



PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-PWR/08/3675
Notification Date 05/26/2008

SILICON LINE CHANGE FOR BIPOLAR DEVICES - BI21 PRODUCT LINE

PWR - PWR BIP/ IGBT/ RF

Table 1. Change Implementation Schedule

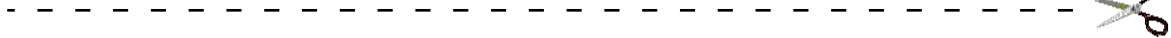
Forecasted implementation date for change	23-Jul-2008
Forecasted availability date of samples for customer	19-May-2008
Forecasted date for STMicroelectronics change Qualification Plan results availability	19-May-2008
Estimated date of changed product first shipment	25-Aug-2008

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	See attached list
Type of change	Waferfab process change
Reason for change	Production Optimization
Description of the change	Planar Base Island technology is ready to replace the mature Epibase technology in order to align our products to the actual Market. The line BI21 will replace the old ones B605. Feature: Improved hFE linearity and Higher fT frequency. Benefit: Better performances in switching and linear application.
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	See "N" in additional info
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt		PCN APM-PWR/08/3675
Please sign and return to STMicroelectronics Sales Office		Notification Date 05/26/2008
<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:	
Remark		

DOCUMENT APPROVAL

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

	APM CATANIA RELIABILITY REPORT	Date:	Feb '08
		No	07c/08

Reliability evaluation

on

BI21 for silicon line change on TIP36C

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Introduction

This report is aimed to qualify the new line BI21 for line change on device TIP36C

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

The evaluation results meet ST products qualification targets, therefore the new line BI21 is qualified.

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Test Vehicles :

Product Line	Sales Type	Package
BI21	TIP36C	TO-247

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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

Parameter Power BIPOLAR Main Parameter

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

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Reliability Evaluation Plan and results

D.U.T.: TIP36C LINE: BI21 PACKAGE: TO-247

Test	Conditions	S.S.	Requirement	Results
H.T.S.	TA=150°C	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.	TA=85°C - 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°C Vdd=-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°C - PA=2Atm	77 x 1 Lot	Parameter deviation within spec. limits at 96 hours.	No parameter deviation out of spec. limits at 96 hours.
THERMAL CYCLES AIR TO AIR	TA=-65°C TO 150°C 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
THERMAL FATIGUE	ΔTC=70°C - Pd=24W	77 x 1 Lot	Parameter deviation within spec. limits at 10k cycles.	No parameter deviation out of spec. limits at 10Kcy.

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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 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.

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 molding 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.

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