PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APM-DIS/08/3745
Notification Date 07/03/2008

APM - ASD & IPAD Division

Rectifiers in TO-220AB & TO-220AC Insulated packages:

Assy & Test Location Transfer to China

DIS - ASD & IPAD

Table 1. Change Implementation Schedule

Forecasted implementation date for change	26-Jun-2008
Forecasted availabillity date of samples for customer	26-Jun-2008
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	26-Jun-2008
Estimated date of changed product first shipment	02-Oct-2008

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	Rectifiers in TO220AB & TO220AC Insulated package
Type of change	Package assembly location change
Reason for change	Production restructuring
Description of the change	Progressing along the Restructuring Plan already communicated by ST's Letter CRP/07/2927 dated September 25, 2007 and Advanced Product Change Notification APCN APM/07/3145, please be informed that the manufacturing lines for Rectifiers housed in TO-220AB and TO-220AC Insulated packages, currently located in Ain Sebaa (Morocco), are being moved to the Shenzhen site (China).
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	Traceability is ensured through the trace code, an internal codification and the QA number
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	

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Customer Acknowledgement of Receipt	**PCN APM-DIS/08/3745**
Please sign and return to STMicroelectronics Sales Office	**Notification Date 07/03/2008**

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

Remark

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DOCUMENT APPROVAL

Name	Function
Paris, Eric	Division Marketing Manager
Duclos, Franck	Division Product Manager
Besson, Andre	Division Q.A. Manager

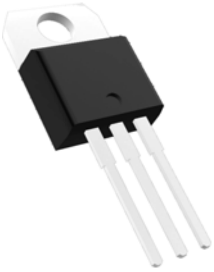
PRODUCT/PROCESS
CHANGE NOTIFICATION

PCN APM-DIS/08/3745

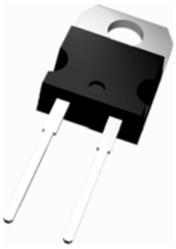
APM - ASD & IPAD Division[1]

Rectifiers in TO-220AB & TO-220AC Insulated packages:

Assy & Test Location Transfer to China



TO-220AB Insulated



TO-220AC Insulated

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[1] APM: Analog, Power & MEMS Group - ASD: Application Specific Device - IPAD: Integrated Passive and Active Devices

WHY THIS CHANGE?

Progressing along the Restructuring Plan already communicated by ST's Letter CRP/07/2927 dated September 25, 2007 and Advanced Product Change Notification APCN APM/07/3145, please be informed that the manufacturing lines for **Rectifiers** housed in **TO-220AB** and **TO-220AC Insulated packages**, currently located in Ain Sebaa (Morocco), are being **moved** to the Shenzhen site (China).

Sourcing	Current	Final
Assembly & test location	MOROCCO (Ain Sebaa)	CHINA (Shenzhen)

The relocation of equipment and the production ramp-up in the new site will be gradually achieved by end of **Q3-2008**, **with no change** in **production equipment** and **materials** in use.

Product Sub-Family	Product PN or Series	Package
Tandem Rectifiers	STTH506TTI STTH806TTI	TO-220AB Ins.
	STTH506DTI STTH806DTI STTH8BC065DI	TO-220AC Ins.
Ultrafast Rectifier (including Turbo2)	STTH1202DI STTH1502DI STTH2002DI BYT08PI-400RG STTH8R04DI STTH806DIRG STTH8L06DIRG STTH8R06DIRG STTH12R06DIRG STTH810DI STTH1210DI STTH812DI	TO-220AC Ins.

Specific Rectifiers in TO-220AB and TO-220AC Insulated packages not expressly included in the above table are included in this change.

WHAT IS THE CHANGE?

The ST China plant is already producing power devices in TO-220 Insulated with **clip bonding technology** and is now starting the production of **Rectifiers in TO-220 Insulated** with **wire bonding technology**.

The location transfer is being achieved **by migrating current equipment and materials** to the new China plant.

This move does **not impact** the **electrical**, **dimensional** and **thermal** parameters of the products, maintaining unchanged current information published in the relevant datasheets. All verifications are included in the qualification program.

There is as well **no change** in the **packing modes** and the standard **delivery quantities** either. The products will be delivered in **compliance with the RoHS** (Restriction of the use of certain Hazardous Substances).

HOW AND WHEN?

Qualification program and results availability:

The **qualification program** mainly consists of **comparative electrical characterizations** and **reliability tests**. The table provided in appendix 1 gives the detailed **qualification plan** that is implemented to qualify the new production.

The **reliability test report** of the qualification program is available on request **now.** Final qualification report will be available on request from wk 30-2008.

Samples availability:

Samples of selected devices, including the test vehicles, are **available** on request as indicated below.

Product Sub-Family	Salestypes	Availability
Tandem Rectifiers	STTH806DTI STTH806TTI STTH8BC065DI	Now Now Wk 32-2008
Ultrafast Rectifier	STTH1202DI STTH1502DI STTH2002DI BYT08PI-400RG STTH8R04DI	Now Wk 32-2008 Wk 32-2008 Wk 32-2008 Wk 32-2008

Other samples are available on request for delivery within notice period if ordered within 30 days from PCN reception.

Change implementation schedule:

The **production start** and **first shipments** will be implemented according to our work in progress and materials availability as indicated in the schedule below:

Package Type	Production Start	1st Shipments
All	From Week 26-2008	From Week 40-2008

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** June start earlier with customer’s **written agreement**.

Marking and traceability:

Unless otherwise stated by customer specific requirement, parts assembled in TO-220 Insulated packages in the new plant will have a **differentiated marking** as indicated below:

Assembly location	Assy plant	Seq. nbr	Diffus. plant	Country of origin	Date Code (3 digits)
China (new)	**GK**	LLL	VU	**CHN**	YWW Y = 1 digit indicating the year WW = 2 digits indicating the week number
Morocco (current)	CC	LLL	VU	MAR	

The **traceability** of the parts assembled in TO-220 Insulated in the ST China plant will be ensured by the **country of origin**, by an **internal codification**, and by the **Q.A. number**.

Appendix 1: Reliability tests for qualification program.

Rectifiers in TO-220AB & TO-220AC Insulated packages: Assy & Test Location Transfer to China

Reliability tests of QUALIFICATION PROGRAM

Test vehicles	Desription	Package
STTH806TTI	Ufast Diode 5A 600V Tandem	TO-220AB Ins.
STTH806DTI	Ufast Diode 5A 600V Tandem	TO-220AC Ins.
STTH1210DI	Ufast Diode 12A 1000V	

QUALIFICATION TESTS					
TEST	**CONDITIONS**	**DURATION**	**NBR OF LOTS (*)**	**SAMPLE SIZE**	**ACCEPTANCE CRITERIA**
Parametric verification	Data sheet specification	Not applicable	3	30 pcs / lot	Datasheet
Pressure Cooker Test JESD22-A102	121°C 2 atm. 100%RH	96 Hrs	2	77 pcs / lot	0 failure
Temperature Cycling JESD22 A104	-65°C/+150°C - Air/Air 2 cycles /hour	500 cycles	1	25 pcs / lot	0 failure
High Temperature Reverse Bias JESD22-A108	Vac = 0.8xV_{RRM} Tj = 150°C	1000 hours	1	77 pcs / lot	0 failure
Temperature Humidity Bias JESD22 A101	Tamb = 85°C RH = 85% Vac = 100V	1000 hours	1	77 pcs / lot	0 failure
Construction analysis	Random samples	Not applicable	1	5 pcs	Assembly rules
Physical dimension JESD22 B100	As per package dimensions & tolerances	Not applicable	1	30 pcs	0 failure
Solderability SnPb & SnAgCu JESD22-B102D	Dry ageing 16hrs / 220°C & 245°C – 5 sec dip. Steam aging 8hrs / 220°C & 245°C – 5 sec dip.	Not applicable	1	30 pcs / lot	0 failure

(*) Lots selected among test vehicles of the list above.

(1) APM: Analog, Power & MEMS Group - ASD: Application Specific Device - IPAD: Integrated Passive and Active Devices

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