# Product Change Notification - GBNG-11DXBN660

**Date:** 31 Aug 2017

**Product Category:** Interface- Serial Peripherals

**Notification subject:** CCB 2770 Final Notice: Qualification of CuPdAu bond wire and C194 lead frame material in selected products of the 150K wafer technology available in 20L QFN package at NSEB assembly site.

**Notification text:**

**PCN Status:**
Final notification

**Microchip Parts Affected:**
Please open the attachments found in the attachments field below labeled as PCN_#_Affected_CPN.

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

**Description of Change:**
Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material in selected products of the 150K wafer technology available in 20L QFN package at NSEB assembly site.

**Pre Change:**
Using gold (Au) bond wire and EFTEC-64T lead frame material.

**Post Change:**
Using palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material.

**Pre and Post Change Summary:**

| | Pre Change | Post Change |
|---|---|---|
| **Assembly Site** | NSEB assembly site | NSEB assembly site |
| **Wire material** | Au wire | CuPdAu wire |
| **Die attach material** | 8600 | 8600 |
| **Molding compound material** | G700LTD | G700LTD |
| **Lead frame material** | EFTEC-64T | C194 |

**Impacts to Data Sheet:**
None

**Change Impact:**
None

**Reason for Change:**
To improve manufacturability by qualifying palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material at NSEB assembly site.

**Change Implementation Status:**
In Progress

**Estimated First Ship Date:**
September 16, 2017 (1737)

NOTE: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

**Time Table Summary:**

| | October 2016 | -> | August 2017 | September 2017 |
|---|---|---|---|---|

| Workweek | 41 | 42 | 43 | 44 | | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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:**
**October 20, 2016:** Issued initial notification.
**August 16, 2017:** Issued final notification. Attached the Qualification Report. Provided estimated first ship date on September 16, 2017
**August 31, 2017:** Re-issued final notification to update subject from Initial Notice to Final Notice.

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-11DXBN660_Affected_CPN.pdf
PCN_GBNG-11DXBN660_Qual Report.pdf
PCN_GBNG-11DXBN660_Affected_CPN.xlsx

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

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Affected Catalog Part Number (CPN)

| PCN_GBNG-11DXBN660 |
|---|
| **CATALOG_PART_NBR** |
| MCP23008-E/ML |
| MCP23008T-E/ML |
| MCP23S08-E/ML |
| MCP23S08T-E/ML |

# QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

## PCN #: GBNG-11DXBN660

**Date**
**May 25, 2017**

## Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material in selected products of the 150K wafer technology available in 20L QFN package at NSEB assembly site.

# PACKAGE QUALIFICATION REPORT

| | |
|---|---|
| **Purpose** | Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material in selected products of the 150K wafer technology available in 20L QFN package at NSEB assembly site. |
| **CN** | ES094303 |
| **QUAL ID** | Q17038 |
| **MP CODE** | C5BQ14G4XA00 |
| **Part No.** | MCP23008-E/ML |
| **Bonding No.** | BDM-001185 Rev. A |
| **CCB No.** | 2770 |
| **<u>Package</u>** | |
| **Type** | 20L QFN |
| **Package size** | 4x4x0.9 mm |
| **Die thickness** | 11 mils |
| **Die size** | 47.20 x 55.60 mils |
| **<u>Lead Frame</u>** | |
| **Paddle size** | 114 x 114 mils |
| **Material** | C194-FH |
| **Surface** | Ag on lead + Ag ring |
| **Process** | Etched |
| **Lead Lock** | Yes |
| **Part Number** | FR0995 |
| **Treatment** | In-house roughening |
| **<u>Material</u>** | |
| **Epoxy** | 8600 |
| **Wire** | CuPdAu wire |
| **Mold Compound** | G700LTD |
| **Plating Composition** | Matte Tin |

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# PACKAGE QUALIFICATION REPORT

**Manufacturing Information**

| Assembly Lot No. | Wafer Lot No. | Date Code |
|---|---|---|
| NSEB174100377.000 | TMPE216205905.210 | 1701UG0 |
| NSEB174100378.000 | TMPE216205905.210 | 1701UG1 |
| NSEB174200004.000 | TMPE216205905.210 | 1702UEY |

**Result** [X] Pass [ ] Fail [ ] ____________________

20L QFN (4x4x0.9) assembled by UTL (NSEB) 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-020D 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 1)** | 85°C/ 85%RH Moisture Soak 168 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-020D) | IPC/JEDEC J-STD-020D | 198 | 0/198 | Pass | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Precondition Prior Perform Reliability Tests (At MSL Level 1)** | **Electrical Test :**+25°C and 85°C<br>System: J750 | JESD22-A113 | 693(0) | 693 | | Good Devices |
| | Bake 150°C, 24 hrs<br>System: CHINEE | | | 693 | | |
| | 85°C/85%RH Moisture Soak 168 hrs.<br>System: TABAI ESPEC Model PR-3SPH | | | 693 | | |
| | 3x Convection-Reflow 265°C max | | | 693 | | |
| | System: Vitronics Soltec MR1243 | | | | | |
| | **Electrical Test :**+25°C and 85°C<br>System: J750 | | | 0/693 | Pass | |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|---|---|---|---|---|---|---|
| **Temp Cycle** | **Stress Condition:** (Standard)<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: J750 | | 231(0) | 0/231 | Pass | |
| **UNBIASED-HAST** | **Stress Condition:** (Standard)<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: J750 | | 231(0) | 0/231 | Pass | 77 units / lot |
| **HAST** | **Stress Condition:** (Standard)<br>+130°C/85%RH, 96 hrs. **Bias Volt:** 5.0 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: J750 | | 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: J750 | | 45(0) | 0/45 | Pass | |
| **Bond Strength Data Assembly** | Wire Pull (>7.0 grams) | M2011 | 30 (0) Wires | 0/30 | Pass | |
| | Bond Shear (>15.00 grams) | JESD22-B116 | 30 (0) bonds | 0/30 | Pass | |