT 2:

HTRB DIAGRAM



PIN CONFIGURATION



Discrete & Standard ICs Group
Quality Assurance & Reliability

RELIABILITY EVALUATION PLAN AND RESULTS
ON L7805 – LAAT180 TECHNOLOGY

REL-6333-173/077.03W **Date: 26/08/2003**

Line: LX05 (EW2) **Package: TO220**

TEST	TEST DESCRIPTION	STM TEST CONDITIONS	STM S.S.	RESULTS Fail/s.s.	GENERIC DATA
HTB	High Temperature Bias	TA=125°C - BIAS=35V TIME=1000 HOURS	77	0/77	0/385 (*)
THB	Temperature Humidity Bias	TA=85°C - RH=85% - BIAS=24V TIME=1000HOURS	77	0/77	0/385 (*)
PPT	Pressure Pot	TA=121°C –PA=2ATM TIME=240HOURS	77	0/77	0/385 (*)
TCT	Temperature Cycles AIR TO AIR	TA=-65°C TO 150°C 1 HOUR / CYCLE TIME=1000CYCLES	77	0/77	0/385 (*)
HTS	High Temperature Storage	TA=150°C	77		0/385 (*)
ENV. SEQ	Environmental Sequence	TC=100CY + PPT=168H	50		0/250 (*)
TH. SH.	Thermal Shocks	TA=-65°C TO 150°C 10min / CYCLES (LIQUID TO LIQUID)	77	0/77	0/385 (*)
TFT	THERMAL FATIQUE	/\t= 105°C	77		0/385 (*)

- **(*) Generic data for all year 2003**

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