Automotive Electronics Council

Component Technical Committee

AEC Q101 v1.0

Status Update

AEC Workshop

October 2025

Q101 Rev F

- Content will be added to AEC-Q101 to cover Silicon Carbide products
- General requirements and those for Silicon Discretes remain unchanged
- Will be sent for ballot as soon as the Wide Band Gap group finished the SiC-content

Q101 Rev G

- Substantial review of rev. E
- Covering 162 comments and change requests collected during the ballot phase and since publishing of rev. E
- Ballot targeted for mid/end of 2025

Q101 Rev G status

- Discussion of the comments and change requests discussed in task group between July 2024 and February 2025
- Some comments from OEM need further clarification; a meeting with representatives of BMW and Audi is planned
- After this clarification and a final discussion of the requirements the new revision is ready for ballot
- Alignment with the Wide Band Gap task group is needed before the ballot is sent out

Q101 Rev G changes

- Editorial Changes
  - “change-qualification” replaces “re-qualification” where applicable
  - “stress test” replaces “environmental test” where applicable
  - Re-arrangement of text in sections 2.5, 2.6, 3.2.3, 4.1
  - Table 3 “Process Change Guidelines for the Selection of Tests”: row showing old test numbers from rev. D to be removed
  - Table 2 note L: removed, content put into respective “Additional requirements”
  - Table 3 note E: now referring to note W of Table 2
  - Figure A4.1: replace test numbers by the new ones
  - Table A7.1 “Example Basic Calculations for AEC-Q101 Stress Test Conditions and Durations”: Error in row “IOL” will be corrected (going back to text from rev. D)

Q101 Rev G changes

- Addition of an instruction on how to handle mixed components (like Discretes + ICs in one package or die)
- Addition of clarification for bare die qualification: only addressing die related failure mechanisms, package/interconnection failure mechanisms are in the responsibility of the user
- Table 1 “Part Qualification/Re-qualification Lot Requirements” and Section A1.3 “Qualification of Multiple Families and Sites” will be replaced by a table like Table A1.2 in Q100 rev. J
- Exemption of breakdown voltage from shift criterion (<20%) will most likely be removed

Q101 Rev G changes

- Shifts observed in stress tests that stay within the allowed criteria shall be maintained during final testing
- 4.2 Part specific tests: structural similarity for PV and ESD shall be allowed under certain circumstances
- Table 2: move the additional requirements of the test out of the table into an appendix for better readability; add instructions for thermal runaway (also for H3TRB and HAST)
- Add instruction for SSOP in case maximum Tj cannot be reached
- Terminal Strength: refer to JESD22-B105 insetad of MIL-STD-750-2 (2038)

Q101 Rev G changes

- Remove RSH for parts that are not suited for wave soldering
- Clarified the reason for limiting TCHT and TCDT to certain product families
- Appendix 3: Qualification Test Plan example will be removed
- Appendix 5: “Minimum Parametric Test Requirements”:
  - The list of parameters will be adapted to the ones that are specified in the data sheet
  - h_{FE} will be removed from the list of parameters for IGBT

Q101 Rev G open items

- Do we need to detail out requirements for products containing ICs and Discretes?
- Requests from OEM:
  - accept only yearly requalification data as source for generic data (today: no time limit for generic data)
  - technology qualification (tests like TDDB, BDI,…); task group could not imagine how this could look like for discretes
  - add cosmic ray
  - TCDT and TCHT shall be performed in parallel, intention not clear to the task-group
  - consider other packages for ballshear-like tests; discuss suggestions
  - add hot test after stress, this would add high costs to qualifications with limited benefit
- Addition of Mission Profiles: shall it be part of Q101 or a general document (referring to Mission Profile task-group)
- HTRB: replace MIL-standards by JESD22-A108G?

Thank You !