



**QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY**

PCN #: CENO-27KHGL858

**Date
June 29, 2021**

Qualification of MMT as an additional assembly site for selected ATSHA204A, ATECC108A, ATECC508A, ATECC608A and ATECC608B device families available in 8L UDFN (2x3x0.6mm) package. The ATAES132A-MAHEQ-S, ATAES132A-MAHER-S, ATAES132A-MAHEQ-T and ATAES132A-MAHER-T catalog part numbers (CPN) available in 8L UDFN (2x3x0.6mm) package will qualify by similarity (QBS).



MICROCHIP PACKAGE QUALIFICATION REPORT

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|----------------------------|---|
| Purpose | Qualification of MMT as an additional assembly site for selected ATSHA204A, ATECC108A, ATECC508A, ATECC608A and ATECC608B device families available in 8L UDFN (2x3x0.6mm) package. The ATAES132A-MAHEQ-S, ATAES132A-MAHER-S, ATAES132A-MAHEQ-T and ATAES132A-MAHER-T catalog part numbers (CPN) available in 8L UDFN (2x3x0.6mm) package will qualify by similarity (QBS). |
| CN | ES355986 |
| QUAL ID | R2100429 Rev A |
| MP CODE | 58962TQ4BSDA |
| Part No. | ATECC608B-MAHDA-S |
| Bonding No. | BDE-006701 Rev. 02 |
| CCB No. | 4641 and 8230 |
| <u>Package</u> | |
| Type | 8L UDFN |
| Package size | 2 x 3 x 0.6 mm |
| <u>Lead Frame</u> | |
| Paddle size | 79 x 67 mils |
| Material | EFTEC 64T |
| Surface | PPF |
| Process | Etched |
| Lead Lock | Yes |
| Part Number | 10100856 |
| <u>Material</u> | |
| Epoxy | 8600 |
| Wire | CuPdAu |
| Mold Compound | G700LTD |
| Plating Composition | NiPdAu |



MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information

| Assembly Lot No. | Wafer Lot No. | Date Code |
|-------------------|-------------------|-----------|
| MMT-220201533.000 | U8CD921455061.100 | 2114RW7 |
| MMT-220201994.000 | U8CD921455061.100 | 2114THD |
| MMT-220201995.000 | U8CD921455061.100 | 2114TJ2 |

Result

Pass Fail _____

8L UDFN (2x3x0.6 mm) assembled by MMT pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS | Result | Remarks |
|--|---|--|----------------|---|--------|-----------------|
| Precondition Prior Perform Reliability Tests (At MSL Level 1) | Electrical Test: +25°C and 85°C System: NEXTEST_PT Bake 150°C, 24 hrs System: CHINEE 85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 Electrical Test: +25°C and 85°C System: NEXTEST_PT | JESD22- A113 JIP/ IPC/JEDEC J-STD-020E | 693(0) | 693 693 693 693 0/693 | Pass | Good Devices |

PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|----------------------------|---|---------------------|----------------|--------------|--------|---|
| Temp Cycle | Stress Condition: -65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H Electrical Test: +25°C and 85°C System: NEXTEST_PT | JESD22A104 | 231(0) | 231 0/231 | Pass | Parts had been pre-conditioned at 260°C 77 units / lot |
| | Stress Condition: -65°C to +150°C, 1000 Cycles System: TABAI ESPEC TSA-70H Electrical Test: +25°C and 85°C System: NEXTEST_PT | | 231(0) | 231 0/231 | Pass | |
| | Bond Strength: Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams) | | 15 (0) | 0/15 | Pass | |
| | | | 15 (0) | 0/15 | Pass | |
| UNBIASEDHAST | Stress Condition: +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: +25°C System: NEXTEST_PT | JESD22-A118 | 231(0) | 231 0/231 | Pass | Parts had been pre-conditioned at 260°C 77 units / lot |
| | Stress Condition: +130°C/85%RH, 192 hrs. System: HAST 6000X Electrical Test: + 25°C System: NEXTEST_PT | | 231(0) | 231 0/231 | Pass | |
| | | | | | | |
| HAST | Stress Condition: +130°C/85%RH, 96 hrs. Bias Volt: 5.5 Volts System: HAST 6000X Electrical Test: +25°C and 85°C System: NEXTEST_PT | JESD22-A110 | 231(0) | 231 0/231 | Pass | Parts had been pre-conditioned at 260°C 77 units / lot |
| | Stress Condition: +130°C/85%RH, 192 hrs. Bias Volt: 5.5 Volts System: HAST 6000X Electrical Test: +25°C and 85°C System: NEXTEST_PT | | 231(0) | 231 0/231 | Pass | |
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PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|--------------------------------------|--|----------------------|-----------------|------------------|--------|----------|
| High Temperature Storage Life | Stress Condition: Bake 175°C, 504 hrs System: SHEL LAB | JESD22A103 | | 45 | | 45 units |
| | Electrical Test: +25°C and 85°C System: NEXTEST_PT | | 45(0) | 0/45 | Pass | |
| Solderability Temp 215°C | Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63, Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection | J-STD-002 | 22 (0) | 22 22 0/22 | Pass | |
| Solderability Temp 245°C | Steam Aging: Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection | J-STD-002 | 22 (0) | 22 22 0/22 | Pass | |
| Wire sweep | Wire sweep Inspection 15 Wires / lot | - | 45(0) Wires | 0/45 | Pass | |
| Physical Dimensions | Physical Dimension, 10 units from 1 lot | JESD22-B100/B108 | 30(0) Units | 0/30 | Pass | |
| Bond Strength Data Assembly | Wire Pull (> 2.5 grams) | Mil.Std. 883-2011 | 30 (0) Wires | 0/30 | Pass | |
| | Bond Shear (>15.00 grams) | CDF-AECQ100-001 | 30 (0) bonds | 0/30 | Pass | |