# Product Change Notification - GBNG-05QUVX037

**Date:**

19 Dec 2018

**Product Category:**

8-bit Microcontrollers

**Affected CPNs:**

**Notification subject:**

CCB 3496 Final Notice: Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 100L TQFP (14x14x1.0mm) package.

**Notification text:**

**PCN Status:**

Final 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 MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 100L TQFP (14x14x1.0mm) package.

**Pre Change:**

Assembled in ASE using Au, PdCu or CuPdAu wire, CRM-1076WA die attach, G631H mold compound and C7025 lead frame material with MSL 3 classification or assembled in LPI using Au or CuPdAu wire and CRM-1033BF die attach material with MSL 3 classification.

**Post Change:**

Assembled in ASE using Au, PdCu or CuPdAu wire, CRM-1076WA die attach, G631H mold compound and C7025 lead frame material with MSL 3 classification or assembled in LPI using Au or CuPdAu wire and CRM-1033BF die attach material with MSL 3 classification.or assembled in MMT using Au wire, 3280 die attach, G700 mold compound and C194 lead frame material with MSL 1 or MSL 2 classification.

**Pre and Post Change Summary:**

| | Pre Change | | | | | Post Change | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Assembly Site** | ASE Inc. Taiwan (ASE) | | | Lingsen Precision Industries, LTD. (LPI) | | ASE Inc. Taiwan (ASE) | | | Lingsen Precision Industries, LTD. (LPI) | | Microchip Technology Thailand (Branch) (MMT) |
| **Wire material** | Au | PdCu | CuPd Au | Au | CuPd Au | Au | PdCu | CuPdAu | Au | CuPdAu | Au |
| **Die attach material** | CRM-1076WA | | | CRM-1033BF | | CRM-1076WA | | | CRM-1033BF | | 3280 |

| | | | | | |
|---|---|---|---|---|---|
| **Molding compound material** | G631H | G700 | G631H | G700 | G700 |
| **Lead frame material** | C7025 | C194 | C7025 | C194 | C194 |
| **MSL Classification** | MSL 3 | MSL 3 | MSL 3 | MSL 3 | MSL 1 or MSL 2 |

**Impacts to Data Sheet:**
None
**Change Impact:**
None
**Reason for Change:**
To Improve on-time delivery performance by qualifying MMT as an additional assembly site.

**Change Implementation Status:**
In Progress
**Estimated First Ship Date:**
January 19, 2019 (date code: 1903)
NOTE: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

**Time Table Summary:**

| | August 2018 | | | | | -> | December 2018 | | | | | January 2019 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Workweek | 31 | 32 | 33 | 34 | 35 | | 48 | 49 | 50 | 51 | 52 | 01 | 02 | 03 | 04 | 05 |
| Initial PCN Issue Date | | X | | | | | | | | | | | | | | |
| Qual Report Availability | | | | | | | | | | X | | | | | | |
| Final PCN Issue Date | | | | | | | | | | X | | | | | | |
| Estimated Implementation Date | | | | | | | | | | | | | | X | | |

**Method to Identify Change:**
Traceability code
**Qualification Report:**
Please open the attachments included with this PCN labeled as PCN_#_Qual Report.
**Revision History:**
**August 09, 2018:** Issued initial notification.
**December 19, 2018:** Issued final notification. Attached the qualification report. Provided estimated first ship date to be on January 19, 2019.
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_GBNG-05QUVX037_Qual_Report.pdf

Please contact your local Microchip sales office with questions or concerns regarding this

notification.

**Terms and Conditions:**

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If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN)

ATMEGA1280-16AU
ATMEGA1280-16AU-HCM
ATMEGA1280-16AUR
ATMEGA1280V-8AU
ATMEGA1280V-8AUR
ATMEGA2560-16AUA0
ATMEGA2560-16AU-HCM
ATMEGA2560-16AUR
ATMEGA2560-16AURA0
ATMEGA2560V-8AU
ATMEGA2560V-8AUA0
ATMEGA2560V-8AUR
ATMEGA2560V-8AURA0
ATMEGA3250-16AU
ATMEGA3250-16AUR
ATMEGA3250A-AU
ATMEGA3250A-AUR
ATMEGA3250P-20AU
ATMEGA3250P-20AUR
ATMEGA3250PA-AU
ATMEGA3250PA-AUR
ATMEGA3250PV-10AU
ATMEGA3250PV-10AUR
ATMEGA3250V-8AU
ATMEGA3250V-8AUR
ATMEGA3290-16AU
ATMEGA3290-16AUR
ATMEGA3290A-AU
ATMEGA3290A-AUR
ATMEGA3290P-20AU
ATMEGA3290P-20AUR
ATMEGA3290PA-AU
ATMEGA3290PA-AUR
ATMEGA3290PV-10AU
ATMEGA3290PV-10AUA0
ATMEGA3290PV-10AUR
ATMEGA3290V-8AU
ATMEGA3290V-8AUR
ATMEGA640-16AU
ATMEGA640-16AUR
ATMEGA640-16AURA0
ATMEGA640V-8AU
ATMEGA640V-8AUR
ATMEGA6450-16AU
ATMEGA6450-16AUR
ATMEGA6450A-AU

ATMEGA6450A-AUR
ATMEGA6450P-AU
ATMEGA6450P-AUR
ATMEGA6450V-8AU
ATMEGA6450V-8AUR
ATMEGA6490-16AU
ATMEGA6490-16AUR
ATMEGA6490A-AU
ATMEGA6490A-AUR
ATMEGA6490P-AU
ATMEGA6490P-AUR
ATMEGA6490V-8AU
ATMEGA6490V-8AUR
ATXMEGA128A1-AU
ATXMEGA128A1-AUR
ATXMEGA128A1U-AN
ATXMEGA128A1U-ANR
ATXMEGA128A1U-AU
ATXMEGA128A1U-AUR
ATXMEGA128B1-ANR
ATXMEGA128B1-AU
ATXMEGA128B1-AUR
ATXMEGA128B1-AURA0
ATXMEGA64A1-AU
ATXMEGA64A1-AUR
ATXMEGA64A1U-AU
ATXMEGA64A1U-AUR
ATXMEGA64B1-ANR
ATXMEGA64B1-AU
ATXMEGA64B1-AUA0
ATXMEGA64B1-AUR

# QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

## PCN #: GBNG-05QUVX037

**Date:**
**December 11, 2018**

## Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 100L TQFP (14x14x1.0mm) package.

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# PACKAGE QUALIFICATION REPORT

**Purpose:** **Qualification of MMT as an additional assembly site for selected Atmel products of the 35.4K, 35.5K and 35.9K wafer technologies available in 100L TQFP (14x14x1.0mm) package.**

| | |
|---|---|
| **CCB** | 3496 |
| **CN** | ES243709 |
| **QUAL ID** | Q18177 Rev. A |
| **MP CODE** | 355E37E5XA01 |
| **Part No.** | ATMEGA2560-16AU |
| **Bonding No.** | BDM-001881 REV. C |
| **Package** | |
| **Type** | 100L TQFP |
| **Package size** | 14x14x1.0 mm |
| **Die thickness** | 11 mils |
| **Die size** | 261.0x213.0 mils |
| **Lead Frame** | |
| **Paddle size** | 280x280 mils |
| **Material** | C7025 |
| **Surface** | Bare Cu |
| **Process** | Etched |
| **Lead Lock** | No |
| **Part Number** | 10110005 |
| **Treatment** | BOT |
| **Material** | |
| **Epoxy** | 3280 |
| **Wire** | Au wire |
| **Mold Compound** | G700HA |
| **Plating Composition** | Matte Tin |

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# PACKAGE QUALIFICATION REPORT

**Manufacturing Information**

| Assembly Lot No. | Wafer Lot No. | Date Code |
|---|---|---|
| MMT-192701602.000 | MCS0519217904.120 | 1840576 |
| MMT-192701603.000 | MCS0519217904.120 | 1840577 |
| MMT-192701604.000 | MCS0519217904.120 | 1840578 |

**Result** [X] Pass [ ] Fail [ ] _____

100L TQFP 14x14x1.0mm assembled by MMT pass reliability test per QCI-39000.This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 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 |
|---|---|---|---|---|---|---|
| **Moisture/Reflow Sensitivity Classification Test (At MSL Level 3)** | 30°C/ 60%RH Moisture Soak 192 hrs.<br>System: TABAI ESPEC Model PR-3SPH<br>3x Convection-Reflow 265°C max<br>System: Vitronics Soltec MR1243<br>( IPC/JEDEC J-STD-020E) | IPC/JEDEC J-STD-020E | 135 | 0/135 | Pass | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **<u>Precondition Prior Perform Reliability Tests</u>** **(At MSL Level 3)** | **Electrical Test :**+25°C and 85°C<br>System: NEX TEST GT | JESD22-A113 | 693(0) | 693 | | Good Devices |
| | Bake 150°C, 24 hrs<br>System: CHINEE | | | 693 | | |
| | 30°C/60%RH Moisture Soak 192 hrs.<br>System: TABAI ESPEC Model PR-3SPH | | | 693 | | |
| | 3x Convection-Reflow 265°C max<br>System: Vitronics Soltec MR1243 | | | 693 | | |
| | **Electrical Test :**+25°C and 85°C<br>System: NEX TEST GT | | | 0/693 | Pass | |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|---|---|---|---|---|---|---|
| **Temp Cycle** | **Stress Condition:**<br>-65°C to +150°C, 500 Cycles<br>System : TABAI ESPEC TSA-70H | JESD22-A104 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** + 85°C<br>System: NEX TEST GT | | 231(0) | 0/231 | Pass | 77 units / lot |
| | **Bond Strength:**<br>Wire Pull (> 2.5 grams) | | 15 (0) | 0/15 | Pass | |
| | Bond Shear (>15.00 grams) | | 15 (0) | 0/15 | Pass | |
| **UNBIASED-HAST** | **Stress Condition:**<br>+130°C/85%RH, 96 hrs.<br>System: HAST 6000X | JESD22-A118 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:** +25°C<br>System: NEX TEST GT | | 231(0) | 0/231 | Pass | 77 units / lot |
| **HAST** | **Stress Condition:**<br>+130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts<br>System: HAST 6000X | JESD22-A110 | | 231 | | Parts had been pre-conditioned at 260°C |
| | **Electrical Test:**+25°C and 85°C<br>System: NEX TEST GT | | 231(0) | 0/231 | Pass | 77 units / lot |
| **High Temperature Storage Life** | **Stress Condition:**<br>Bake 175°C, 504 hrs<br>System: SHEL LAB | JESD22-A103 | | 45 | | 45 units |
| | **Electrical Test :**+25°C and 85°C<br>System: NEX TEST GT | | 45(0) | 0/45 | Pass | |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|---|---|---|---|---|---|---|
| **Solderability**<br>**Temp 215°C** | **Steam Aging:** Temp 93°C,8Hrs<br>System: SAS-3000<br>Solder Dipping: Solder Temp.215°C<br>Solder material: SnPb Sn63,Pb37<br>System: ERSA RA 2200D<br>Visual Inspection: External Visual Inspection | J-STD-002 | 22 (0) | 22<br>22<br>0/22 | Pass | |
| **Solderability**<br>**Temp 245°C** | **Steam Aging:** Temp 93°C,8Hrs<br>System: SAS-3000<br>Solder Dipping:Solder Temp.245°C<br>Solder Material:Pb Free Sn 95.5Ag3.9 Cu0.6<br>System: ERSA RA 2200D<br>Visual Inspection: External Visual Inspection | J-STD-002 | 22 (0) | 22<br>22<br>0/22 | Pass | |
| **Wire sweep** | Wire sweep Inspection<br>15 Wires / lot from 3 lots | - | 45(0)<br>Wires | 0/45 | Pass | |
| **Physical**<br>**Dimensions** | Physical Dimension,<br>10 units/lot from 3 lots | JESD22-B100/B108 | 30(0)<br>Units | 0/30 | Pass | |
| **Bond Strength**<br>**Data Assembly** | Wire Pull (> 2.5 grams)<br><br>Bond Shear (>15.00 grams) | M2011<br><br>JESD22-B116 | 30 (0)<br>Wires<br><br>30 (0)<br>bonds | 0/30<br><br>0/30 | Pass<br><br>Pass | |