



Product Change Notification - KSRA-07HVQF409

Date:

11 Dec 2019

Product Category:

Others; 8-bit Microcontrollers; Temperature Sensors; Memory; Capacitive Touch Sensors

Affected CPNs:**Notification subject:**

CCB 4031 Initial Notice: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

Notification text:**PCN Status:**

Initial notification.

PCN Type:

Manufacturing Change

Microchip Parts Affected:

Please open one of the icons found in the Affected CPNs section above.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).

Description of Change:

Qualification of Microchip Technology Tempe - Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

Pre Change:

Fabricated at Microchip Technology Colorado - Fab 5 (MCSO) using 6 inch wafer

Post Change:

Fabricated at Microchip Technology Colorado - Fab 5 (MCSO) using 6 inch wafer or Microchip Technology Tempe - Fab 2 (TMGR) using 8 inch wafer

Pre and Post Change Summary:

| | Pre Change | Post Change | |
|--|--|--|---|
| Fabrication Supplier and Location | Microchip Technology Colorado - Fab 5 (MCSO) | Microchip Technology Colorado - Fab 5 (MCSO) | Microchip Technology Tempe - Fab 2 (TMGR) |
| Wafer Diameter | 6 inches | 6 inches | 8 inches |
| Die size | No change | No change | No change |
| Quality Certification | ISO9001/TS16949 or IATF16949 | ISO9001/TS16949 or IATF16949 | ISO9001/TS16949 or IATF16949 |

Impacts to Data Sheet:

None

Change Impact:

None

Reason for Change:

To improve manufacturability and on-time delivery performance by qualifying a second fabrication source at Microchip Technology Tempe - Fab 2 (TMGR) fabrication site.

Change Implementation Status:

In Progress

Estimated Qualification Completion Date:

June 2020

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and



a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary:

| Workweek | December 2019 | | | | --> | June 2020 | | | | |
|--------------------------|---------------|----|----|----|-----|-----------|----|----|----|----|
| | 49 | 50 | 51 | 52 | | 23 | 24 | 25 | 26 | 27 |
| Initial PCN Issue Date | | X | | | | | | | | |
| Qual Report Availability | | | | | | | | | | X |
| Final PCN Issue Date | | | | | | | | | | X |

Method to Identify Change:

Traceability code

Qualification Plan:

Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

Revision History:

December 11, 2019: Issued initial notification.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachment(s):

[PCN_KSRA-07HVQF409_Qual_Plan.pdf](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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QUALIFICATION PLAN SUMMARY

PCN #: KSRA-07HVQF409

**Date:
November 01, 2019**

**Qualification of Microchip Technology Tempe – Fab 2 (TMGR)
as an additional fabrication site for selected Atmel products.**

Purpose: Qualification of Microchip Technology Tempe – Fab 2 (TMGR) as an additional fabrication site for selected Atmel products.

CCB No: 4031

Die Qualification Plan: 3 lots per QCI-39000

| Test / Evaluation | Test Conditions / Parameters |
|--|---|
| Operating (Dynamic) Life | <ul style="list-style-type: none"> • 150°C for 408 hrs at Vdd max |
| High Temp. Retention Bake (DLT) / High Temperature Operating Life (HTOL) | <ul style="list-style-type: none"> • 504 hrs @ 175°C. |
| Endurance Cycling | <ul style="list-style-type: none"> • 10,000 flash Erase/Write cycles at 85°C • 100,000 EEPROM Erase/Write cycles at 85°C |
| ESD HBM | <ul style="list-style-type: none"> • Tested at 500V, 1000V, and 2000V |
| Latch-up | <ul style="list-style-type: none"> • Should meet a minimum of +/- 105mA injection on I/O pins with a clamp of 1.5 x VMax on the positive injection and 0.5 x VMax on the negative injection. Power supply pin shall be stressed at 1.5 x VMax with a 200mA clamp. |
| Electrical Validation | <ul style="list-style-type: none"> • 30 units from one wafer lot. Datalog parameters at room, hot and cold at vcc min/max and frequency min/max. Collection of this data may be done as part of any qualification test's pre or post functional testing or from a separate group of parts" |

Package Qualification Plan

| | | |
|--------------------------|--|-----------------|
| <u>Misc.</u> | Assembly site | MMT |
| | BD Number | BDM-002184/A |
| | MP Code (MPC) | TBD |
| | Part Number (CPN) | ZL88601LDG1 |
| | MSL information | MSL-1/260 |
| | Assembly Shipping Media (T/R, Tube/Tray) | Tray |
| | Base Quantity Multiple (BQM) | 1300 |
| | Reliability Site | MTAI |
| <u>Lead-Frame</u> | Paddle size | 311x311 mils |
| | Material | A194 |
| | DAP Surface Prep | Ag Ring Plated |
| | Treatment | BOT |
| | Process | Etched |
| | Lead-lock | Yes |
| | Part Number | TBD |
| | Lead Plating | Matte Tin |
| | Strip Size | 70x250mm |
| | Strip Density | 120 units/strip |
| <u>Bond Wire</u> | Material | CuPdAu |
| <u>Die Attach</u> | Part Number | 3280 |
| | Conductive | Yes |
| <u>MC</u> | Part Number | G700LTD |
| <u>PKG</u> | PKG Type | VQFN |
| | Pin/Ball Count | 64 |
| | PKG width/size | 9x9x1.0mm |

| Test Name | Conditions | Sample Size | Min. Qty of Spares per Lot (should be properly) | Qty of Lots | Total Units | Fail Accept Qty | Est. Dur. Days | Test Site | Special Instructions |
|--|---|---|---|-------------|-------------|---------------------|----------------|-------------------------|--|
| Standard Pb-free Solderability | J-STD-002; Perform 8 hour steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Standard Pb-free: Matte tin/ NiPdAu finish, SAC solder, wetting temp 245°C for both SMD & through hole packages. | 22 | 5 | 1 | 27 | > 95% lead coverage | 5 | MTAI | Standard Pb-free solderability is the requirement. SnPb solderability (backward solderability- SMD reflow soldering) is required for any plating related changes and highly recommended for other package BOM changes. |
| Backward Solderability | J-STD-002 ;Perform 8 hours steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Backward: Matte tin/ NiPdAu finish, SnPb solder, wetting temp 215°C for SMD. | 22 | 5 | 1 | 27 | > 95% lead coverage | 5 | MTAI | |
| Wire Bond Pull - WBP | Mil. Std. 883-2011 | 5 | 0 | 3 | 15 | 0 fails after TC | 5 | MMT/MTAI | 30 bonds from a minimum of 5 devices. |
| Wire Bond Shear - WBS | CDF-AEC-Q100-001 | 5 | 0 | 3 | 15 | 0 | 5 | MMT/MTAI | 30 bonds from a minimum of 5 devices. |
| Wire Sweep | | 5 | 0 | 3 | 15 | 0 | | MMT | Required for any reduction in wire bond thickness. |
| Die Shear | Mil. Std. 883-2011 | 5 | 0 | 3 | 15 | 0 | | | |
| Physical Dimensions | Measure per JESD22 B100 and B108 | 10 | 0 | 3 | 30 | 0 | 5 | MMT | |
| External Visual | Mil. Std. 883-2009/2010 | All devices prior to submission for qualification testing | 0 | 3 | ALL | 0 | 5 | MMT/ MTAI | |
| Preconditioning - Required for surface mount devices | +150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020E for package type; Electrical test pre and post stress at +25°C MSL1/MSL3 @ 260°C | 231 | 15 | 3 | 738 | 0 | 15 | MTAI Post test: ASEM | Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test. |
| Biased HAST | +130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C. | 77 | 5 | 3 | 246 | 0 | 10 | MTAI Post test: ASEM | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |
| Unbiased HAST | +130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C. | 77 | 5 | 3 | 246 | 0 | 10 | MTAI Post test: ASEM | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |
| Temp Cycle | -65°C to +150°C for 500 cycles. Electrical test pre and post stress at hot temp; 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress. | 77 | 5 | 3 | 246 | 0 | 15 | MTAI Post test: ASEM | Spares should be properly identified. Use the parts which have gone through Pre-conditioning. |

Affected Catalog Part Numbers(CPN)

ATMEGA1284P-PU
ATMEGA1284-PU
ATMEGA1284P-MU
ATMEGA1284-MU
ATMEGA1284P-AU
ATMEGA1284-AU
ATMEGA1284P-MUR
ATMEGA1284-MUR
ATMEGA1284P-AUR
ATMEGA1284-AUR
ATTINY88-PU
ATTINY88-MMU
ATTINY88-MMH
ATTINY88-MU
ATTINY88-AU
ATTINY88-MMUR
ATTINY88-MMHR
ATTINY88-MUR
AT42QT1110-MUR
AT42QT2100-MUR
ATTINY88-MURA1
ATTINY88-AUR
AT42QT1110-AUR
ATTINY88-15MZ
AT42QT1110-MZ
ATTINY88HGM-15MZ
ATTINY88HGM-15MZ-V01
ATTINY88-15MZVAO
ATTINY88-15AZ
AT42QT1110-AZ
ATMEGA128-16MU
ATMEGA128A-MU
ATMEGA128A-AUA2
ATMEGA128L-8AU
ATMEGA128A-AU
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ATMEGA324PA-AUA1
ATMEGA324PA-PN
ATMEGA324PA-MN
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ATMEGA324PA-MNR
ATMEGA324PA-ANR
ATMEGA324PA-MCHR
AT42QT5480-MUR
AT42QT18C15-MUR
ATMEGA324PA-MUR
ATMEGA324A-MUR
ATMEGA324PA-MURA2
ATMEGA324PHBL-B15MT
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ATMEGA324A-AUR
ATMEGA324A-AURA3
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ATTINY43U-MU
ATTINY43U-SUR
ATTINY43U-MUR
ATTINY13A-SF

ATTINY13A-MMF
ATTINY13A-SSH
ATTINY13A-SH
ATTINY13A-SSU
ATTINY13A-SU
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ATTINY13A-MMU
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ATTINY13A-SS7RA3
ATTINY13A-SS7R
ATTINY13A-SNR
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ATMEGA16-16AUA2
AT42QT2640-AU
AT42QT1481-AU
ATMEGA16L-8AU
AT42QT1481-AN
AT42QT1481-ANR
ATMEGA16A-MUR
ATMEGA16L-8MUR
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ATTINY9-MAHR
ATTINY5-MAHRB50
ATTINY5-MAHRAO
ATTINY10-TS8R
ATTINY10-TS8R526
ATTINY4-TS8R
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ATTINY9-TS8R
ATTINY10-TS8RB67
ATTINY10-TS8RB68
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ATMEGA164PA-MCH
ATMEGA164A-MU
ATMEGA164PA-MU
ATMEGA164PA-AU
ATMEGA164A-AU
ATMEGA164A-AUA2
ATMEGA164PA-MN
ATMEGA164PA-AN
ATMEGA164PA-MNR
ATMEGA164PA-ANR
ATMEGA164A-CUR
ATMEGA164PA-CUR
ATMEGA164A-MCHR
ATMEGA164PA-MCHR
ATMEGA164A-MUR
ATMEGA164PA-MUR
ATMEGA164PA-AUR
ATMEGA164A-AUR
ATMEGA164A-AURA2
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ATMEGA164P-B15AZ
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ATMEGA48PA-15MZ
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ATTINY2313A-MU
ATTINY2313A-SUR
ATTINY2313A-MMHR
ATTINY2313A-MUR
ATTINY4313-SU
ATTINY4313-PU
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ATTINY4313-MU
ATTINY4313-SUR
ATTINY4313-MMHR
ATTINY4313-MUR
ATMEGA644A-PU
ATMEGA644PA-PU
ATMEGA644PA-MU
ATMEGA644A-MU
ATMEGA644A-AU
ATMEGA644PA-AU
ATMEGA644PA-MN
ATMEGA644PA-AN
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ATTINY20-CCU
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ATTINY20-XU
ATTINY20-MMH

AT42QT1050-MMH
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ATTINY20-SSUR704
ATTINY20-SSUR892
ATTINY20-SSUR988
ATTINY20-SSURA01
ATTINY20-SSURA87
ATTINY20-XUR
AT42QT1050-UUR
ATTINY20-UUR
AT42QT1070-MMHR
ATTINY20-MMHR
AT42QT1050-MMHR
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ATTINY40-XU
AT42QT2120-XU
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AT42QT2120-SU
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ATTINY40-MMHRA0
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ATTINY84A-SSFRA1
ATTINY84A-MF
ATTINY84A-CCU
ATTINY84A-PU
ATTINY84A-SSU
ATTINY84A-SSU710
ATTINY84A-MMH
ATTINY84A-MU
ATTINY84A-CCUR
ATTINY84A-SSUR
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ATTINY84A-MMHRA02
ATTINY84A-MMHRB81
ATTINY84A-MUR
ATTINY84A-SSFRP01
ATTINY84A-SSFR
ATTINY84A-SSFRA0
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ATTINY84A-MFR
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ATTINY1634-SU
ATTINY1634-MU
ATTINY1634R-MU
ATTINY1634-MU874
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ATTINY1634-MNR
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ATTINY1634-SUR
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ATTINY828-MUR
ATTINY828-AUR
ATTINY828R-AUR
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ATTINY841-MU
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ATTINY441-MMH
ATTINY441-MU
ATTINY441-SSUR
ATTINY441-MMHR
ATTINY441-MMHRA0
ATTINY441-MUR
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ATTINY102F-SSF
ATTINY104-SSF
ATTINY102-SSN
ATTINY102F-SSN
ATTINY104-SSN
ATTINY102-SSNR
ATTINY102F-SSNR

ATTINY104-SSNR
ATTINY104F-SSNR
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ATTINY102F-M7R
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AT30TSE004A-MAA5M-T
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AT25040B-CUL-T
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