



PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-SLI/08/3866
Notification Date 07/15/2008

wires rationalization for shenzen minidip products

SLI - LINEAR & INTERFACE

Table 1. Change Implementation Schedule

Forecasted implementation date for change	08-Jul-2008
Forecasted availability date of samples for customer	08-Jul-2008
Forecasted date for STMicroelectronics change Qualification Plan results availability	08-Jul-2008
Estimated date of changed product first shipment	14-Oct-2008

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	All products of PNL71 in minidip package
Type of change	Package assembly material change
Reason for change	WIRE DIAMETER RATIONALIZATION FOR MINIDIP PACKAGE
Description of the change	In order to have a standard process including new technology with wires 0.8mils bonding pad, AMPS BU is qualifying a new gold wire with 0.8 mils diameter. This change is due to impact all minidip packages. Samples already available for LM393 & LM2903. For others, please contact Planning.
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	date codes
Manufacturing Location(s)	1]St Shenzhen -China 2]St Shenzhen -China

DOCUMENT APPROVAL

Name	Function
Gilot, Yves	Division Marketing Manager
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QUALIFICATION REPORT

PCN reference: APM-SLI/08

Qualification Report n°: QA0-8WX1

**Qualification Type: Wire0.8mils for SO narrow
and DIP package**

Process: SO Narrow and DIP

Date of issue: 29th April 2008

Reference documents:

- SOP 2.5.9 Process critical and key parameters
- 0076604 Process Qualification and release to production
- 0078588 Reliability requirements for product qualification
- 0046008 Process control plan for Front End
- 0060531 FMEA procedure
- 0061050 Back end qualification procedure
- 0091984 Construction analysis
- 0037709 Package construction analysis
- 7006451 Management of manufacturing source change
- 0033689 Process flow chart



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1. PROCESS MAIN SPECIFICATION CHANGE

1.1 Process main specification change

Assembly change (Wire size reduction)

Process step	Current process	Modified process
Wire bonding	1mils wire	0.8mils wire

1.2 Risk assessment

P,E,Q or R	Parameter	Check
Q	Ball shape and strength	Bond pull strength measurement
E	Parameter deviation	Datalog analysis
R	Reliability	Pressure pot, Thermal cycling, High temperature Bias and Temperature Humidity bias.

2. QUALIFICATION PLAN

2.1 Test vehicle description

	TV1	TV2	TV3	TV4	TV5	Comments
Line	0431	039301	012401	0339	4871	
Plant	Muar	Shenzhen	Shenzhen	Bouskoura	Bouskoura	
Sales Type	TL431DT	LM393N	LM324N	LM339D	TS4871DT	
FE process	Bipolar	Bipolar	Bipolar	Bipolar	HF4CMOS	
Package	SO8	DIP8	DIP14	SO14	SO8	
Die size (µm)	1220 X 990	950 X 870	1430 X 1360	1100 x 1090	2120 x 1470	
Die thickness (µm)	280	280	280	280	280	
Metallisation	AlSiCu	AlSiCu	AlSiCu	AlSiCu	AlSiCu	
Passivation	Nitride	Nitride	Nitride	Nitride	Nitride + pvapox	
Back side	Raw silicon	Raw silicon	Raw silicon	Raw silicon	Raw silicon	
Leadframe	94x125	100 X 100	80 X 80	94x125	94x125	
Lead finishing	NiPdAu	Sn	NiPdAu	NiPdAu	NiPdAu	
Glue	HITACHI 4900ST10	ABLEBOND 8390	QMI 168	HITACHI 4900ST10	HITACHI 4900ST10	
Molding compound	Nitto MP8000CH4-2A	SAMSUNG SI-7200DMA	KCC KTMC1030SL	Nitto MP8000CH4	Kyocera KE-200P	
Wire	0.8mils	0.8mils	0.8mils	0.8mils	0.8mils	
(Control lot) Wire	1.0mil	1.0mil	1.0mil	1.0mil	1.0mil	Control lot

DIP package

2.2 Process qualification requirements

	TV1	TV2	TV3	TV4	TV5	
Quantity of qualification lot	1		1	1	1	
Package type	SO8	DIP8	DIP14	SO14	SO8	
Assembly report	X	X	X			
Assy Lot average yield	x	x	x	x	x	
Test Lot average yield	x	x	x	x	x	
Parameters distribution	x	x	x	x	x	datalog 500 units
Test capability						N/A
Packing qualification						N/A

Note: in **bold** minimum data required before sending the PCN

**2.3 Reliability qualification requirements.**

Tests	Conditions	Step	TV1	TV2	TV3	TV4	TV5	Comments
			0431	0393	0124	0339	4871	
HTB	Tj=150C Vs=absolute max rating	168h 1000h	78 78	78 78	78 78	78 78	78 78	
OLT	Tj=150C Vs=Max operating							
THB	Ta=85C RH=85% Vs=nominal	168h 1000h	78 78	78 78	78 78	78 78	78 78	
TMC	Ta=-65/+150C	100cy 1000cy	78 78	78 78	78 78	78 78	78 78	
PPT	Ta=121C P=2atm	168h 240h	78 78	78 78	78 78	78 78	78 78	
Env seq	TMC + PPT	100 96h	78 78					
Jedec Level	Jedec1=168H THB + 3 IR reflow soldering		15			15	15	
TMSK	Ta=-65/+150C	100shk 500shk	78 78					



3. QUALIFICATION RESULTS

3.1 Process qualification requirements

	TV1	TV2	TV3	TV4	TV5	Comments
Flow Chart comparison	7532630	7924279	7893589	7494375		
Control Plan comparison	7532630	7924279	7893589	7494375		
FMEA study	1020117 1020116 7139419 7021133 7139419 7000247 7321597 1019768 1019768	7042421 7013213 7066894 7066552 7066719 7629510 7683965 7066718	7070452 7070454 7079813 7070493 7083039 7070567	7202148 7202244 7202246 7202248 7202042 7202135		
Construction analysis			25082			For DIP14 Solderability monitoring to follow as reject seen in wettability. For all lots bonding strength are within ST specification

3.2 Assembly and FT qualification results

	TV1	TV2	TV3	TV4	TV5	
Package type	SO8	DIP8	DIP14	SO14	SO8	
Assembly report	E907*0431BG6 (18/04/06)	07CE189	05CE377			Conform
Assy Lot average yield	Conform to ST spec.	Conform to ST spec.	Conform to ST spec.	Conform to ST spec.	Conform to ST spec.	
Test Lot average yield	Conform to ST spec.	Conform to ST spec.	Conform to ST spec.	Conform to ST spec.		

3.3 Reliability qualification results

Tests	Conditions	Step	TV1	TV2	TV3	TV4	TV5	Comments
			0431	0393	0124	0339	4871	
			SO8	DIP8	DIP14	SO14	SO8	
HTB	Tj=150C Vs=absolute max rating	168h 1000h	0/78	0/78	0/39 1/39*	0/78	0/78	
OLT	Tj=150C Vs=Max operating							
THB	Ta=85C RH=85% Vs=nominal	168h 1000h	0/78	0/78	0/39 0/39	0/78	0/78	
TMC	Ta=-65/+150C	100cy 1000cy	0/78	0/78	0/78	0/78	0/78	
PPT	Ta=121C P=2atm	168h 240h	0/78	0/78	0/78	0/78	0/78	
Env seq	TMC + PPT	100 96h				0/78	0/78	
Jedec Level	Jedec1=168H THB + 3 IR reflow soldering		0/15			0/15	0/15	
TMSK	Ta=-65/+150C	100shk 500shk	0/78	0/78				

Electrical parameter deviation in reliability conform to ST specification.

0.8 mils wire are qualified for SO and DIP package for AMPS (Analog, Mixed Product and Services, former standard linear IC's)

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