# PRODUCT / PROCESS CHANGE NOTIFICATION

| 1. PCN basic data | |
|---|---|
| 1.1 Company | STMicroelectronics International N.V |
| 1.2 PCN No. | ADG/20/12336 |
| 1.3 Title of PCN | AEC-Q101 Automotive Grade qualification of SMA6TY TVS in SMA package at Assembly/Test location in China |
| 1.4 Product Category | SMA6TY (Vbr from 47V to 82V) in SMA package |
| 1.5 Issue date | 2020-09-28 |

| 2. PCN Team | |
|---|---|
| 2.1 Contact supplier | |
| 2.1.1 Name | ROBERTSON HEATHER |
| 2.1.2 Phone | +1 8475853058 |
| 2.1.3 Email | heather.robertson@st.com |
| 2.2 Change responsibility | |
| 2.2.1 Product Manager | Stephane CHAMARD |
| 2.1.2 Marketing Manager | Philippe LEGER |
| 2.1.3 Quality Manager | Jean-Paul REBRASSE |

| 3. Change | | |
|---|---|---|
| 3.1 Category | 3.2 Type of change | 3.3 Manufacturing Location |
| Transfer | Line transfer for a full process or process brick (process step, control plan, recipes) from one site to another site: Assembly site (SOP 2617) | Morocco and subco in China (Liteon) |

| 4. Description of change | | |
|---|---|---|
| | Old | New |
| 4.1 Description | Assy and test site in ST back in (Morocco) | Assy and test site at subco in China |
| 4.2 Anticipated Impact on form,fit, function, quality, reliability or processability? | no | |

| 5. Reason / motivation for change | |
|---|---|
| 5.1 Motivation | In the frame of the back-end locations management, ST has initiated a transfer of the SMA and SMB lines from its Bouskoura internal plant (Morocco) to back-end partners.This assembly and test plant in China is a subcontractor already qualified and delivering in high volume for ST on automotive SMA package line (Liteon). |
| 5.2 Customer Benefit | CAPACITY INCREASE |

| 6. Marking of parts / traceability of change | |
|---|---|
| 6.1 Description | marking, internal codification and QA number |

| 7. Timing / schedule | |
|---|---|
| 7.1 Date of qualification results | 2020-09-15 |
| 7.2 Intended start of delivery | 2021-10-19 |
| 7.3 Qualification sample available? | Upon Request |

| 8. Qualification / Validation | | | |
|---|---|---|---|
| 8.1 Description | | | |
| 8.2 Qualification report and qualification results | In progress | Issue Date | |

| 9. Attachments (additional documentations) |
|---|
| 12336 Public product.pdf<br>12336 PCN China subco_SMA6TY OEM.pdf |

| 10. Affected parts | | |
|---|---|---|
| 10. 1 Current | | 10.2 New (if applicable) |
| 10.1.1 Customer Part No | 10.1.2 Supplier Part No | 10.1.2 Supplier Part No |
| | SMA6T47AY | |
| | SMA6T47CAY | |
| | SMA6T56AY | |
| | SMA6T56CAY | |
| | SMA6T68AY | |
| | SMA6T68CAY | |
| | SMA6T82AY | |
| | SMA6T82CAY | |

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**STMicroelectronics**
**ADG[1] – Discrete & Filter Division**
**BU Protection**

*(1) ADG: Automotive and Discrete Group*

# *PCN*
## *Product/Process Change Notification*

## AEC-Q101 Automotive Grade qualification of SMA6TY TVS in SMA package at Assembly/Test location in China

| | | | |
|---|---|---|---|
| **Notification number:** | ADG-DIS/20/12336 | **Issue Date** | September, 15th 2020 |
| **Issued by** | Aline AUGIS | | |
| **Product series affected by the change** | | • Package: SMA<br>• Commercial Product:<br>  ○ SMA6TY (Vbr from 47V to 82V) | |
| **Type of change** | | Assembly and test line transfer | |

**Description of the change**

STMicroelectronics is qualifying according to **automotive grade** its **SMA** package at Liteon subcontractor in **China**.

**Reason for change**

In the frame of the back-end locations management, ST has initiated a transfer of the SMA and SMB lines from its Bouskoura internal plant (Morocco) to back-end partners.This **assembly** and **test plant** in China is a subcontractor already qualified and delivering in high volume for ST on automotive SMA package line (Liteon).

| | |
|---|---|
| **Former versus changed product:** | The changed products will remain fully compliant with product datasheet in term of electrical, dimensional and thermal parameters.<br><br>The Moisture Sensitivity Level of the part (according to the IPC/JEDEC JSTD-020D standard) remains unchanged.<br><br>The footprint recommended by ST remains the same.<br><br>There is no change in packing modes and standard delivery quantities either.<br><br>The products remain in full compliance with the ST ECOPACK®2 grade (“halogen-free”). |

**Disposition of former products**

As communicated in Corporate PCI 11964, ST Bouskoura SMA and SMB production line discontinuation will occur in W39-2020. Units manufactured at ST Bouskoura will be delivered till stock depletion.

**Marking and traceability**

Parts produced in China are differentiated by their **marking** as indicated below

| Assembly location | Date code marking | | |
|---|---|---|---|
| | Assy plant code | Assy year | Assy week |
| Morocco (ST) | CZ (on label)<br>Z (on unit) | **Y** (1 digit indicating the year) | **WW** (2 digits indicating the week number) |
| **China (subco)** | **GP (on label)**<br>**GP (on unit)** | | |

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

**Forecasted sample availability**

| Product family | Sub-family | Commercial part Number | Availability date |
|---|---|---|---|
| **Protection device** | TVS | SMA6T47AY | On request |
| | | SMA6T47CAY | On request |
| | | SMA6T56AY | On request |
| | | SMA6T56CAY | On request |
| | | SMA6T68AY | On request |
| | | SMA6T68CAY | On request |
| | | SMA6T82AY | Immediate |
| | | SMA6T82CAY | On request |

**Change implementation schedule**

| Sales types | Estimated production start | Estimated first shipments |
|---|---|---|
| All | 2020 week 40 | 2021 week 42 |

| | |
|---|---|
| **Comments:** | Sample order must be inserted for sampling |

**Customer's feedback**

Please contact your local ST sales representative or quality contact for requests concerning this change notification.
Absence of acknowledgement of this PCN within 30 days of receipt will constitute acceptance of the change
Absence of additional response within 180 days of receipt of this PCN will constitute acceptance of the change

| | |
|---|---|
| **Qualification program and results** | **20051QRP** |

# Reliability Evaluation Report

## SM4TxxAY/CAY & SMA6TxxAY/CAY
## Automotive Grade *Transil*™
## xx = VBR from 47V to 82V

| General Information | |
|---|---|
| **Product Description** | *Protection*<br>*SM4T47AY/CAY*<br>*SM4T50AY/CAY*<br>*SM4T56AY/CAY*<br>*SM4T68AY/CAY*<br>*SM4T82AY/CAY* |
| **Finish Good(s)** | *SMA6T47AY/CAY*<br>*SMA6T56AY/CAY*<br>*SMA6T68AY/CAY*<br>*SMA6T82AY/CAY* |
| **Product Group** | *ADG* |
| **Product division** | *DFD* |
| **Package** | *SMA* |
| **Maturity level step** | *QUALIFIED* |

| Locations | |
|---|---|
| **Wafer fab** | *ST TOURS FRANCE* |
| **Assembly plant** | *SUBCONTRACTOR IN CHINA*<br>*9941* |
| **Reliability Lab** | *ST TOURS FRANCE* |

| Reliability Assessment |
|---|
| *PASS* |

## DOCUMENT INFORMATION

| Version | Date | Pages | Prepared by | Approved by | Comment |
|---|---|---|---|---|---|
| 1 | 12/08/2020 | 12 | Julien MICHELON | Julien MICHELON | Initial release |

Note: This report is a summary of the reliability trials performed in good faith by STMicroelectronics in order to evaluate the potential reliability risks during the product life using a set of defined test methods.
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# TABLE OF CONTENTS

# 1 APPLICABLE AND REFERENCE DOCUMENTS

| Document reference | Short description |
|---|---|
| **AEC-Q101 rev D** | Stress test qualification for automotive grade discrete semiconductors |
| **JESD 47** | Stress-Test-Driven Qualification of Integrated Circuits |
| **JESD 94** | Application specific qualification using knowledge based test methodology |
| **JESD 22** | Reliability test methods for packaged devices |
| **ADG-DIS/20/12043** | AEC-Q101 Automotive grade qualification of TVS in SMA and SMB packages at Assembly/Test location in China |

# 2 GLOSSARY

| | |
|---|---|
| **SS** | Sample Size |
| **PC** | Pre-conditioning |
| **HTRB** | High Temperature Reverse Bias |
| **TC** | Temperature Cycling |
| **PC** | Pre-conditioning |
| **THB / H3TRB** | Thermal Humidity Bias |
| **UHAST** | Unbiased Highly Accelerated Stress Test |
| **DPA** | Destructive Physical Analysis |
| **RSH** | Resistance to Solder Heat |
| **SD** | Solderability |
| **MSL** | Moisture Sensitivity Level |
| **DBT** | Dead Bug Test |
| **GD** | Generic data |

# 3 RELIABILITY EVALUATION OVERVIEW

## 3.1 Objectives

The objective is to qualify SMA package at our subcontractor in China for SM4T protection devices from 47V to 82V (VBR)
& SMA6T protection devices from 47V to 82V (VBR) according to automotive grade AEC-Q101.

## 3.2 Conclusion

Qualification plan requirements have been fulfilled without exception. Reliability tests have shown that the devices behave correctly against environmental tests (no failure). Moreover, the stability of electrical parameters during the accelerated tests demonstrates the robustness of the products and safe operation, which is consequently expected during their lifetime.

# 4 DEVICE CHARACTERISTICS

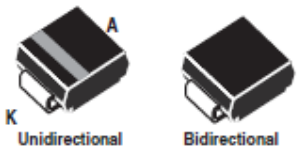
## 4.1 Device description

life.augmented

**SM4TY**

Automotive 400 W Transil™

**Datasheet - production data**




**SMA**
**(JEDEC DO-214AC)**

### Features

- Peak pulse power:
  - 400 W (10/1000 µs)
  - 2.3 kW (8/20 µs)
- Stand-off voltage range: from 5 V to 70 V
- Unidirectional and bidirectional types
- Low leakage current:
  - 0.2 µA at 25 °C
  - 1 µA at 85 °C
- Operating $T_{j\ max}$: 150 °C
- High power capability at $T_{jmax}$:
  - 270 W (10/1000 µs)
- JEDEC registered package outline
- Resin meets UL 94, V0
- AEC-Q101 qualified

### Complies with the following standards

- ISO 10605, C = 150 pF, R = 330 Ω:
  - 30 kV (air discharge)
  - 30 kV (contact discharge)
- ISO 10605, C = 330 pF, R = 330 Ω:
  - 30 kV (air discharge)
  - 30 kV (contact discharge)
- ISO 7637-2[a]
  - pulse 1: $V_S$ = -100 V
  - pulse 2a: $V_S$ = +50 V
  - pulse 3a: $V_S$ = -150 V
  - pulse 3b: $V_S$ = +100 V

### Description

The SM4TY Transil series has been designed to protect sensitive automotive circuits against surges defined in ISO 7637-2 and against electrostatic discharges according to ISO 10605.

The planar technology makes it compatible with high-end circuits where low leakage current and high junction temperature are required to provide reliability and stability over time. SM4TY devices are packaged in SMA (SMA footprint in accordance with IPC 7531 standard).

**TM**: Transil is a trademark of STMicroelectronics

a. Not applicable to parts with stand-off voltage lower than the average battery voltage (13.5 V)

# SMA6TY

## Automotive 600 W Transil™ in SMA package

**Datasheet – production data**

### Features

- Peak pulse power:
  - 600 W (10/1000 µs)
  - 4 kW (8/20 µs)
- Stand off voltage range: from 5 V to 70 V
- Unidirectional and bidirectional types
- Low leakage current:
  - 0.2 µA at 25 °C
  - 1 µA at 85 °C
- Operating $T_{j\,max}$: 150 °C
- JEDEC registered package outline
- Resin meets UL 94, V0
- AEC-Q101 qualified

### Complies with the following standards

- ISO 10605, C = 150 pF, R = 330 Ω:
  - 30 kV (air discharge)
  - 30 kV (contact discharge)
- ISO 10605, C = 330 pF, R = 330 Ω:
  - 30 kV (air discharge)
  - 30 kV (contact discharge)
- ISO 7637-2[(a)]
  - Pulse 1: $V_S$ = -100 V
  - Pulse 2a: $V_S$ = +50 V
  - Pulse 3a: $V_S$ = -150 V
  - Pulse 3b: $V_S$ = +100 V


Unidirectional Bidirectional

SMA
(JEDEC DO-214AC)

### Description

The SMA6TY Transil series has been designed to protect sensitive automotive circuits against surges defined in ISO 7637-2 and against electrostatic discharges according to ISO 10605.

The planar technology makes this device compatible with high-end circuits where low leakage current and high junction temperature are required to provide reliability and stability over time. SMA6TY are packaged in SMA (SMA footprint in accordance with IPC 7531 standard).

a. Not applicable to parts with stand-off voltage lower than the average battery voltage (13.5 V)

**TM**: Transil is a trademark of STMicroelectronics

## 4.2 Construction note

| | **SM4TxxAY/CAY (xx VBR from 47V to 82V)** |
|---|---|
| **Wafer/Die fab. information** | |
| Wafer fab manufacturing location | ST TOURS GLOBAL 6" |
| Technology / Process family | DISCRETE-TRANSIL / TAN |
| **Wafer Testing (EWS) information** | |
| Electrical testing manufacturing location | ST TOURS FRANCE |
| **Assembly information** | |
| Assembly site | SUBCONTRACTOR IN CHINA |
| Package description | SMA |
| **Final testing information** | |
| Testing location | SUBCONTRACTOR IN CHINA |

| | **SMA6TxxAY/CAY (xx VBR from 47V to 82V)** |
|---|---|
| **Wafer/Die fab. information** | |
| Wafer fab manufacturing location | ST TOURS GLOBAL 6" |
| Technology / Process family | DISCRETE-TRANSIL / TAN |
| **Wafer Testing (EWS) information** | |
| Electrical testing manufacturing location | ST TOURS FRANCE |
| **Assembly information** | |
| Assembly site | SUBCONTRACTOR IN CHINA |
| Package description | SMA |
| **Final testing information** | |
| Testing location | SUBCONTRACTOR IN CHINA |

# 5 TESTS RESULTS SUMMARY

## 5.1 Test vehicles

| Lot # | Part Number | Die manufacturing plant | Assembly plant | Package | Comments |
|---|---|---|---|---|---|
| Lot 1 | SMA6J5.0A-TR | ST TOURS | SUBCONTRACTOR CHINA | SMA | Qualification lots |
| Lot 2 | SMA6J33A-TR | | | | |
| Lot 3 | SMA6J33CA-TR | | | | |
| Lot 4 | SMAJ188CA | | | | |
| Lot 5 | SMA6J85A | | | | |
| Lot 6 | SMA6J85CA | | | | |
| Lot 7 | SM4T82AY | | | | |
| Lot 8 | SM4T82CAY | | | | |
| Lot 9 | SMA6T82AY | | | | |
| GD1 | SMA6T39CAY | | | | Similar package for solderability trials |
| GD2 | Dummy SMD | NA | NA | | Similar package for whiskers |

## 5.2 Test plan and results summary

| Test | PC | Std ref. | Conditions | Total | Steps | Results/Lot Fail/S.S. | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | **Lot 1** 5V UNI IPP 11.8A | **Lot 2** 33V UNI IPP 68A | **Lot 3** 33V BI IPP 68A |
| **Die Oriented Tests** | | | | | | | | |
| Repetitive Surge | Y | ADCS0060282 | IPP (10/1000us)=max datasheet value | 60 | 50 surges | 0/20 | 0/20 | 0/20 |
| | | | | | 1000 surges | 0/20 | 0/20 | 0/20 |
| HTRB | N | JESD22-A108/MIL-STD-750-1 M1038 Method A | Junction Temperature=175°C Voltage=VRM | 231 | 504h | 0/77 | 0/77 | 0/77 |
| | | | | | 1000h | 0/77 | 0/77 | 0/77 |
| **Package Oriented Tests** | | | | | | | | |
| TC | Y | JESD22-A104 | Frequency (cy/h)=2cy/h Temperature (high)=150°C Temperature (low)=-55°C | 77 | 500cy | - | 0/77 | - |
| | | | | | 1000cy | - | 0/77 | - |
| H3TRB | Y | JESD22-A101 | Humidity (HR)=85% Temperature=85°C Tension=33V | 77 | 168h | - | 0/77 | - |
| | | | | | 504h | - | 0/77 | - |
| | | | | | 1000h | - | 0/77 | - |
| UHAST | Y | JESD22 A-118 | Humidity (HR)=85% Pressure=2.3bar Temperature=130°C | 77 | 96h | - | - | 0/77 |

| Test | PC | Std ref. | Conditions | Total | Steps | Results/Lot Fail/S.S. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | **Lot 4** 188V Bi 400W | **Lot 5** 85V Uni 600W | **Lot 6** 85V Bi 600W | **Lot 7** 70V Uni 400W | **Lot 8** 70V Bi 400W | **Lot 9** 70V Uni 600W |
| **Die Oriented Tests** | | | | | | | | | | | |
| Repetitive Surge | N | ADCS0060282 | IPP (10/1000us)=max datasheet value | 100 | measure at 50s | 0/20 | 0/20 | 0/20 | 0/20 | - | 0/20 |
| | | | | | measure at 1000s | 0/20 | 0/20 | 0/20 | 0/20 | - | 0/20 |
| HTRB | N | JESD22-A108/MIL-STD-750-1 M1038 Method A | Junction Temperature=175°C Temperature=175°C Voltage=VRM | 154 | 504h | 0/77 | - | - | - | - | 0/77 |
| | | | | | 1000h | 0/77 | - | - | - | - | 0/77 |
| **Package Oriented Tests** | | | | | | | | | | | |
| TC | Y | JESD22-A104 | Frequency (cy/h)=2cy/h Temperature (high)=150°C Temperature (low)=-65°C | 231 | 500cy | - | 0/77 | 0/77 | 0/77 | - | - |
| | | | | | 1000cy | - | 0/77 | 0/77 | 0/77 | - | - |
| DPA | Y | ST 0060102 AEC Q101 | DPA After TCT | 2 | analysis result | - | - | 0/2 Compliant | - | - | - |
| RSH | N | JESD22A-111 (SMD) / JESD22B-106 (PTH) | Temperature=260°C Time (on)=10s | 30 | dipping | - | - | - | - | - | 0/30 |
| H3TRB | Y | JESD22-A101 | Humidity (HR)=85% Temperature=85°C Voltage=VRM | 154 | 168h | - | - | 0/77 | - | 0/77 | - |
| | | | | | 504h | - | - | 0/77 | - | 0/77 | - |
| | | | | | 1000h | - | - | 0/77 | - | 0/77 | - |
| DPA | Y | ST 0060102 AEC Q101 | DPA After H3TRB | 2 | analysis result | - | - | 0/2 Compliant | - | - | - |
| UHAST | Y | JESD22 A-118 | Humidity (HR)=85% Pressure=2.3bar Temperature=130°C | 154 | 96h | - | - | 0/77 | - | - | 0/77 |
| MSL search | Y | JESD22-A113 | Humidity (HR)=85% MSL=1 Reflow=3 Temperature=85°C | 30 | 168h | - | - | - | - | - | 0/30 |

For solderability oriented trials similarities are done with the SMA6T39CAY (SMA package).

| Test | PC | Std ref. | Conditions | SS | Steps | Failure /SS | |
|---|---|---|---|---|---|---|---|
| | | | | | | GD1 33V Bi auto | GD2 |
| Solderability | N | J-STD-002 | Steam Ageing SnAgCu bath 245°C | 60 | Visual inspection | 0/15 | - |
| | | | Steam Ageing SnPb 220°C | | | 0/15 | - |
| | | | Dry Ageing SnAgCu 245°C | | | 0/15 | - |
| | | | Dry Ageing SnPb 220°C | | | 0/15 | - |
| DBT | N | DM 00112629 | Fluxing followed by IR reflow. | 30 | Visual inspection | 0/30 Compliant | - |
| Whiskers | Y | AEC-Q005 JESD201 | Pb free reflow TC -55°C/85°C 3 cycles/hrs | 18 | 1500cy | - | 0/18 |
| | | | Pb free reflow THS 30°C/RH = 60% | 18 | 4000hrs | - | 0/18 |
| | | | Pb free reflow THS 55°C / RH = 85% | 18 | 4000hrs | - | 0/18 |
| | | | No reflow TC -55°C/85°C 10 min | 18 | 1500cy | - | 0/18 |
| | | | No reflow THS 30°C / RH = 60% | 18 | 4000hrs | - | 0/18 |
| | | | No reflow THS 55°C / RH = 85% | 18 | 4000hrs | - | 0/18 |
| | | | SnPb reflow TC -55°C/85°C 10 min | 18 | 1500cy | - | 0/18 |
| | | | SnPb reflow THS 30°C / RH = 60% | 18 | 4000hrs | - | 0/18 |
| | | | SnPb reflow THS 55°C / RH = 85% | 18 | 4000hrs | - | 0/18 |

# 6 ANNEXES

## 6.1 Tests Description

| Test name | Standard Reference | Description | Purpose |
|---|---|---|---|
| **Die Oriented** | | | |
| **HTRB** High Temperature Reverse Bias | JESD22 A-108 | HTRB : High Temperature Reverse Bias HTFB / HTGB : High Temperature Forward (Gate) Bias The device is stressed in static configuration, trying to satisfy as much as possible the following conditions: - low power dissipation; - max. supply voltage compatible with diffusion process and internal circuitry limitations. | To determine the effects of bias conditions and temperature on solid state devices over time. It simulates the devices' operating condition in an accelerated way. To maximize the electrical field across either reverse-biased junctions or dielectric layers, in order to investigate the failure modes linked to mobile contamination, oxide ageing, layout sensitivity to surface effects. |
| **Repetitive surges** | ADCS0060282 | Devices are submitted to rated Ipp for 1000 surges. | Purpose: This test is intended to verify robustness of device submitted to rated Ipp (as per data sheet) = exploration of reverse characteristic at a calibrated current value followed by the measure of voltage clamping value. Failure mode expected is short circuit of the device due to hot spot creation into silicon bulk at device periphery where the electrical field gradient is the most important. Physical analysis must be done to verify consistency of the failure mode and discriminate from extrinsic causes related to process escapes. |
| **Package Oriented** | | | |
| **TC** Temperature Cycling | JESD22 A-104 | The device is submitted to cycled temperature excursions, between a hot and a cold chamber in air atmosphere. | To investigate failure modes related to the thermo-mechanical stress induced by the different thermal expansion of the materials interacting in the die-package system. Typical failure modes are linked to metal displacement, dielectric cracking, molding compound delamination, wire-bonds failure, die-attach layer degradation. |

| Test name | Standard Reference | Description | Purpose |
|---|---|---|---|
| **PC** Preconditioning | JESD22 A-113 | The device is submitted to a typical temperature profile used for surface mounting devices, after a controlled moisture absorption. | As stand-alone test: to investigate the moisture sensitivity level. As preconditioning before other reliability tests: to verify that the surface mounting stress does not impact on the subsequent reliability performance. The typical failure modes are "pop corn" effect and delamination. |
| **THB/H3TRB** Temperature Humidity Bias | JESD22 A-101 | The device is biased in static configuration minimizing its internal power dissipation, and stored at controlled conditions of ambient temperature and relative humidity. | To evaluate the package moisture resistance with electrical field applied, both electrolytic and galvanic corrosion are put in evidence. |
| **uHAST** | JESD22 A-118 | The Unbiased HAST is performed for the purpose of evaluating the reliability of non-hermetic packaged solidstate devices in humid environments . | Purpose: to investigate corrosion phenomena affecting die or package materials, related to chemical contamination and package hermeticity. To point out critical water entry paths with consequent electrochemical and galvanic corrosion. |
| **Solderability** | J-STD-002 | The purpose of this test method is to provide a referee condition for the evaluation of the solderability of terminations (including leads up to 0.125 inch in diameter) that will be assembled using tin lead eutectic solder. | This evaluation is made on the basis of the ability of these terminations to be wetted and to produce a suitable fillet when coated by tin lead eutectic solder. These procedures will test whether the packaging materials and processes used during the manufacturing operations process produce a component that can be successfully soldered to the next level assembly using tin lead eutectic solder. A preconditioning test is included in this test method, which degrades the termination finish to provide a guard band against marginal finish. |
| **DPA** Destructive Physical Analysis | AEC Q101-004 | Specific construction analysis on random parts that have successfully completed THB or TC. | To investigate on reliability stresses impact on delamination, corrosion and product construction integrity. |
| **Whiskers** | AEC-Q005 JESD201 | This test is intended to check Tin plated packages quality versus whiskers risk. | It is applicable for studying tin whisker growth from finishes containing a predominance of tin (Sn). |
| **RSH** Resistance to solder heat | ST 0060102 JESD22 B-106-A | Device is submitted to a dipping in a solder bath at 260°C with a dwell time of 10s. Only for through hole mounted devices. | This test is used to determine whether solid state devices can withstand the effects of the temperature to which they will be subjected during soldering of their leads. The heat is conducted through the leads into the device package from solder heat at the reverse side of the board. This procedure does not simulate wave soldering or reflow heat exposure on the same side of the board as the package body. |

| Test name | Standard Reference | Description | Purpose |
|---|---|---|---|
| **DBT** | DM00112629 | To evaluate the wettability of the SMD. Good indicator to determine the bad solderability behavior | Components are glued up-side down on a substrate. Pins are wetted with a moderately activated flux. Then run once through the reflow oven with leadfree temperature profile. Visual inspection is performed with suitable tool. |

## Public Products List

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***PCN Title :*** AEC-Q101 Automotive Grade qualification of SMA6TY TVS in SMA package at Assembly/Test location in China
***PCN Reference :*** ADG/20/12336

***Subject :*** Public Products List

Dear Customer,

There is no Standard Public Products impacted by the change

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