# Product Change Notification - KSRA-20QCEH898

**Date:**

15 Aug 2019

**Product Category:**

8-bit Microcontrollers

**Affected CPNs:**

**Notification subject:**

CCB 3074 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond in selected products of the 200K wafer technology available in 8L DFN (2x3x0.9mm) package at NSEB assembly site

**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 palladium coated copper with gold flash (CuPdAu) bond in selected products of the 200K wafer technology available in 8L DFN (2x3x0.9mm) package at NSEB assembly site

**Pre Change:**

Using gold (Au) bond wire, 8200T or 8600 die attach material, G770HCD or G700LTD molding compound material and EFTEC-64T lead frame material

**Post Change:**

Using palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach material, G700LTD molding compound material and C194 lead frame material

**Pre and Post Change Summary:**

| | Pre Change | | Post Change |
|---|---|---|---|
| **Assembly Site** | UTAC Thai Limited LTD. (NSEB) | | UTAC Thai Limited LTD. (NSEB) |
| **Wire material** | Au Wire | | CuPdAu Wire |
| **Die attach material** | 8200T | 8600 | 8600 |
| **Molding compound material** | G770HCD | G700LTD | G700LTD |
| **Lead frame material** | EFTEC-64T | | C194 |

**Impacts to Data Sheet:**

None

**Change Impact:**

None

**Reason for Change:**

To improve manufacturability by qualifying CuPdAu bond wire at NSEB assembly site.

**Change Implementation Status:**

In Progress

**Estimated First Ship Date:**

May 24, 2018 (date code: 1821)

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

**Time Table Summary:**

| | August 2017 | | | | | --> | April 2018 | | | | May 2018 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Workweek | 31 | 32 | 33 | 34 | 35 | | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 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 31, 2017:** Issued initial notification with PCN No. KSRA-27FAPU261.

**April 24, 2018:** Issued final notification. Attached the Qualification Report. Provided estimated first ship date on May 24, 2018.

**August 15, 2019:** Re-issued final notification to specify the package size (2x3x0.9mm) in the subject and description of change and update the affected CPN list.

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-20QCEH898_Qual Report.pdf

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

**Terms and Conditions:**

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.

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)

PIC10F320-E/MC
PIC10F320-I/MC
PIC10F320T-I/MC
PIC10F322-E/MC
PIC10F322-I/MC
PIC10F322T-I/MC
PIC10LF320-E/MC
PIC10LF320-I/MC
PIC10LF320T-I/MC
PIC10LF322-E/MC
PIC10LF322-I/MC
PIC10LF322T-I/MC
PIC12F1501-E/MC
PIC12F1501-I/MC
PIC12F1501T-I/MC
PIC12LF1501-E/MC
PIC12LF1501-I/MC
PIC12LF1501-I/MC020
PIC12LF1501T-E/MC
PIC12LF1501T-I/MC
PIC12LF1501T-I/MC020
PIC12LF1501T-I/MC021

# QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

## PCN#: KSRA-20QCEH898

**Date**
**March 27, 2018**

## Qualification of palladium coated copper with gold flash (CuPdAu) bond in selected products of the 200K wafer technology available in 8L DFN package at NSEB assembly site

# PACKAGE QUALIFICATION REPORT

| | |
|---|---|
| **Purpose** | Qualification of palladium coated copper with gold flash (CuPdAu) bond in selected products of the 200K wafer technology available in 8L DFN package at NSEB assembly site |
| **CN** | ES162418-24123 |
| **QUAL ID** | Q18013 |
| **MP CODE** | LECI2YB3XL04 |
| **Part No.** | PIC12LF1501T-E/MC |
| **Bonding No.** | BDM-001500 Rev. A |
| **CCB No.** | 3074 |
| **Package** | |
| **Type** | 8L DFN |
| **Package size** | 2x3x0.9 mm |
| **Die thickness** | 8 mils |
| **Die size** | 65.0 x 57.0 mils |
| **Lead Frame** | |
| **Paddle size** | 75 x 67 mils |
| **Material** | C194-FH |
| **Surface** | Ag on lead only |
| **Process** | Etched |
| **Lead Lock** | Yes |
| **Part Number** | FR1345 |
| **Treatment** | Brown oxide (BOT) |
| **Material** | |
| **Epoxy** | 8600 |
| **Wire** | CuPdAu wire 0.8 mil |
| **Mold Compound** | G700LTD |
| **Plating Composition** | Matte Tin |

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# PACKAGE QUALIFICATION REPORT

**Manufacturing Information**

| Assembly Lot No. | Wafer Lot No. | Date Code |
|---|---|---|
| NSEB183900743.000 | GRSM418102723.110 | 1751T4Y |
| NSEB183900745.000 | GRSM418102723.110 | 1751T55 |
| NSEB184000019.000 | GRSM418102723.110 | 1752T5E |

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

8L DFN (2x3x0.9 mm) 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><br>( IPC/JEDEC J-STD-020D) | IPC/JEDEC J-STD-020D | 198 | 0/198 | Pass | |
| **<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 1)** | **Electrical Test :**+25°C and 125°C<br>System: J750<br><br>Bake 150°C, 24 hrs<br>System: CHINEE<br><br>85°C/85%RH Moisture Soak 168 hrs.<br>System: TABAI ESPEC Model PR-3SPH<br><br>3x Convection-Reflow 265°C max<br><br>System: Vitronics Soltec MR1243<br><br>**Electrical Test :**+25°C and 125°C<br>System: J750 | JESD22-A113 | 693(0) | 693<br><br>693<br><br>693<br><br>693<br><br>0/693 | <br><br><br><br><br><br><br><br>Pass | Good Devices |
| **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:** + 125°C<br>System: J750 | | 231(0) | 0/231 | Pass | |
| **HAST** | **Stress Condition:**<br>+130°C/85%RH, 96 hrs.<br>**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 125°C<br>System: J750 | | 231(0) | 0/231 | Pass | 77 units / lot |

# PACKAGE QUALIFICATION REPORT

| Test Number (Reference) | Test Condition | Standard/ Method | Qty. (Acc.) | Def/SS. | Result | Remarks |
|---|---|---|---|---|---|---|
| **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: J750 | | 231(0) | 0/231 | Pass | 77 units / lot |
| | **Stress Condition:**<br>+130°C/85%RH, 192 hrs.<br>System: HAST 6000X | | | 231 | | |
| | **Electrical Test:** +25°C<br>System: J750 | | 231(0) | 0/231 | Pass | |
| **High Temperature Storage Life** | **Stress Condition:**<br>Bake 175°C, 504 hrs<br>System: SHEL LAB | JESD22-A103 | | 135 | | 45 units / lot |
| | **Electrical Test :**+25°C and 125°C<br>System: J750 | | 135(0) | 0/135 | 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 | JESD22B-102E | 22 (0) | 22<br>22<br>0/22 | Pass | |
| **Physical Dimensions** | Physical Dimension,<br>10 units from 1 lot | JESD22-B100/B108 | 30(0) Units | 0/30 | Pass | |
| **Bond Strength Data Assembly** | Wire Pull (> 4.0 grams) | M2011 | 30 (0) Wires | 0/30 | Pass | |
| | Bond Shear (>10.00 grams) | JESD22-B116 | 30 (0) bonds | 0/30 | Pass | |