RER1712 for PCN10233
Conversion of Back-end line at Amkor ATP (Philippines) in TSSOP20 package - non automotive products

Reliability Evaluation Plan

Jan 16th, 2019

MMS MCD Quality & Reliability Department

life.augmented

RER1712- Conversion of TSSOP20 Back-end line at Amkor ATP STM8 / STM32 Die Test Vehicles

Test vehicles are selected by Change Review Board based on key parameters such as Front-end technologies and volumes allowing to qualify the entire product families in TSSOP20 XDLF at AMKOR ATP1.

Similarity strategy will be applied to cover all combinations of Diffusion Plant, Diffusion Process and TSSOP packages listed below:

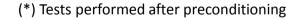- TSMC 0.18μm / Rousset R8 F9GO2 / Rousset R8 F9GO1/ Rousset R8 F9GO2S diffusion process

Note: Rousset R8 F9GO2s diffusion process is already qualified in TSSOP14 on the same assembly line and using same materials for bonding wires, die attach glue and mold compound (ref to reliability report RERMCD1414).

Die Vehicle	Family	Process Perimeter	Assembly Line	Package	Number of Reliability lots
444	STM32F	TSMC0.18	ATP1	TSSOP 20 BODY 4.4 PITCH 0.65	1
758	STM8L	CMOSF9G02			1
79J	STM8A	CMOSF9GO1			1

RER1712- Conversion of TSSOP20 Back-end line at Amkor ATP STM8 / STM32 Package Reliability Trials

Reliability Trial & Standard		Test Conditions	Pass Criteria	Units per Lot	Lot qty
PC	Pre Conditioning: Moisture Sensitivity Jedec Level 1 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (85°C / 85% RH / 168 hrs) for level 1 Convection reflow: 3 passes	3 passes MSL1	308	1 per device
UHAST (*)	Unbiased Highly Accelerated Temperature & Humidity Stress JESD22-A118	130°C, 85%RH, 2 Atm	96h	77	1 per device
TC (*)	Thermal Cycling JESD22-A104	-50°C, +150°C Or equivalent -65°C +150°C	1000Cy 500Cy	77	1 per device
THB (*)	Temperature Humidity Bias JESD22-A101	85°C, 85% RH, bias	1000h	77	1 per device
HTSL (*)	High Temperature Storage Life JESD22-A103	150°C - no bias	1000h	77	1 per device
Construction Analysis	JESD22-B102 JESD22-B100/B108	Including Solderability & Physical Dimensions	No concern	15 10	1 per device FE techno and package
ESD CDM	ESD Charge Device Model ANSI/ESD STM5.3.1 Or JESD22-C101 Or JEDEC JS-002	Aligned with device datasheet	250V to 500V	3	1 per device

(*) Tests performed after preconditioning

life.augmented

Conversion of Back-end line at Amkor ATP (Philippines) in TSSOP20 package – non automotive products

MDG - Microcontrollers Division (MCD)

What are the changes?

	Current:	New:
Back-end site	Amkor ATP (Philippines)	Amkor ATP (Philippines)
Leadframe (1)(2)	Pre-Plated Frame (PPF) , High Density Leadframe (HDLF)	Tin Post-plated Frame, Extreme Density Leadframe (XDLF)
Molding compound (3)	Sumitomo EME-G700K	Sumitomo EME-G700LS
Second level interconnect	e4	e3
Enhanced traceability in marking	No digit	2 digits added

(1) Lead color and surface finish change depending on leadfinishing.
(2) for STM8T products Leadframe pad size changed from 2.4x3.6mm to 3x4.2mm
(3) Package darkness changes depending on molding.

How to order samples?

For all sample request linked to this PCN, please:

- request sample(s) through Notice tool, indicating a single Commercial
  Product for each request.
- insert "PCN 10233" into the remarks of your order.
- place **non standard** sample order using the following field in your system.

SO | NPO Sample

Header

SO Nr: | Customer: | SO Type: 38 Sample Order
PO Nr: | Carrier Code: | Price Policy: | Currency:
Notes: | Status: | Issuing Date: | Ord Val: 0.0000

Sch I Nr	PO I. Nr.	Finished Good	Comm Qty	Open Qty	Plant Open Qty	Reqd Qty	Unit Price	RD	CD	EDD	St

PO Item: | Comm Prodt: | Qty: 0 | RD: 06-Jan-15 | Unit Price: 0.0000 | Final Cust:

Cust Part Nr: | Finishd Good: | Partial Ship: 01 | Price Pol: | Status: 01 | Canc:
Notes: | TAM K Pieces: 0 | Our Share%: 0 | Sample Type: **Sample Non Std Type**
Project Name: | Closing Date: | Closing Type:

Regional Sheet: | Lab Sheet:

SO Nr: 7075S05890 | Customer: 99800200 | SGS-TH/USA | PO Nr: Mos/TPapay/RBC-Ullmer

Company	Issuing Date:	ShipTo:	Price Policy:	Curr Code:
STM	29-JUL-2015 12:07:00	9980020081 SGS/USANPO	05	02 U.S. DOLLAR

Carrier Code: 0001 × | Bill To: 9980020001 SGS-TH/USA
Carriage Code: F1 F.I.S. | Confirm To: 81
Transportn Mode: 01 AIR FREIGHT | Sales Rep. ID: 07R000 NO COMMISSION
Payment Term: 0006 FREE OF CHARGE | Cust Serv Rep ID: 11A000 Dummy FSA SWISS

SO Remark Details

SO Nr: 7075S05890

	SO Remark Type	Text	atus Co	Last Upda
▶	01 INVOICE & O/C REMARK	PER PCN 9108- THANK YOU	01	30-Jul-2015
*				