PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-SLI/08/3945
Notification Date 08/08/2008

BCD3S Baseline diffusion transfer from Carrolton 6" (CR6F) to Ang Mo Kio 6" (AM6F)

Table 1. Change Implementation Schedule

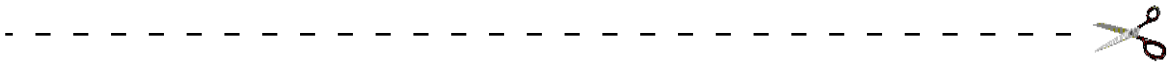
Forecasted implementation date for change	01-Aug-2008
Forecasted availabillity date of samples for customer	01-Aug-2008
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	01-Aug-2008
Estimated date of changed product first shipment	07-Nov-2008

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	TSL1014 / TSL1018 / TS3431
Type of change	Waferfab location change
Reason for change	CR6F fab closure as per Corporate CIL CRP/07/2900
Description of the change	Transfer Standard Linear products (Div 14 / BU 71) in Ang Mo Kio 6" fab. BCD3S basics and option are qualified in AM6F fab since 2005, certificate mat 30 ADCS doc n 7787462. Sample availability W37
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	plant marking identification "V6" for Ang Mo Kio plant
Manufacturing Location(s)	1]Carrollton 6"

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN APM-SLI/08/3945**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 08/08/2008**

☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Gilot, Yves	Division Marketing Manager
Kaire, Jean-Claude	Division Product Manager
Paccard, Francoise	Division Q.A. Manager

BCD3S BASELINE DIFFUSION TRANSFER FROM CARROLLTON 6” TO AMK 6" FOR BU71

BCD3S BASELINE DIFFUSION TRANSFER FROM CARROLLTON 6” TO AMK 6"

WHAT:
Progressing along the Restructuring Plan already communicated by Corporate Information Letter (C.I.L.) CRP/07/2927 dated September 25, 2007, please be informed that the products currently manufactured in Carrollton 6” Plant (Texas) by using BCD3S Technology, will be moved to our facilities located in Ang Mo Kio 6” Plant (Singapore).
The relocation of the BCD3S Technology is qualified and in production in AMK since 2005.

The affected products are listed in the table here attached.
All the products manufactured by ST using BCD3S Baseline Technology, even if not expressly included in the above mentioned table, are affected by this change.

WHY:
In order to optimize ST asset utilization and enhance performance for shareholders and customers.

HOW:
By transferring the mentioned products in the receiving plant. This technology has been qualified through a full set of evaluations for production start in 2005; however, it was defined on a test vehicle some complementary check to take into account the process flow change and equipment difference: T84, EWS, electrical characterization, die oriented stress tests; others products diffused in the same Technology will be qualified mainly by similarity (generic data).

This transfer will not modify the electrical, dimensional and thermal parameters for the product affected, maintaining unchanged current information published on the relevant datasheets.
Only exception made is the Icc parameter typic and Max specification for product L114 and L118.

		Icc Typ (mA)	Icc Max (mA)
L114	Carrollton (sending plant)	4.5	8
	AMK (new plant)	6	8.4
L118	Carrollton (sending plant)	4.5	8
	AMK (new plant)	8	11

Icc typic and Max was defined initially based on L114 datasheet, and adjusted to the Carrollton process diffusion performances. However, the matching performance improvement in AMK6 fab, more in line with the BCD3S technology device target definition, lead to significant increase of the Icc. The Icc value obtained in AMK diffusion plant is in line with design simulation.
L118 product has higher value of Icc typic and maximum than L114, to take into account the buffer number increase.

There is neither change in the packing modes nor in the standard delivery quantities either.

ST will focus on customer satisfaction and ensure a seamless transition in the supply of products from different sites.

WHEN:
The transfer of all product lines and the ramp up in the new location will be finalized in Q4 2008.

Qualification program and results availability:

The qualification program mainly consists of comparative electrical characterizations and reliability tests. The relevant reliability report is provided in appendix 1 of this document.
AECQ100 qualification report will be available upon request, within Q3 2008 for TSL1014 and TSL1018, within Q4 2008 for TS3431.

Samples availability:

Samples of the products to transfer are available, please see appendix 1.

Change implementation schedule:

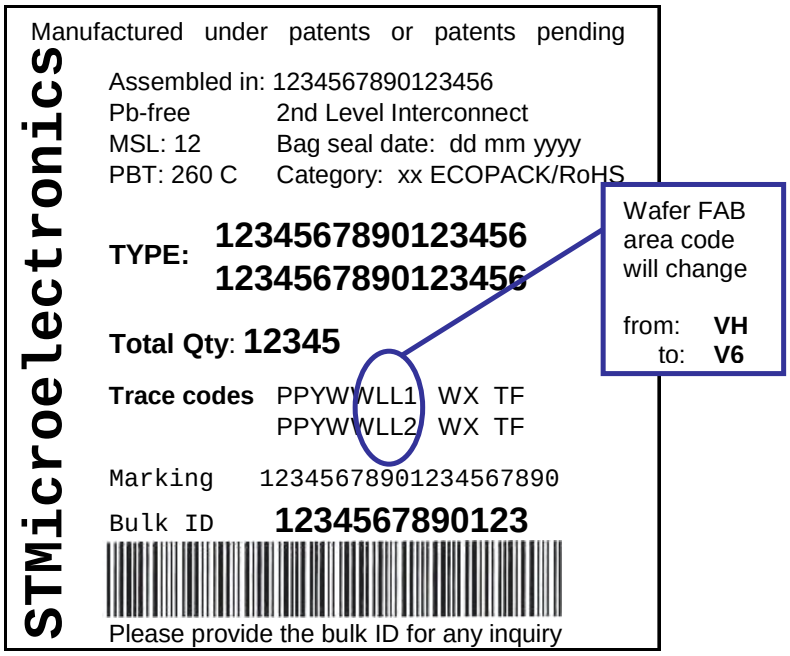
Lack of acknowledgement of the PCN within 30 days will constitute acceptance of the change. After acknowledgement, lack of additional response within the 90 day period will constitute acceptance of the change (Jedec Standard No. 46-C).
In any case, first shipments may start earlier with customer's written agreement.

Product's traceability:

Unless otherwise stated by customer specific requirement, new parts produced in AMK6 will have a differentiated as indicated below:

Diffusion plant	ID	Country of origin
Carrollton (current)	**VH**	Texas
AMK6 (new)	**V6**	Singapore

Shipments from new Wafer FAB location will be tracked on the ST Standard Label as showed below:



Generic ST Standard label

Please note that ST Team is doing all the best for providing you full visibility about the announced restructuring Plan and to minimize any negative impact it may occurs.
While our Marketing and Sales teams are available for additional information when required, we are looking forward to your renewed confidence in STMicroelectronics as the strategic partner of your choice.

Sincerely Yours.

Reliability Report

On BCD3S Baseline Technology
Test Vehicle: L11801

General Information	
Product Line	***L11801***
Product Description	***18+1 channel buffers***
Commercial Product	***TSL1018IF / IFT***
Product Group	***LINEAR & INTERFACE***
Product Division	***IMS - APM GROUP***
Package Description	***TQFP48 epad***
Silicon Process Technology	***BCD3S 60V***

Locations	
Wafer fabrication location	***AMK6***
Assembly plant location	***Amkor Korea***
Final test plant location	***Amkor Philippines***

DOCUMENT HISTORY

Version	Date	Pages	Author	Comment
0.1	July-08		P. Dumont-Girard F. Paccard	Original document

Reliability is the attitude of element to satisfy required function in fixed conditions during established time.

1 RELIABILITY EVALUATION OVERVIEW

1.1 Objectives

Aim of this report is to present the results of the electrical and reliability evaluation performed on L118 device used as test vehicle in order to transfer BCD3S products in AMK6 wafer plant.

1.2 Conclusion

BCD3S baseline and options used by Linear & Interface products is already qualified and run production since 2005 in AMK6.
The complementary check to take into account the process flow change and equipment difference between Carrollton and AMK6 plant passed the criteria for product transfer qualification.

2 DEVICE CHARACTERISTICS

2.1 Device description

The TSL1018 is composed of 18 + 1 channel buffers which are used to buffer the reference voltages for gamma correction in thin film transistor (TFT) liquid crystal displays (LCD).

One "COM" amplifier is able to deliver high output current value, up to ±150mA. Amplifiers A and B feature positive single supply inputs for common mode voltage thus can be used for highest gamma voltages. The amplifiers C to R inclusive, and the COM amplifier, feature negative single supply inputs and are dedicated to the lowest gamma voltages. The TSL1018 is fully characterized and guaranteed over a wide industrial temperature range (-40 to +95°C).

2.2 Traceability

2.2.1 Wafer fabrication information

- Wafer fabrication manufacturing location: Ang Mo Kio 6” in Singapore
- Technology: BCD3S 16V
- Die size: 2.08µmx3.44µm
- Passivation type: PSG / SiON

2.2.2 Assembly information

Assembly site	Amkor Korea
Package description	TQFP48 ePad

3 RELIABILITY TESTS RESULTS

3.1 Reliability test plan and results summary

Document reference	Short description
T.R. 15.04/1150 Internal ST spec	Reliability Evaluation on UF441 diffused in BCD3S AMK 6", 2005.
T.R. 21.04/1150 Internal ST spec	Reliability Evaluation on UF39 diffused in BCD3S AMK 6", 2005.
ADCS 8141986 Internal ST spec	BCD3S transfer from CRN to AMK, AMPS products, 2008.

Complementary die oriented test made for AMPS product transfer.

Test	Test short description				
	Method	Conditions	Sample size	Duration	Fail/ tested
HTB	High Temperature Bias				
		Tj<160℃, ~150℃ Vs=absolute max rating	78 x 1 Lots	1000 H	0/78

4 APPLICABLE AND REFERENCE DOCUMENTS

Document reference	Short description
AEC-Q100	Stress test qualification for integrated circuits
SOP 2610	General product qualification procedure
Internal ST specification	Reliability Tests and criteria for qualifications (Corporate Q&R rules)
…	

5 GLOSSARY

ESD	Electro Static Discharge
ELFR	Early Life Failure Rate
GL	Gate Leakage
HTB	High Temperature Bias
HTS	High Temperature Storage
T.H.B.	Temperature Humidity Bias
T.C.	Thermal Cycle
P.P.	Pressure Pot
P.C.	Preconditioning
S.M.D.	Surface Mount Device moisture induced stress

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