

PCN Number: 20221104000.1 **PCN Date:** November 04, 2022

Title: Qualification of TI Malaysia as an additional Assembly site for select devices

Customer Contact: [PCN Manager](#) **Dept:** Quality Services

Proposed 1st Ship Date: Feb 2, 2023 **Sample Requests accepted until:** Dec 4, 2022*

***Sample requests received after Dec 4, 2022 will not be supported.**

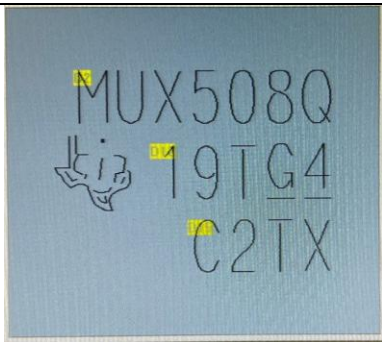
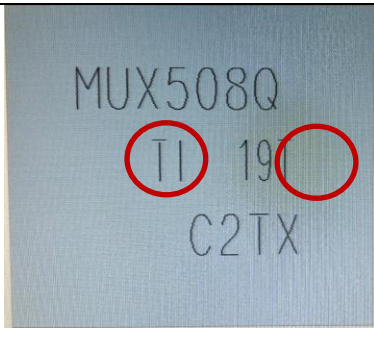
| Change Type: | | |
|-------------------------------------|---------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> | Assembly Site | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Design | <input type="checkbox"/> |
| <input type="checkbox"/> | Test Site | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Wafer Bump Site | <input type="checkbox"/> |
| <input type="checkbox"/> | Wafer Fab Site | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | Assembly Process | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Electrical Specification | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> | Packing/Shipping/Labeling | <input type="checkbox"/> |
| <input type="checkbox"/> | Wafer Bump Material | <input type="checkbox"/> |
| <input type="checkbox"/> | Wafer Fab Materials | <input type="checkbox"/> |
| <input type="checkbox"/> | Part number change | |

PCN Details

Description of Change:

Texas Instruments is pleased to announce the qualification of TI Malaysia as an additional Assembly site. Construction differences are as follows:

| | TAI | MLA |
|---------------|---------|---------|
| Mold compound | 4221499 | 4211880 |

| | Current Device Symbolization | New Device Symbolization |
|---------|---|--|
| **ECAT | Include Value | Remove |
| TI Bug | Include | Replace with "TI" text |
| Example |  |  |

Reason for Change:

Supply continuity

Anticipated impact on Form, Fit, Function, Quality or Reliability (positive / negative):

None

Impact on Environmental Ratings

Checked boxes indicate the status of environmental ratings following implementation of this change. If below boxes are checked, there are no changes to the associated environmental ratings.

| RoHS | REACH | Green Status | IEC 62474 |
|---|---|---|---|
| <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change | <input checked="" type="checkbox"/> No Change |

Changes to product identification resulting from this PCN:

| Assembly Site | Assembly Site Origin (22L) | Assembly Country Code (23L) | Assembly City |
|---------------|----------------------------|-----------------------------|---------------------------|
| TAI | TAI | TWN | Chung Ho, New Taipei City |
| MLA | MLA | MYS | Kuala Lumpur |

Sample product shipping label (not actual product label)

Product Affected:

| | | | |
|-------------|-------------|------------|-------------|
| UCC5310MCD | UCC5350MCD | UCC5350SBD | UCC5350SBDR |
| UCC5310MCDR | UCC5350MCDR | | |

TI Information
Selective Disclosure

Automotive New Product Qualification Summary
(As per AEC-Q100 and JEDEC Guidelines)

Galvatron UCC53xD Automotive and Commercial Offload from TAI to MLA
Approve Date 28-OCTOBER -2022

Product Attributes

| Attributes | Qual Device: UCC5350MCQDRQ1 | QBS Reference: ISO6721BQDRQ1 | QBS Reference: UCC5390ECQDWVQ1 | QBS Reference: ISO5851QDWQ1 | QBS Reference: UCC5350MCQDRQ1 |
|--------------------------|--|---|---|--|--|
| Automotive Grade Level | Grade 1 | Grade 1 | Grade 1 | Grade 1 | Grade 1 |
| Operating Temp Range (C) | -40 to 125 | -40 to 125 | -40 to 125 | -40 to 125 | -40 to 125 |
| Product Function | Interface | Interface | Interface | Interface | Interface |
| Wafer Fab Supplier | DP1DM5, DP1DM5 | MH8, MH8 | DP1DM5, DP1DM5 | MH8, DP1DM5, DP1DM5 | DP1DM5, DP1DM5 |
| Assembly Site | MLA | MLA | TAI | TAI | TAI |
| Package Group | SOIC | SOIC | SOIC | SOIC | SOIC |
| Package Designator | D | D | DWV | DW | D |
| Pin Count | 8 | 8 | 8 | 16 | 8 |

- QBS: Qual By Similarity
- Qual Device UCC5350MCQDRQ1 is qualified at MSL3 260C

Qualification Results

Data Displayed as: Number of lots / Total sample size / Total failed

| Type | # | Test Spec | Min Lot Qty | SS / Lot | Test Name | Condition | Duration | Qual Device: UCC5350MCQDRQ1 | QBS Reference: ISO6721BQDRQ1 | QBS Reference: UCC5390ECQDWVQ1 | QBS Reference: ISO5851ODWQ1 | QBS Reference: UCC5350MCQDRQ1 |
|---|----|-------------------------------------|-------------|----------|-------------------------------|---|------------|--|---|---|--|--|
| Test Group A - Accelerated Environment Stress Tests | | | | | | | | | | | | |
| PC | A1 | JEDEC J-STD-020 JESD22-A113 | 3 | 77 | Preconditioning | MSL1 260C | 1 Step | - | No Fails | - | - | - |
| PC | A1 | JEDEC J-STD-020 JESD22-A113 | 3 | 77 | Preconditioning | MSL3 260C | 1 Step | No Fails | - | - | - | - |
| HAST | A2 | JEDEC JESD22-A110 | 3 | 77 | Biased HAST | 130C/85%RH | 96 Hours | 1/77/0 | 3/231/0 | - | - | - |
| AC/UHAST | A3 | JEDEC JESD22-A102/JEDEC JESD22-A118 | 3 | 77 | Autoclave | 121C/15psig | 96 Hours | 1/77/0 | 3/231/0 | - | - | - |
| TC | A4 | JEDEC JESD22-A104 and Appendix 3 | 3 | 77 | Temperature Cycle | -65C/150C | 500 Cycles | 1/77/0 | 3/231/0 | - | - | - |
| HTSL | A6 | JEDEC JESD22-A103 | 1 | 45 | High Temperature Storage Life | 150C | 1000 Hours | 1/77/0 | - | - | - | - |
| HTSL | A6 | JEDEC JESD22-A103 | 1 | 45 | High Temperature Storage Life | 175C | 500 Hours | - | 3/135/0 | - | - | - |
| Test Group B - Accelerated Lifetime Simulation Tests | | | | | | | | | | | | |
| HTOL | B1 | JEDEC JESD22-A108 | 1 | 77 | Life Test | 125C | 1000 Hours | - | - | 1/77/0 | 3/231/0 | - |
| ELFR | B2 | AEC Q100-008 | 1 | 77 | Early Life Failure Rate | 125C | 48 Hours | - | - | - | 3/2400/0 | - |
| Test Group C - Package Assembly Integrity Tests | | | | | | | | | | | | |
| WBS | C1 | AEC Q100-001 | 1 | 30 | Wire Bond Shear | Minimum of 5 devices, 30 wires Cpk>1.67 | Wires | 1/30/0 | 3/228/0 | - | - | - |
| WBP | C2 | MIL-STD883 Method 2011 | 1 | 30 | Wire Bond Pull | Minimum of 5 devices, 30 wires Cpk>1.67 | Wires | 1/30/0 | 3/228/0 | - | - | - |
| SD | C3 | JEDEC JESD22-B102 | 1 | 15 | PB Solderability | >95% Lead Coverage | - | - | 1/15/0 | - | - | - |
| SD | C3 | JEDEC JESD22-B102 | 1 | 15 | PB-Free Solderability | >95% Lead Coverage | - | - | 1/15/0 | - | - | - |

| PD | C4 | JEDEC JESD22-B100 and B108 | 1 | 10 | Physical Dimensions | Cpk>1.67 | - | 1/10/0 | 3/30/0 | - | - | - |
|---|----|----------------------------|-------------|----------|---------------------------------------|------------------------------|------------|---|---|---|---|---|
| Test Group D - Die Fabrication Reliability Tests | | | | | | | | | | | | |
| EM | D1 | JESD61 | - | - | Electromigration | - | - | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements |
| TDDDB | D2 | JESD35 | - | - | Time Dependent Dielectric Breakdown | - | - | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements |
| HCI | D3 | JESD60 & 28 | - | - | Hot Carrier Injection | - | - | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements |
| NBTI | D4 | - | - | - | Negative Bias Temperature Instability | - | - | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements |
| SM | D5 | - | - | - | Stress Migration | - | - | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements | Completed Per Process Technology Requirements |
| Test Group E - Electrical Verification Tests | | | | | | | | | | | | |
| ESD | E2 | AEC Q100-002 | 1 | 3 | ESD HBM | - | 2000 Volts | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 |
| ESD | E3 | AEC Q100-011 | 1 | 3 | ESD CDM | - | 500 Volts | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 | 1/3/0 |
| LU | E4 | AEC Q100-004 | 1 | 6 | Latch-Up | Per AEC Q100-004 | - | 1/6/0 | 1/6/0 | 1/6/0 | 1/6/0 | - |
| ED | E5 | AEC Q100-009 | 3 | 30 | Electrical Distributions | Cpk>1.67 Room, hot, and cold | - | 1/30/0 | 3/90/0 | 1/30/0 | 1/30/0 | 1/30/0 |
| Additional Tests | | | | | | | | | | | | |
| Type | # | Test Spec | Min Lot Qty | SS / Lot | Test Name | Condition | Duration | Qual Device | QBS Reference | QBS Reference | QBS Reference | QBS Reference |

- Preconditioning was performed for Autoclave, Unbiased HAST, THB/Biased HAST, Temperature Cycle, Thermal Shock, and HTSL, as applicable
- The following are equivalent HTOL options based on an activation energy of 0.7eV : 125C/1k Hours, 140C/480 Hours, 150C/300 Hours, and 155C/240 Hours
- The following are equivalent HTSL options based on an activation energy of 0.7eV : 150C/1k Hours, and 170C/420 Hours
- The following are equivalent Temp Cycle options per JESD47 : -55C/125C/700 Cycles and -65C/150C/500 Cycles

Ambient Operating Temperature by Automotive Grade Level:

- Grade 0 (or E) : -40C to +150C
- Grade 1 (or Q) : -40C to +125C
- Grade 2 (or T) : -40C to +105C
- Grade 3 (or I) : -40C to +85C

E1 (TEST): Electrical test temperatures of Qual samples (High temperature according to Grade level):

- Room/Hot/Cold : HTOL, ED
- Room/Hot : THB / HAST, TC / PTC, HTSL, ELFR, ESD & LU
- Room : AC/ uHAST

Quality and Environmental data is available at TI's external Web site: <http://www.ti.com/>

TI Qualification ID: R-CHG-2108-038

For questions regarding this notice, e-mails can be sent to the contacts shown below or your local Field Sales Representative.

| Location | E-Mail |
|---------------------------|--|
| WW Change Management Team | PCN_ww_admin_team@list.ti.com |

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