



# PRODUCT/PROCESS CHANGE NOTIFICATION

---

PCN MPA-DIS/06/1931  
Notification Date 08/11/2006

---

**MPA - ASD & IPAD Division**  
**Power Schottky Rectifiers Selection in D2PAK package**  
**Additional assembly and test location in Korea**  
**DIS - ASD & IPAD**

**Table 1. Change Identification**

Product Identification (Product Family/Commercial Product)	Selected Power Schottky Rectifiers in D2PAK
Type of change	Package assembly location change
Reason for change	Capacity extension
Description of the change	Assembly and test multi-sourcing in Korea
Product Line(s) and/or Part Number(s)	See attached
Description of the Qualification Plan	See attached
Change Product Identification	Product marking - Traceability ensured by QA nbr
Manufacturing Location(s)	

**Table 2. Change Implementation Schedule**

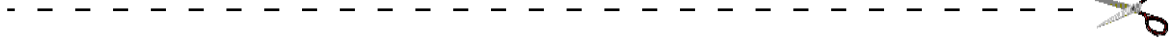
Forecasted implementation date for change	09-Aug-2006
Forecasted availability date of samples for customer	09-Aug-2006
Forecasted date for <b>STMicroelectronics</b> change Qualification Plan results availability	09-Aug-2006
Estimated date of changed product first shipment	03-Nov-2006

**Table 3. Change Responsibility**

	<b>Name</b>	<b>Signature</b>	<b>Date</b>
Division Product Manager	S. CHAMARD		Aug.09 ,06
Division Q.A. Manager	A. BESSON		Aug.09 ,06
Division Marketing Manager	J.B. MOREAU		Aug.09 ,06

**Table 4. List of Attachments**

Customer Part numbers list	
Qualification Plan results	



Customer Acknowledgement of Receipt		<b>PCN MPA-DIS/06/1931</b>
Please sign and return to STMicroelectronics Sales Office		<b>Notification Date 08/11/2006</b>
<input type="checkbox"/> Qualification Plan Denied <input type="checkbox"/> Qualification Plan Approved  <input type="checkbox"/> Change Denied <input type="checkbox"/> Change Approved	Name:	
	Title:	
	Company:	
	Date:	
	Signature:	
Remark ..... ..... ..... ..... .....		



**PRODUCT/PROCESS  
CHANGE NOTIFICATION**

---

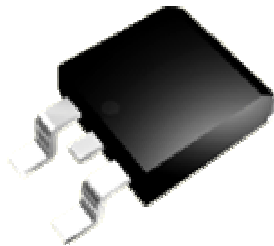
PCN MPA-DIS/06/1931

---

**MPA - ASD & IPAD Division<sup>1</sup>**

**Power Schottky Rectifier Selection in D<sup>2</sup>PAK package:**

**Additional assembly and test location in Korea**



*(1) MPA: Micro, Power, Analog - ASD: Application Specific Device - IPAD: Integrated Passive and Active Devices*

**WHY THIS CHANGE**

In order to better meet the market demand, we have decided to expand the **multi-sourcing** of certain of our **Power Schottky Rectifiers in D<sup>2</sup>PAK package** with one **additional assembly and test plant in Korea**.

Multi-sourcing	Current	New
Assembly & test location	CHINA MOROCCO	CHINA KOREA MOROCCO

This additional multi-sourcing will increase our **manufacturing capacity** for a better service on the considered Power Schottky Rectifier devices.

**WHAT IS THE CHANGE**

The additional assembly and test plant is located in the Seoul area. The new D<sup>2</sup>PAK line is using **same assembly flow** as the China and Morocco plants.

The assembly Bill Of Material status is summarized in the table below.

Material	China/Morocco	Korea
Lead Frame	Copper	Copper
Die Attach	Soft solder	Soft solder
Wire Bonding	Al 20 mils	Al 20 mils
Moulding Compound	Sumitomo EME7026	KCC KTMC5850RM
Lead Finish	Matte Sn	Matte Sn

There will be **no impact** on the **electrical** and **thermal parameters** of the products with respect to the product datasheet. This was verified in the qualification program.

The outline dimensions of the D<sup>2</sup>PAK package produced with the additional line are provided in **appendix 2** attached to the present document, with indication of the **dimensional changes**. All dimensions are in conformity with the JEDEC drawing TO-263AB / Issue "D".

**Current (China/Morocco)****New (Korea)**

The parts will pass **MSL 1** (Moisture Sensitivity Level 1) according to the IPC/JEDEC J-STD-020C standard. The **footprint** recommended by ST remains the same.

There will be **no change** in the **packing mode** (tape and reel) and the standard **delivery quantities**. The products will be delivered in compliance with the RoHS\* directive.

(\* ) Restriction of the use of certain Hazardous Substances

The **products** involved in this production extension are the **Power Schottky Rectifier** devices listed below, delivered in tape and reel.

Product sub-Family	D <sup>2</sup> PAK series
30V Power Schottky	STPS3030CG-TR
45V Power Schottky	STPS745G-TR
	STPS2045CG-TR
	STPS3045CG-TR
100V Power Schottky	STPS8H100G-TR
	STPS20H100CG-TR
150V Power Schottky	STPS10150CG-TR
	STPS20150CG-TR

## HOW AND WHEN

### Qualification and test results:

The **reliability test plan** supporting the qualification program for the new assembly line is provided in **appendix 1** of the present document. The production ramp-up will be monitored with a **pre-launch control plan** implemented on selected parameters.

The **reliability test report** of the qualification program will be available on request from **week 31-2006**.

### Sampling:

**Qualification samples** of **devices** produced in Korea are **available on request** according to the schedule below.

Salestypes	Availability Date
STPS745G-TR	Now
STPS3045CG-TR	Now
STPS20150CG-TR	Now

Other samples of the involved parts are available on request for delivery within the 90 day notice period if ordered within 30 days from PCN reception.

### Change implementation schedule:

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

Production Start	1st Shipments
From Week 31-2006	From Week 44-2006

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-B). In any case, **first shipments** may start earlier with customer's **written agreement**.

Marking and Traceability:

Parts produced in Korea will be differentiated by their marking as indicated below:

Assembly location	Date code marking		
	Diffusion plant code	Assy location code	3 last digits
China (current)	VU (France) VW (Singapore)	CHN	yww y = 1 digit indicating the year ww = 2 digits indicating the week number
Morocco (current)		MAR	
Korea (new)		KOR	

**Traceability** for the implemented change will be ensured by the **country code**, by an **internal codification** and by the **Q.A. number**.

Appendix 1: Reliability tests for qualification program

Appendix 2: Package outline information.



**Power Schottky Rectifier Selection in D<sup>2</sup>PAK: Additional Assembly & Test Plant in Korea**

**Reliability tests plan for QUALIFICATION PROGRAM**

Product sub-Family	Test Vehicle Salestypes
Power Schottky Rectifiers	STPS3045CG-TR
	STPS20150CG-TR

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	3	77 pcs / lot	0/77
Temperature Cycling JESD22 A104	-55°C/+150°C - Air/Air	1000 cycles	3	77 pcs / lot	0/77
Temperature Humidity Bias JESD22 A101	Tamb = 85°C RH = 85% V = 100V max	1000 hours	3	77 pcs / lot	0/77
High Temperature Reverse Bias JESD22-A108	V = V <sub>RRM</sub> X 0.8 Tj = 125°C	1000 hours	2	77 pcs / lot	0/77
Construction analysis	Random samples	Not applicable	1	5pcs	Assembly rules
Operating Life Test JESD22-A108	IF, Tjmax	1000 Hours	3	77 pcs / lot	0/77
Physical dimension JESD22 B100	As per package dimensions & tolerances	Not applicable	1	30pcs	0/30
Resistance to Solder Heat Jedec JESD22-B106-B	2 oil dipping at 260°C	10s on / 15 s off	3	30 pcs / lot min	0/30
Wire pull test MIL750-1037	Bond breaking force measurement	Not applicable	3	10 bonds from 5 devices	0/50
Die shear MIL750-2037	Die shear resistance	Not applicable	3	5 pcs	0/5
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	3	10 pcs / lot	0/30
IR reflow	3 Reflow Profile Lead Free at 260°C	8mn	3	800 pcs / lot	0/800

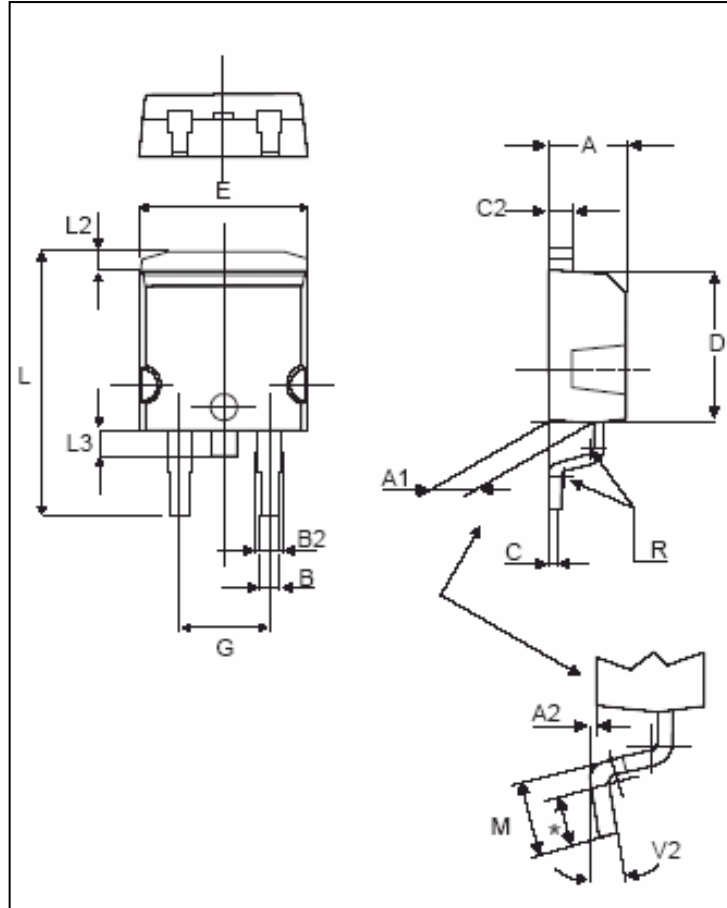
(\*) Lots selected among test vehicles indicated above or of other devices presenting sufficient technological similarities.

NOTE: A preconditioning sequence is performed before all reliability tests according to JESD22-A113 except for HTRB and RSH.



# Package Outline information

D <sup>2</sup> PAK ADDITIONAL LINE			
REF	DIMENSIONS (mm)		
Dim	NOM	MIN	MAX
A		4.3	4.7
A1		2.2	2.6
A2		0.0	0.2
B		0.7	0.9
B2		1.2	1.4
C	0.5	0.5	0.6
C2	1.3	1.3	1.4
D	9.2	9.0	9.4
E		9.8	10.2
G	5.08		
L	15.3	15.0	15.6
L2		1.0	1.4
L3		1.2	1.6
M		1.79	2.79



DIF. vs CURRENT		
REF	(mm)	
Dim	MIN	MAX
A	-0.1	0.1
A1	-0.29	-0.09
A2	-0.03	-0.03
B	0	-0.03
B2	0.03	-0.33
C	0	0
C2	0.02	0.04
D	0.05	0.05
E	-0.2	-0.2
G	0	0
L	0	-0.25
L2	-0.27	0
L3	-0.2	-0.15
M	-0.61	-0.41

**Please Read Carefully:**

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

**UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE ( AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION ), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.**

**UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED REPRESENTATIVE OF ST, ST PRODUCTS ARE NOT DESIGNED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS, WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE.**

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners

©2006 STMicroelectronics - All rights reserved.

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

[www.st.com](http://www.st.com)

