Micro Commercial Components

Date: Mar 04, 2022

PCN No#: 030422-1

PCN Title: MCC Introduces Auto-Assembly Process for SMA6J Series.

Dear Customer:

This is an announcement of change(s) to products that are currently being offered by Micro Commercial Components Corp(MCC) .We request that you acknowledge receipt of this notification within 30 days of the date of this PCN. Please refer to the implementation date of this change as it is stated in the attached PCN form.  Please contact your local sales representative to acknowledge receipt of this PCN.

If you have any questions about PCN's products, please contact your local sales representative.

Sincerely,

MCC PCN Team

Micro Commercial Components

# PRODUCT CHANGE NOTICE

| Notification Date | Implementation Date | Change Type | Classification | PCN No |
|---|---|---|---|---|
| Mar 04, 2022 | Jun 04, 2022 | Auto-Assembly Process | Major | 030422-1 |

**TITLE**

MCC Introduces Auto-Assembly Process For SMA6J Series.

**DESCRIPTION OF CHANGE**

This PCN is being issued to notify customers that in order to assure continuity of supply, MCC added auto assembly line(Located in Yangzhou) for SMA6J Series. MCC has qualified the auto assembly line. Full electrical characterization and high reliability testing has been completed to ensure there is no change to device functionality or electrical specifications in the datasheet.

**IMPACT**

No change in datasheet electrical parameters and product performance.
Table A: Appearance comparison

**PRODUCTS AFFECTED**

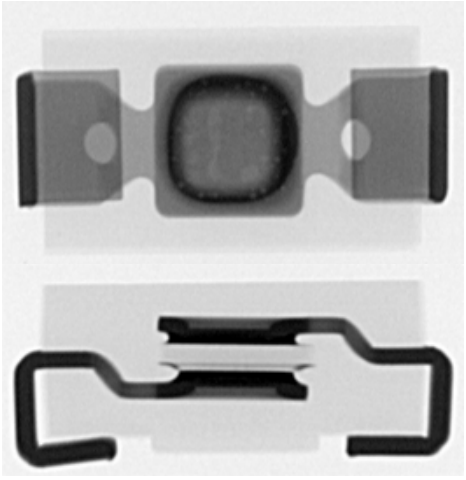
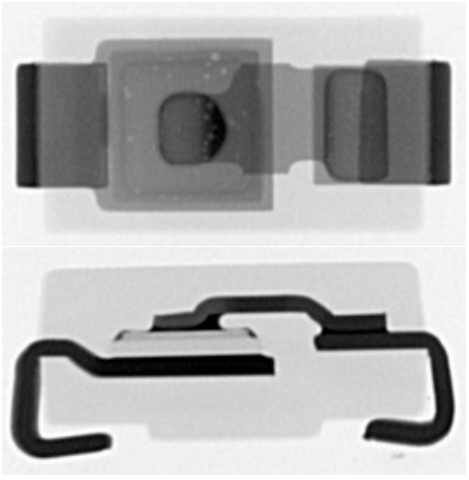
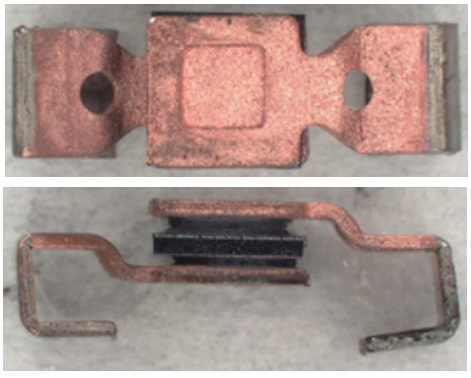
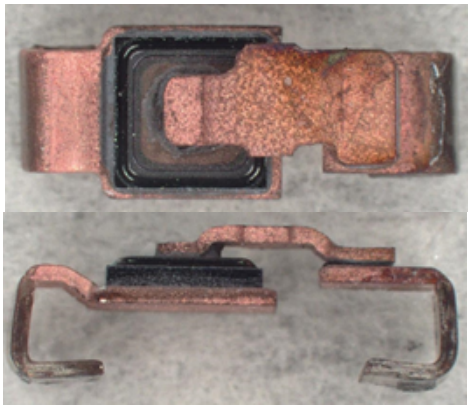
See Table B & Table C for the products affected.

**WEB LINKS**

| | |
|---|---|
| **Terms And Conditions:** | https://www.mccsemi.com/Home/TermsAndConditions |
| **For More Information Contact:** | https://www.mccsemi.com/Contact/Index |
| **Products:** | https://www.mccsemi.com/ProductCategories |

**DISCLAIMER**

**Unless a MCC Sales representative is contacted in writing within 30 days of the posting of this notice, all changes described in this announcement are considered approved.**

| Table A - Appearance comparison(SMA6J18AHE3-TP) | |
|---|---|
| Current appearance and structure | New appearance and structure |
|   |   |
|  |  |
|  |  |

| Table B - List of affected products for industrial series | | | | | |
|---|---|---|---|---|---|
| SMA6J5.0A-TP | SMA6J5.0CA-TP | SMA6J13A-TP | SMA6J13CA-TP | SMA6J28A-TP | SMA6J28CA-TP |
| SMA6J6.0A-TP | SMA6J6.0CA-TP | SMA6J14A-TP | SMA6J14CA-TP | SMA6J30A-TP | SMA6J30CA-TP |
| SMA6J6.5A-TP | SMA6J6.5CA-TP | SMA6J15A-TP | SMA6J15CA-TP | SMA6J33A-TP | SMA6J33CA-TP |
| SMA6J7.0A-TP | SMA6J7.0CA-TP | SMA6J16A-TP | SMA6J16CA-TP | SMA6J36A-TP | SMA6J36CA-TP |
| SMA6J7.5A-TP | SMA6J7.5CA-TP | SMA6J17A-TP | SMA6J17CA-TP | SMA6J40A-TP | SMA6J40CA-TP |
| SMA6J8.0A-TP | SMA6J8.0CA-TP | SMA6J18A-TP | SMA6J18CA-TP | SMA6J43A-TP | SMA6J43CA-TP |
| SMA6J8.5A-TP | SMA6J8.5CA-TP | SMA6J19A-TP | SMA6J19CA-TP | SMA6J45A-TP | SMA6J45CA-TP |
| SMA6J9.0A-TP | SMA6J9.0CA-TP | SMA6J20A-TP | SMA6J20CA-TP | SMA6J48A-TP | SMA6J48CA-TP |
| SMA6J10A-TP | SMA6J10CA-TP | SMA6J22A-TP | SMA6J22CA-TP | SMA6J51A-TP | SMA6J51CA-TP |
| SMA6J11A-TP | SMA6J11CA-TP | SMA6J24A-TP | SMA6J24CA-TP | SMA6J54A-TP | SMA6J54CA-TP |
| SMA6J12A-TP | SMA6J12CA-TP | SMA6J26A-TP | SMA6J26CA-TP | SMA6J58A-TP | SMA6J58CA-TP |

| Table C - List of affected products for automotive series | | | | | |
|---|---|---|---|---|---|
| SMA6J13AHE3-TP | SMA6J13CAHE3-TP | SMA6J19AHE3-TP | SMA6J19CAHE3-TP | SMA6J30AHE3-TP | SMA6J30CAHE3-TP |
| SMA6J14AHE3-TP | SMA6J14CAHE3-TP | SMA6J20AHE3-TP | SMA6J20CAHE3-TP | SMA6J33AHE3-TP | SMA6J33CAHE3-TP |
| SMA6J15AHE3-TP | SMA6J15CAHE3-TP | SMA6J22AHE3-TP | SMA6J22CAHE3-TP | SMA6J36AHE3-TP | SMA6J36CAHE3-TP |
| SMA6J16AHE3-TP | SMA6J16CAHE3-TP | SMA6J24AHE3-TP | SMA6J24CAHE3-TP | SMA6J40AHE3-TP | SMA6J40CAHE3-TP |
| SMA6J17AHE3-TP | SMA6J17CAHE3-TP | SMA6J26AHE3-TP | SMA6J26CAHE3-TP | | |
| SMA6J18AHE3-TP | SMA6J18CAHE3-TP | SMA6J28AHE3-TP | SMA6J28CAHE3-TP | | |

IH-01-YP-01A1

***Micro Commercial Components Corp.***

# AECQ101 Discrete Device Reliability Test Report

| | | |
|---|---|---|
| Product Series：Surface Mount Transient Voltage Suppressor Diodes | Rel test No:RA2021120065 | General Specification: AECQ101 Rev E |
| Package type: DO-214AC (SMA) | Part No:SMA6J18AHE3 | Lot No:SMA |
| MSL Level：1 | Final Lead Finish：100% Matte Sn | Lead frame：EYJ210195/EYJ210196/EYJ210197 |
| Manufactruring site: Yangzhou, China | Chip Type: SMAJ18A70 | Qualification Reliability Date: 2022/1/15 |

| AECQ101 Item | Test Item | Test name | Ref. Specification | Test Condition | Lot # | Sample size | Result Fail/Total | Result | Remark |
|---|---|---|---|---|---|---|---|---|---|
| A1 | PC | Preconditioning | JEDEC/IPC J-STD-020<br>JESD22-A-113 | Performed on surface mount devices prior to TC, AC, H3TRB or HAST, and IOL. | 3 | 308*3 | 0/308*3 | ACC | |
| A2 | HAST | Highly Accelerated Stress Test | JEDEC<br>JESD22-A-110 | 130°C/85%RH, 80% rated VR(TVS:100%VRWM) or 42V max, 96 hours | 3 | 77*3 | 0/77*3 | ACC | |
| A2 alt | H3TRB | High Humidity High Temp. Reverse Bias | JEDEC<br>JESD22-A-101 | 85°C/85%RH, 80% rated VR(TVS:100%VRWM) or 80V max, 1000 hours | NA | NA | NA | NA | Equivalent substitute by HAST |
| A3 | UHAST | Unbiased HAST | JEDEC<br>JESD22-A-118, or A101 | 130°C/85%RH, 96 hours | 3 | 77*3 | 0/77*3 | ACC | |
| A3 alt | AC | Autoclave | JEDEC<br>JESD22-A-102 | Ta = 121°C, P= 15 PSIG, RH = 100%, 96 Hours | NA | NA | NA | NA | Equivalent substitute by UHAST |
| A4 | TC | Temperature Cycling | JEDEC<br>JESD22-A-104 Appendix 6 | -55°C to +150°C, t(dwell>15 min), 1000 Cycles | 3 | 77*3 | 0/77*3 | ACC | |
| A4a | TCHT | Temperature Cycling Hot Test | JEDEC<br>JESD22-A-104 Appendix 6 | 125°C TEST after TC using PV-determined limits at hot, followed by decap and wire pull (Test C3 WBP) on all wires from 5 devices per appendix 6 for parts with internal bond wire sizes 5 mil diameter and less.(Samples may be a sub set of test A4). | NA | NA | NA | NA | Required for MOSFETs parts with internal bond wire sizes 5 mil diameter and less. |
| A4a alt | TCDT | TC Delamination Test | JEDEC<br>JESD22-A-104 Appendix 6<br>J-STD-035 | 100% AM inspection after TC, followed by decap,inspection or wire pull (Test C3 WBS) on all wires from 5 parts per appendix 6 for 5 highest delaminated parts. If AM shows no delaminating, no decap,inspection and wire pull is required. | NA | NA | NA | NA | |
| A5 | IOL | Intermittent Operational Life | MIL-STD-750<br>Method 1037 | Ta=25°C DeltaTj=100°C, t(on)=t(off)= 2 min, 15000 Cycles; | NA | NA | NA | NA | |
| A5 alt | PTC | Power Temperature Cycling | JEDEC<br>JESD22-A-105 | Perform PTC if TJ 100°C cannot be achieved with IOL. | NA | NA | NA | NA | |
| B1 | HTRB | High Temperature Reverse Bias | MILSTD750-1 method M1038A | Tj= max, V=100% rated VR(TVS:100%VRWM), 1000 Hrs | 3 | 77*3 | 0/77*3 | ACC | |
| B1a | ACBV | AC Blocking Voltage | MIL-STD-750-1<br>M1040 Test condition A | Tj= max, AC=100% rated VR, 1000 Hrs | NA | NA | NA | NA | Required for Thyristors only. |
| B1b | SSOP | Steady State Operational | MIL-STD-750-1<br>M1038 condition B (Zeners) | 1000 hours at rated IZ max, TA to rated TJ | NA | NA | NA | NA | Required for Voltage Regulators (Zeners) only. |
| B2 | HTGB | High Temperature Gate Bias | JEDEC<br>JESD22-A-108 | Tj= max, Vgs=100%, 1000 Hrs | NA | NA | NA | NA | Required for MOS & IGBT parts only. |
| C1 | DPA | Destructive Physical Analysis | AEC Q101-004 Section 4 | Choose 2 pcs for DPA after H3TRB and TC respectively | 1 | 4 | 0/4 | ACC | |
| C2 | PD | Physical Dimension | JEDEC<br>JESD22-B-100 | / | NA | NA | NA | NA | Refer to the initial procedure data |
| C3 | WBP | Wire Bond Pull Strength | MIL-STD-750-2<br>Method 2037 for Au and Al wire<br>AEC Q006 for Cu wire | / | NA | NA | NA | NA | |
| C4 | WBS | Wire Bond Shear Strength | AEC Q101-003<br>JESD22 B116 | / | NA | NA | NA | NA | |
| C5 | DS | Die Shear | MIL-STD-750-2<br>Method 2017 | / | NA | NA | NA | NA | |
| C6 | TS | Terminal Strength | MIL-STD-750-2<br>Method 2036 | / | NA | NA | NA | NA | Evaluate lead integrity of through-hole leaded parts only. |
| C7 | RTS | Resistance to Solvents | JEDEC<br>JESD22-B-107 | / | NA | NA | NA | NA | Not required for laser etched parts or parts with no marking. |
| C8 | RSH | Resistance to Solder Heat | JEDEC JESD22-A-<br>111 (SMD),or B-106 (PTH) | 260(+5,-0)℃,10s | 1 | 30 | 0/30 | ACC | |
| C9 | TR | Thermal Resistance | JEDEC JESD24-3, 24-4,24-6 as appropriate | / | NA | NA | NA | NA | Refer to the initial procedure data |
| C10 | SD | Solderability | JEDEC J-STD-002 | 245℃±5℃,3s | 1 | 10 | 0/10 | ACC | * |
| C11 | WG | Whisker Growth Evaluation | AEC-Q005 | / | NA | NA | NA | NA | For whisker requirements. Test to be done on a family basis (plating metallization, lead configuration). |
| C12 | CA | Constant Acceleration | MIL-STD-750-2<br>Method 2006 | / | NA | NA | NA | NA | Items C12 through C15 are sequential tests for hermetic packages. |
| C13 | VVF | Vibration Variable Frequency | JEDEC<br>JESD2-B-103 | / | NA | NA | NA | NA | |
| C14 | MS | Mechanical Shock | JEDEC<br>JESD22-B-104 | / | NA | NA | NA | NA | |
| C15 | HER | Hermeticity | JEDEC<br>JESD22-A-109 | / | NA | NA | NA | NA | |
| D1 | DI | Dielectric Integrity | AEC Q101-004 Section 3 | / | NA | NA | NA | NA | Power MOS & IGBT only. |
| E0 | EV | External Visual | JEDEC<br>JESD22-B101 | Device construction, marking, and workmanship | All | All | 0/ALL | ACC | |
| E1 | TEST | Pre and post stress electrical test | Device specification | / | All | All | 0/ALL | ACC | |
| E2 | PV | Parametric Verification | Device specification | Tested to device specification requirements | 1 | 25 | 0/25 | ACC | |
| E3 | ESDH | ESD HBM Characterization | AEC Q101-001 | 100pF,1500Ω. ±2KV | NA | NA | NA | NA | For ESD capable devices only. |
| E4 | ESDC | ESD CDM Characterization | AEC Q101-005 | ±500V | NA | NA | NA | NA | For ESD capable devices only. |
| E5 | UIS | Unclamped Inductive Switching | AEC Q101-004 Section 2 | | NA | NA | NA | NA | Power MOS and internally clamped IGBTs only. |
| E6 | SC | Short Circuit Characterization | AEC Q101-006 | | NA | NA | NA | NA | For smart power parts only. |

**Remark:** 1.*: Solder-ability Test no need to test electricity, just for cosmetic check.

2.Definition of Test Failure After Stressing:

Test failures are defined as devices exhibiting any of the following criteria:

①. Devices not meeting the electrical test limits defined in the device specification.

②. Devices not remaining within ± 20% of the initial reading of each test (with the exception of leakage limits which are not to exceed 10 times the initial value for moisture tests and 5 times the initial value for all others) after completion of environmental testing.

③. Any device exhibiting external physical damage attributable to the environmental test.

If the cause of failure is due to mishandling or ESD, the failure shall be discounted.

Prepared By: Jiawen Li

Date: 2022/1/15

Approved By: Xiaojun Hou

Date: 2022/1/15