PRODUCT/PROCESS CHANGE NOTIFICATION

PCN APG/13/7949
Dated 19 Jun 2013

STANDARDIZATION OF SECOND BOND TIP DESIGN FOR POWERSO20 LEADFRAME

Table 1. Change Implementation Schedule

Forecasted implementation date for change	01-Oct-2013
Forecasted availability date of samples for customer	02-Sep-2013
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	19-Jun-2013
Estimated date of changed product first shipment	04-Nov-2013

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	PowerSO20 products on matrix line in Muar
Type of change	Package assembly material change
Reason for change	Leadframe standardization and process improvement
Description of the change	Standardization of second bond tip design for PowerSO20 leadframe. See details.
Change Product Identification	Internal traceability visible on product labels
Manufacturing Location(s)	1]St Muar - Malaysia

DOCUMENT APPROVAL

Name	Function
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Pernigotti, Elena Maria	Marketing Manager
Rivolta, Danilo	Product Manager
Pintus, Alberto	Q.A. Manager

STANDARDIZATION OF SECOND BOND TIP DESIGN FOR POWERSO20 LEADFRAME

WHAT*:*

Following copper wires introduction on PowerSO20 matrix line, we are going to standardize the leadframe options by adopting the most recent solution for second bond tip design.

This leadframe is already qualified and used in production on other PowerSO20 Automotive products; it offers a better anchorage of molding compound.

Apart from lead tip design change, assy materials, plating and design details of the leadframe are unchanged. For this reason only the thermo-mechanical aspects have been considered in the reliability exercise.

WHY:

Leadframe standardization and process improvement

HOW:

See attached qualification report done on test vehicle UT29/L9929. All the involved products are qualified by extension of this qualification taking into account that the die technology and characteristics do not have influence on concerned failure mechanisms which are strictly related to the second bond.

WHEN:

We plan to introduce the change from October 2013 onward. Full traceability is guaranteed by dedicated genealogies reported on labels.

Qualification samples are available, on request, from beginning of September 2013.

NEW FRAME option C QUALIFICATION
LINE UT29 L9929 PowerSO20

Updated: 17th February *2012*

Prepared By: ST Muar Reliability Laboratory

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TEST VEHICLE CONSTRUCTION DETAILS

Line Code	UT29
Diffusion process	BCD5CS
Wafer diameter	8"
Diffusion site	AGRATE AG8
Die size (mm2)	3.13 x 3.61
Metal levels	3, AlCu
Passivation	Teos - Pteos - SiOn - PIX
Back finishing	Cr / Ni / Au

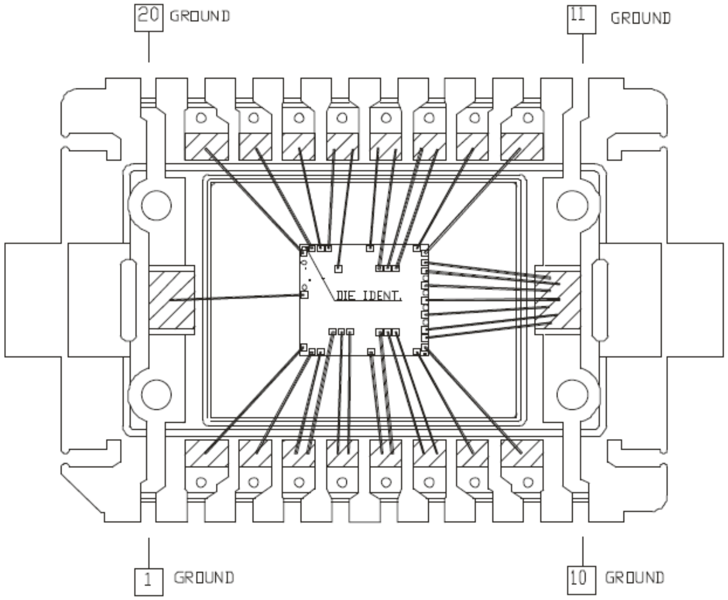
Package name	PowerSO 20 .43 SLUG
Assembly site	Muar
Leadframe	PS20-20 20L Mtx Wdg OptC SpAg
Die attach	Preform PB / Ag / Sn
Wire bonding	Cu, 2 mil
Molding compound	HITACHI CEL 9240HF10
Lead finishing	Matte Tin

RELIABILITY RESULTS

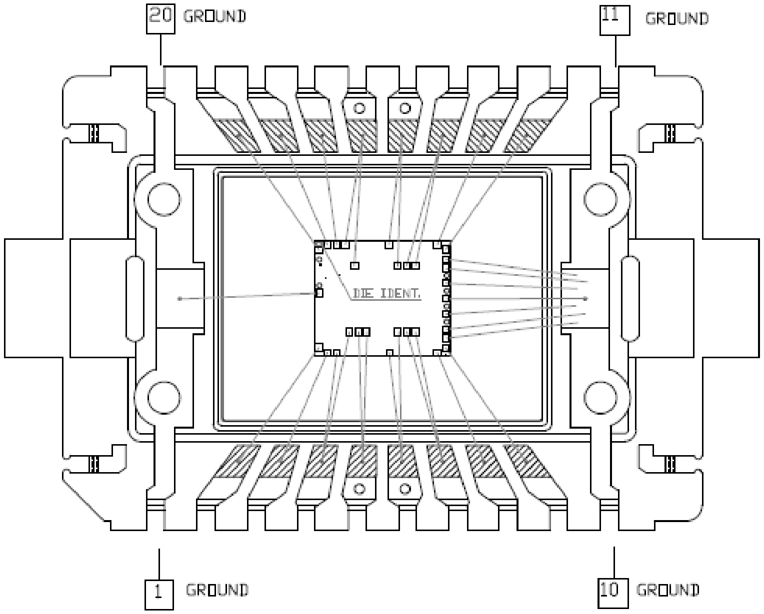
Reliability Assessment Flow		
87pcs for package trials: MSL3(STD) & 3X Reflow + 500TC/1000TC/2000TC @ -50°C / +150°C		
Test Flow	9913803BZV CTRL LOT / current leadframe	9913803BZW QUAL LOT / new leadframe
Bake 24hrs @ 125 °C Soak 192hrs @ 30°C / 60% RH Jedec 020D (Tpeak=245°C) - 3XReflow		
MSL3(STD) + TMC @ -50°C/+150°C		
step 0 -> 500 cycles	0 defect / 87pcs	0 defect / 87pcs
5pcs for Pull Test	Pass	Pass
step 500-> 1000 cycles	0 defect / 82pcs	0 defect / 82pcs
5pcs for Pull Test	Pass	Pass
step 1000-> 2000 cycles	0 defect / 77pcs	0 defect / 77pcs
5pcs for Pull Test	Pass	Pass

LEAD TIP REDESIGN FROM SQUARE TO SHAPED PATTERN

Current Leadframe



New Leadframe



Public Products List

PCN Title : STANDARDIZATION OF SECOND BOND TIP DESIGN FOR POWERSO20 LEADFRAME
PCN Reference : APG/13/7949
PCN Created on : 17-JUN-2013

Subject : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change:

ST COMMERCIAL PRODUCT

E-L9935
E-L9935013TR
E-TDA7391PD
E-TDA7391PDTR
L9349-LF
L9349TR-LF
L9825
L9825TR
TDA7391LVPD
TDA7391LVPDTR

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