

**Product Change Notification - KSRA-06EAOV171**

**Date:** 02 Mar 2018  
**Product Category:** USB Bridge; Capacitive Touch Sensors; 8-bit PIC Microcontrollers; USB Power Delivery  
**Notification subject:** CCB 3055 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected products of the 200K wafer technology available in 16L QFN package at NSEB assembly site  
**Notification text:** **PCN Status:**  
Final notification

**PCN Type:**  
Manufacturing Change

**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 in selected products of the 200K wafer technology available in 16L QFN package at NSEB assembly site

**Pre Change:**

Using gold (Au) bond wire, 8200T or 8600 die attach, G770HCD or G700LTD molding compound and EFTEC-64T or C194 lead frame material

**Post Change:**

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

**Pre and Post Change Summary:**

	Pre Change			Post Change
<b>Assembly Site</b>	UTAC Thai Limited LTD. / NSEB			UTAC Thai Limited LTD. / NSEB
<b>Wire material</b>	Au Wire			CuPdAu Wire
<b>Die attach material</b>	8200T	8600	8600	8600
<b>Molding compound material</b>	G770HCD	G700LTD	G700LTD	G700LTD
<b>Lead frame material</b>	C194	C194	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:**

April 02, 2018 (date code: 1814)

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

**Time Table Summary:**

Workweek	August 2017					-->	March 2018					April 2018				
	31	32	33	34	35		09	10	11	12	13	14	15	16	17	18
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 10, 2017:** Issued initial notification.  
**March 02, 2018:** Issued final notification. Attached the Qualification Report. Revised the affected parts list. Provided estimated first ship date on April 02, 2018.  
 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-06EAOV171\\_Qual\\_Report.pdf](#)
  - [PCN\\_KSRA-06EAOV171\\_Affected\\_CPN.pdf](#)
  - [PCN\\_KSRA-06EAOV171\\_Affected\\_CPN.xlsx](#)

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**MICROCHIP**

**QUALIFICATION REPORT SUMMARY**  
RELIABILITY LABORATORY

**PCN#: KSRA-06EAOV171**

**Date**  
**January 19, 2018**

**Qualification of palladium coated copper with gold flash  
(CuPdAu) bond wire in selected products of the 200K wafer  
technology available in 16L QFN package at NSEB assembly  
site**



## MICROCHIP PACKAGE QUALIFICATION REPORT

<b>Purpose</b>	Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected products of the 200K wafer technology available in 16L QFN package at NSEB assembly site
<b>CN</b>	ES146881
<b>QUAL ID</b>	Q17199
<b>MP CODE</b>	LECW14D5XAXX
<b>Part No.</b>	PIC16F1615-E/ML
<b>Bonding No.</b>	BDM-001488
<b>CCB No.</b>	3055
<b><u>Package</u></b>	
<b>Type</b>	16L QFN
<b>Package size</b>	4x4x0.9mm
<b>Die thickness</b>	11 mils
<b>Die size</b>	84.90 x 100.0 mils
<b><u>Lead Frame</u></b>	
<b>Paddle size</b>	110 x 110 mils
<b>Material</b>	COPPER C194-FH
<b>Surface</b>	Ag on lead only
<b>Process</b>	Etched
<b>Lead Lock</b>	Yes
<b>Part Number</b>	FR1346
<b>Treatment</b>	Micro - Etched
<b><u>Material</u></b>	
<b>Epoxy</b>	8600 Conductive
<b>Wire</b>	CuPdAu wire
<b>Mold Compound</b>	G700LTD
<b>Plating Composition</b>	Matte Tin



# MICROCHIP PACKAGE QUALIFICATION REPORT

## Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
NSEB182801203.000	GRSM417182660.610	1740SGJ
NSEB182900045.000	GRSM417182660.610	1741SGT
NSEB182900048.000	GRSM417182660.610	1741SH0

### Result

Pass

Fail

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16L QFN (4x4x0.9mm) 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
<b>Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)</b>	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243  ( IPC/JEDEC J-STD-020D)	IPC/JEDEC C J-STD-020D	198	0/198	Pass	
<b>Precondition Prior Perform Reliability Tests (At MSL Level 1)</b>	<b>Electrical Test</b> :+25°C and 125°C System: J750  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  <b>Electrical Test</b> :+25°C and 125°C System: J750	JESD22-A113	693(0)	693  693  693  0/693	       Pass	Good Devices
<b>Temp Cycle</b>	<b>Stress Condition:</b> (Standard) -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H  <b>Electrical Test:</b> + 125°C System: J750	JESD22-A104		231  231(0)	  Pass	Parts had been pre-conditioned at 260°C
<b>HAST</b>	<b>Stress Condition:</b> (Standard) +130°C/85%RH, 96 hrs. <b>Bias Volt:</b> 5.5 Volts System: HAST 6000X  <b>Electrical Test:</b> + 25°C and 125°C System: J750	JESD22-A110		231  231(0)	  Pass	Parts had been pre-conditioned at 260°C 77 units / lot
<b>UNBIASED-HAST</b>	<b>Stress Condition:</b> (Standard) +130°C/85%RH, 96 hrs. System: HAST 6000X  <b>Electrical Test:</b> +25°C System: J750	JESD22-A118		231  231(0)	  Pass	Parts had been pre-conditioned at 260°C 77 units / lot

## PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>High Temperature Storage Life</b>	<b>Stress Condition:</b> Bake 175°C, 504 hrs System: SHEL LAB	JESD22- A103		45		45 units
	<b>Electrical Test</b> :+25°C and 125°C System: J750		45(0)	0/45	Pass	
<b>Solderability Temp 245°C</b>	<b>Steam Aging:</b> 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	JESD22B- 102E	22 (0)	22  22  0/22	Pass	
<b>Bond Strength Data Assembly</b>	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	

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-06EAOV171
CATALOG_PART_NBR
MCP2221A-I/ML
MCP2221AT-I/ML
MCP2221-I/ML
MCP2221T-I/ML
MTCH105-I/ML
MTCH105T-I/ML
PIC16F1454-E/ML
PIC16F1454-I/ML
PIC16F1454T-I/ML
PIC16F1455-E/ML
PIC16F1455-I/ML
PIC16F1455-I/MLC02
PIC16F1455T-I/ML
PIC16F1455T-I/MLC02
PIC16F1503-E/MG
PIC16F1503-I/MG
PIC16F1503-I/MG031
PIC16F1503-I/MGC02
PIC16F1503T-E/MG
PIC16F1503T-E/MG033
PIC16F1503T-E/MG039
PIC16F1503T-I/MG
PIC16F1503T-I/MG027
PIC16F1503T-I/MG028
PIC16F1503T-I/MG029
PIC16F1503T-I/MG030
PIC16F1503T-I/MG031
PIC16F1503T-I/MG032
PIC16F1503T-I/MG035
PIC16F1503T-I/MG037
PIC16F1503T-I/MG043
PIC16F1503T-I/MG044
PIC16F1503T-I/MG048
PIC16F1503T-I/MGC02
PIC16F1613-E/ML
PIC16F1613-I/ML
PIC16F1613T-I/ML
PIC16F1613T-I/ML023
PIC16F1614-E/ML
PIC16F1614-I/ML
PIC16F1614T-I/ML
PIC16F1615-E/ML
PIC16F1615-I/ML



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<b>PCN_KSRA-06EAOV171</b>
<b>CATALOG_PART_NBR</b>
PIC16F1615T-I/ML
PIC16F1703-E/ML
PIC16F1703-I/ML
PIC16F1703T-I/ML
PIC16F1704-E/ML
PIC16F1704-I/ML
PIC16F1704T-E/ML
PIC16F1704T-I/ML
PIC16F1705-E/ML
PIC16F1705-I/ML
PIC16F1705T-E/ML
PIC16F1705T-I/ML
PIC16F1764-E/ML
PIC16F1764-I/ML
PIC16F1764T-E/ML
PIC16F1764T-I/ML
PIC16F1765-E/ML
PIC16F1765-I/ML
PIC16F1765T-I/ML
PIC16F1823-E/ML
PIC16F1823-I/ML
PIC16F1823-I/ML029
PIC16F1823-I/MLLS1
PIC16F1823T-E/ML
PIC16F1823T-I/ML
PIC16F1823T-I/ML029
PIC16F1823T-I/MLLS1
PIC16F1824-E/ML
PIC16F1824-I/ML
PIC16F1824T-E/ML
PIC16F1824T-I/ML
PIC16F1824T-I/MLC01
PIC16F1824T-I/MLOPP
PIC16F1825-E/ML
PIC16F1825-H/ML
PIC16F1825-I/ML
PIC16F1825T-E/ML
PIC16F1825T-E/ML031
PIC16F1825T-H/ML
PIC16F1825T-I/ML
PIC16LF1454-E/ML
PIC16LF1454-I/ML
PIC16LF1454T-I/ML

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<b>PCN_KSRA-06EAOV171</b>
<b>CATALOG_PART_NBR</b>
PIC16LF1455-E/ML
PIC16LF1455-I/ML
PIC16LF1455T-I/ML
PIC16LF1503-E/MG
PIC16LF1503-I/MG
PIC16LF1503-I/MG022
PIC16LF1503-I/MGC02
PIC16LF1503T-E/MG
PIC16LF1503T-I/MG
PIC16LF1503T-I/MG022
PIC16LF1503T-I/MGC02
PIC16LF1554-E/ML
PIC16LF1554-I/ML
PIC16LF1554T-I/ML
PIC16LF1613-E/ML
PIC16LF1613-I/ML
PIC16LF1613T-I/ML
PIC16LF1614-E/ML
PIC16LF1614-I/ML
PIC16LF1614T-I/ML
PIC16LF1615-E/ML
PIC16LF1615-I/ML
PIC16LF1615T-I/ML
PIC16LF1703-E/ML
PIC16LF1703-I/ML
PIC16LF1703T-I/ML
PIC16LF1704-E/ML
PIC16LF1704-I/ML
PIC16LF1704T-I/ML
PIC16LF1705-E/ML
PIC16LF1705-I/ML
PIC16LF1705T-I/ML
PIC16LF1764-E/ML
PIC16LF1764-I/ML
PIC16LF1764T-I/ML
PIC16LF1765-E/ML
PIC16LF1765-I/ML
PIC16LF1765T-I/ML
PIC16LF1823-E/ML
PIC16LF1823-I/ML
PIC16LF1823-I/MLC04
PIC16LF1823-I/MLLS2
PIC16LF1823T-I/ML

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<b>PCN_KSRA-06EAOV171</b>
<b>CATALOG_PART_NBR</b>
PIC16LF1823T-I/MLC04
PIC16LF1823T-I/MLLS2
PIC16LF1824-E/ML
PIC16LF1824-I/ML
PIC16LF1824-I/MLC01
PIC16LF1824T-I/ML
PIC16LF1824T-I/MLC01
PIC16LF1825-E/ML
PIC16LF1825-I/ML
PIC16LF1825T-E/ML
PIC16LF1825T-I/ML
UTC2000/MG
UTC2000-E/MG
UTC2000-I/MG
UTC2000T/MG
UTC2000T-E/MG
UTC2000T-I/MG