PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM/08/3237
Notification Date 01/15/2008

New Additional Assy-Testing in Subcontractor Fujitsu (China) for Package SOT-223

APM - APM

Table 1. Change Implementation Schedule

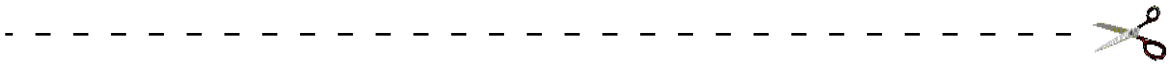
Forecasted implementation date for change	21-Apr-2008
Forecasted availabillity date of samples for customer	08-Jan-2008
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	08-Jan-2008
Estimated date of changed product first shipment	28-Apr-2008

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	Power MOSFET and Power Bipolar
Type of change	Multiple types of changes
Reason for change	To improve service and increase our capacity
Description of the change	Following Divisionals commitment towards a continuous improvement of our service and in order to increase our capacity, it has been decided to set up in Subcontractor Fujitsu (China) a new Assembly and Testing location for all the P/Ns in SOT-223 package. Devices manufactured in Fujitsu (China) assembly plant are compliant with the RoHS. RoHS is a Restriction of the use of certain Hazardous Substances (European directive 2002/95/EC) and maintains the same Electrical and Mechanical characteristics as per current datasheets. At the moment FUJITSU is qualified subcontractor for other packages. Samples are available for lines used for Subcontractor qualification.
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	"F" as assy location code on package
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt	**PCN APM/08/3237**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 01/15/2008**

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

Remark

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DOCUMENT APPROVAL

Name	Function
Di falco, Luca	Division Marketing Manager
Giudice, Maurizio	Division Marketing Manager
Porto, Michele Claudio	Division Product Manager
Wilson, Ian	Division Product Manager
Falcone, Giuseppe	Division Q.A. Manager

RELIABILITY EVALUATION ON

SOT-223

MADE IN FUJITSU

Table of Contents

Introduction

This report aims at the internal qualification of the SOT-223 package made in Fujitsu.

The Qualification Reliability test trials have been performed in ST Catania Site.

The evaluation results meet ST products qualification targets, therefore the SOT-223 package made in Fujitsu is qualified.

Test Vehicles:

Product Lines Power MOSFET	Sales Type	Package
EC6M	STN1HNK60	SOT-223
EZ6P	STN1NK60Z	SOT-223
EZ8Q	STN1NK80Z	SOT-223
E33N	STN4NF03L	SOT-223
AL6A	STN3NF06L	SOT-223
AL6A	STN4NF06L	SOT-223
Product Lines Power Bipolar	**Sales Type**	**Package**
F817	BCP53-16	SOT-223
BI18	2STN2540	SOT-223

Failure Criteria :

A failed component is a device which becomes inoperative during the test or it fails on meeting the end limits foreseen in the device specification, for one or more than the parameters here below reported

Parameters Power MOSFET

Drain Leakage Current (Idss)
Gate Leakage Current (Igss)
Threshold Voltage (Vgs(th)
Forward On Voltage (Vsd)
Drain Source On Voltage (Vds(on))
Drain Source Breakdown Voltage (Bvdss)

Parameters Power Bipolar

Collector Leakage Current (Icbo or Iceo or Ices, etc...)
Emitter Leakage (Iebo)
$H_{FE,}$ Vcesat, Vbesat, Vf
Breakdown Voltage (BVcbo, BVceo,Vbces, Bvebo)

Reliability Evaluation Plan and results

D.U.T.: STN1HNK60 LINE: EC6M PACKAGE: SOT-223

Test	Conditions	S.S.	*Requirement*	*Results*
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of preconditionings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	*D.U.T. SMD PRECONDITIONED* TA=85℃ - RH=85% Vbias= 100V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.R.B.	T.A.= 150℃ Vdd = 480 V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.F.B.	Ta=150℃ Vgss= 30V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96hours.	No parameter deviation at 96 hours.
THERMAL CYCLES AIR TO AIR	*D.U.T. SMD PRECONDITIONED* TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
ENVIRONMENTAL SEQUENCE	*D.U.T. SMD PRECONDITIONED* 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Reliability Evaluation Plan and results

D.U.T.: STN1NK60Z LINE: EZ6P PACKAGE: SOT-223

Test	Conditions	S.S.	*Requirement*	*Results*
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of preconditionings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	*D.U.T. SMD PRECONDITIONED* TA=85℃ - RH=85% Vbias= 100V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.R.B.	T.A.= 150℃ Vdd = 480 V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.F.B.	Ta=150℃ Vgss= 30V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96hours.	No parameter deviation at 96 hours.
THERMAL CYCLES AIR TO AIR	*D.U.T. SMD PRECONDITIONED* TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
ENVIRONMENTAL SEQUENCE	*D.U.T. SMD PRECONDITIONED* 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Reliability Evaluation Plan and results

D.U.T.: STN1NK80Z LINE: EZ8Q PACKAGE: SOT-223

Test	Conditions	S.S.	*Requirement*	*Results*
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of preconditionings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	*D.U.T. SMD PRECONDITIONED* TA=85℃ - RH=85% Vbias= 100V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.R.B.	T.A.= 150℃ Vdd = 640 V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.F.B.	Ta=150℃ Vgss= 30V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96 hours.	No parameter deviation at 96 hours.
THERMAL CYCLES AIR TO AIR	*D.U.T. SMD PRECONDITIONED* TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
ENVIRONMENTAL SEQUENCE	*D.U.T. SMD PRECONDITIONED* 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Reliability Evaluation Plan and results

D.U.T.: STN4NF03L LINE: E33N PACKAGE: SOT-223

Test	Conditions	S.S.	Requirement	Results
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of preconditionings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	D.U.T. SMD PRECONDITIONED TA=85℃ - RH=85% Vbias= 24V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.R.B.	T.A.= 150℃ Vdd = 24V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.F.B.	TA=150℃ Vgss=16V	77x1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
PRESSURE POT	TA=121℃ – PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96 hours.	No parameter deviation at 96 hours.
THERMAL CYCLES AIR TO AIR	D.U.T. SMD PRECONDITIONED TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
ENVIRONMENTAL SEQUENCE	D.U.T. SMD PRECONDITIONED 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Reliability Evaluation Plan and results

D.U.T.: STN3NF06L LINE: AL6A PACKAGE: SOT-223

Test	Conditions	S.S.	Requirement	Results
PRECONDITIONING OF SMD DEVICES **BEFORE TC/THB/ENV. SEQ.**	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times C	204 x 1 Lot	Parameter deviation within spec. limits at end of precondition-ings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	*D.U.T. SMD PRECONDITIONED* TA=85℃ - RH=85% Vbias= 50V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours
H.T.R.B.	T.A.= 150℃ Vdd = 48V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours
H.T.F.B.	TA=150℃ Vgss=16V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96 hours.	No parameter deviation at 96 hours. .
THERMAL CYCLES AIR TO AIR	*D.U.T. SMD PRECONDITIONED* TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
THERMAL FATIGUE	ΔTC=105℃ - Pd=2W	77 x 1 Lot	Parameter deviation within spec. limits at 10k cycles.	No parameter deviation at 10Kcy.
ENVIRONMENTAL SEQUENCE	*D.U.T. SMD PRECONDITIONED* 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Reliability Evaluation Plan and results

D.U.T.: STN4NF06L LINE:AL6A PACKAGE: SOT-223

Test	Conditions	S.S.	Requirement	Results
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of precondition-ings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	*D.U.T. SMD PRECONDITIONED* TA=85℃ - RH=85% Vbias= 50V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours
H.T.R.B.	T.A.= 150℃ Vdd = 48V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours
H.T.F.B.	TA=150℃ Vgss=16V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96 hours.	No parameter deviation at 96 hours. .
THERMAL CYCLES AIR TO AIR	*D.U.T. SMD PRECONDITIONED* TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
THERMAL FATIGUE	ΔTC=105℃ - Pd=2W	77 x 1 Lot	Parameter deviation within spec. limits at 10k cycles.	No parameter deviation at 10Kcy.
ENVIRONMENTAL SEQUENCE	*D.U.T. SMD PRECONDITIONED* 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Reliability Evaluation Plan and results

D.U.T.: BCP53-16 LINE: F817 PACKAGE: SOT-223

Test	Conditions	S.S.	Requirement	Results
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of precondition-ings.	No parameter deviation out of spec. Limits at end of precondi-tionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation out of spec. limits at 1000 hours.
T.H.B.	*D.U.T. SMD PRECONDITIONED* TA=85℃ - RH=85% Vbias= 50V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation out of spec. limits at 1000 hours.
H.T.R.B.	T.A.= 150℃ Vces = -80V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation out of spec. limits at 1000 hours.
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 168 hours.	No parameter deviation out of spec. limits at 168 hours.
THERMAL CYCLES AIR TO AIR	*D.U.T. SMD PRECONDITIONED* TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation out of spec. limits at 500 cy.
ENVIRONMENTAL SEQUENCE	*D.U.T. SMD PRECONDITIONED* 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation out of spec. limits at end of test.

Reliability Evaluation Plan and results

D.U.T.: 2STN2540 LINE: BI18 PACKAGE: SOT-223

Test	Conditions	S.S.	Requirement	Results
PRECONDITIONING OF SMD DEVICES BEFORE TC/THB/ENV. SEQ.	DRYNG 1H @ 125℃ STORE 168H @ TA=85℃ RH=85% IR @ Tp=260℃ 3 times	204 x 1 Lot	Parameter deviation within spec. limits at end of precondition-ings.	No parameter deviation at end of preconditionings.
H.T.S.	TA=150℃	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
T.H.B.	D.U.T. SMD PRECONDITIONED TA=85℃ - RH=85% Vbias= -30V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
H.T.R.B.	T.A.= 150℃ Vces = -32V	77 x 1 Lot	Parameter deviation within spec. limits at 1000 hours.	No parameter deviation at 1000 hours.
PRESSURE POT	TA=121℃ - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96 hours.	No parameter deviation at 96 hours.
THERMAL CYCLES AIR TO AIR	D.U.T. SMD PRECONDITIONED TA=-65℃ TO 150℃ 1 HOUR / CYCLE	77 x 1 Lot	Parameter deviation within spec. limits at 500 cycles.	No parameter deviation at 500 cy
ENVIRONMENTAL SEQUENCE	D.U.T. SMD PRECONDITIONED 100 THERMAL CYCLES + 168H PP	50 x 1 Lot	Parameter deviation within spec. limits at end of test.	No parameter deviation at end of test.

Technological Characteristics

D.U.T.: STN1HNK60 LINE: EC6M PACKAGE: SOT-223

DIE	*Technology:* SuperMESH™ MOSFET *Material:* Silicon *Metallization – Front :* Al/Si (1%) *- Back :* Ti-Ni-Au		*Passivation :* *Dimensions :*	Nitride 2030 x 1730 µm^2
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Gate Au Source 2 mils Gate 2 mils Source
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: STN1NK60Z Line: EZ6P Package: SOT223

DIE	*Technology:* SuperMESH™ Power MOSFET *Material:* Silicon *Passivation :* Nitride *Metallization – Front :* Al/Si (1%) *Dimensions :* 1890 x 1140 µm^2 *- Back :* Ti-Ni-Au			
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Gate Au Source 2 mils Gate 2 mils Source
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: STN1NK80Z LINE: EZ8Q PACKAGE: SOT-223

DIE	*Technology:* SuperMESH™ MOSFET *Material:* Silicon		*Passivation :*	Nitride
	Metallization – Front : Al/Si (1%)		*Dimensions :*	2230 x 1760 µm^2
	- Back : Ti-Ni-Au			
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Gate Au Source 2 mils Gate 2 mils Source
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: STN4NF03L Line: E33N Package: SOT223

DIE	*Technology:* STripFET II POWER MOSFET *Material:* Silicon *Metallization – Front :* Al/Si (1%) *- Back :* Ti-Ni-Au		*Passivation :* *Dimensions :*	No passivation 1750 x 1270 μm^2
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Gate Au Source 2 mils Gate 2 mils Source
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: STN3NF06L Line: AL6A Package: SOT-223

DIE	*Technology:* N- Channel Enhancement Mode Power MOSFET *Material:* Silicon *Passivation :* No passivation *Metallization – Front :* Al/Si (1%) *Dimensions :* 1700 x 1360 µm^2 *- Back :* Ti-Ni-Au			
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Gate Au Source 2 mils Gate 2 mils Source
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: STN4NF06L Line: AL6A Package: SOT-223

DIE	*Technology:* N- Channel Enhancement Mode Power MOSFET *Material:* Silicon *Passivation :* No passivation *Metallization – Front :* Al/Si (1%) *Dimensions :* 1700 x 1360 µm^2 *- Back :* Ti-Ni-Au			
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Gate Au Source 2 mils Gate 2 mils Source
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: BCP53-16 Line: F817 Package: SOT-223

DIE	*Technology:* Planar PNP Transistor *Material:* Silicon *Metallization – Front :* Al/Si *- Back :* Au-Cr-Ni-Au		*Passivation :* *Dimensions :*	P-Vapox 1070 x 1070 µm^2
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Base Au Emitter 2 mils Base 2 mils Emitter
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Technological Characteristics

D.U.T.: 2STN2540 Line: BI18 Package: SOT-223

DIE	*Technology:* Planar PNP Transistor *Material:* Silicon *Metallization – Front :* Al/Si *- Back :* Au-Cr-Ni-Au		*Passivation :* *Dimensions :*	P-Vapox 1780 x 1770 µm^2
DIE ATTACH	Soft Solder Pb/Sn/Ag	**FRAME**	*Frame and lead material:* *Frame coating :* *Lead coating :*	Raw Copper Ag Spot on die pad and leads No coating Sn 100%
WIRE BOND	Thermosonic	**WIRE**	*Material :* *Diameter :*	Au Base Au Emitter 2 mils Base 2 mils Emitter
SEALING	Molding	**PACKAGING**	*Material :*	Epoxy Resin

PRODUCTION PLACES : WAFER PROCESSING : Ang Mokio (Singapore)
ASSEMBLY LOCATION : Fujitsu (China)
Q.A. LOCATION : Fujitsu (China)

Reliability Test Description

High Temperature Reverse Bias (HTRB)

This test is performed in order to demonstrate the quality and reliability of devices subjected to an elevated temperature and simultaneously reverse biased. The purpose of this test is to detect surface defects such as poor passivation, presence of contaminants, etc...

High Temperature Forward Bias (HTFB)

This test is performed in order to demonstrate the quality and reliability of devices subjected to an elevated temperature and simultaneously forward gate biased. The purpose of this test is to detect surface and gate oxide defects.

High Temperature Storage (HTS)

This stress test is performed to check the device life in a high temperature ambient. Specimens are put for a period of time inside a stove in free air. Detectable failure mechanisms are presence of contaminants and metal corrosion.

Thermal Cycles/Shocks

The purpose of this test is to determine the resistance of devices to exposure to extreme changes in temperature. Specimens are first placed in a suitable environment at a low temperature and then transferred to one at high temperature. Effects of thermal cycles/shocks include cracking of die, breaking of wire bonding, mechanical damage to the device case.

Reliability Test Description (continued)

Temperature Humidity Bias (THB)

This test is performed to check the device life in a high humidity ambient. Specimens are subjected to a permanent bias in a climatic chamber in the presence of steam. Detectable failure mechanisms are metal corrosion and moulding defects.

Pressure Pot

This test is performed in order to check device life in a high humidity ambient in an accelerated way. Specimens are subjected for a period of time inside an autoclave in the presence of steam and pressure. Detectable failure mechanism is metal corrosion.

Thermal Fatigue

This test is performed to demonstrate the quality and reliability of devices exposed to cyclic variation in electrical stress between "on" and "off" conditions and resultant cyclic variation in device and case temperatures (thermo-mechanical stress). The purpose of this test is to detect assembly defects : improper die-attach, bonding weakness and thermal mismatch among various components of the package.

Environmental Sequence

The purpose of this test is to study the influence of corrosion mechanism when the die/package system has already been stressed by temperature cycling.

Please Read Carefully:

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