



RERMCD1603 reliability plan for ATP UQFN3*3 enhanced BOM - PCN 9610

Reliability Evaluation Plan

Mar 7th, 2016

MMS MCD Quality & Reliability Department

PCN 9610- RERMCD1603 reliability plan for AMKOR ATP UQFN3*3 COL enhanced BOM

Context :

- Die Attach Film supplier stops its activity at NSCC location. STMicroelectronics will qualify new supplier location at Fujikura.
- Moreover, ST Microcontrollers Division takes the opportunity to improve package processability by changing the resin.

RERMCD1603 STM8S/L TEST VEHICLES

| Package line | Assembly Line | Package | Device (Partial RawLine Code) | Diffusion Process | Number of Lots |
|--------------|---------------|-----------------|-------------------------------|-------------------|----------------|
| UQFN | UQFN3*3 COL | UQFN3*3 COL 20L | STM8S(E4*767) | F9GO1 | 1 |
| | | | STM8L(E4*761) | F9GO2 | 1 |
| | | | STM8L(E4*758) | F9GO2 | 1 |

RERMCD 1602 - STM8S/L - UQFN

RELIABILITY TRIALS

4

Package Reliability Trials :

(*) tests performed after preconditioning

| Reliability Trial | Test Conditions | Pass Criteria | Unit 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 with Jedec level 1 | 308 | 1/ device |
| AC or Uhast(*) | Autoclave JESD22 A102 or UnBiased Highly Accelerated Temperature and Humidity Stress JESD22 A118 | 121°C, 100% RH, 2 Atm 130°C, 85%RH, 2 Atm | 77 | 1/ device |
| TC(*) | Thermal Cycling JESD22 A104 | -50°C, +150°C Or equivalent -65°C +150°C | 77 | 1/ device |
| WPT/WBS After TC | Wire Bond Pull- Mil Std883 method 2011 Wire Bond Shear AECQ100-001 | 3g min pull strength 15g min bond shear | 3 (30 wires) 3 (30 wires) | 1/ device |
| THB or THS(*) | Temperature Humidity Bias JESD22 A101 Or Temperature Humidity Storage JESD22 A110 | 85°C, 85% RH, bias 85°C, 85% RH, no bias | 77 | 1/ device |
| HTSL | High Temperature Storage Life JESD22 A103 | 150°C- no bias | 77 | 1/ device |
| Construction analysis including Solderability, Physical dimensions | JESD 22B102 JESDB100/B108 | | 15 10 | 1/ Front end technology |
| ESD | ESD Charge Device Model ANSI/ESD STM5.3.1 | 500V depending on device datasheet | 3 | 1/ device |

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