Product Change Notification - KSRA-09NLQI319

Date: 27 Feb 2018

Product Category: 16-Bit - Microcontrollers and Digital Signal Controllers; Interface- Serial Peripherals; 8-bit PIC Microcontrollers

Notification subject: CCB 2910 and 2910.001 Final Notice: Qualification of CuPdAu bond wire in selected products of the 150K and 160K wafer technology available in 28L 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 150K and 160K wafer technology available in 28L QFN package at NSEB assembly site

Pre Change:

Using gold (Au) bond wire, 8200T and 8600 die attach and G770HCD and G700LTD mold compound material.

Post Change:

Using palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach and G700LTD mold compound 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		EFTEC-64T

Impacts to Data Sheet:
None

Change Impact:
None

Reason for Change:
To improve manufacturability and qualify CuPdAu bond wire at NSEB assembly site.

Change Implementation Status:
In Progress

Estimated First Ship Date:

March 27, 2018 (date code: 1813)

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

Time Table Summary:

	April 2017					-->	February 2018					March 2018			
Workweek	13	14	15	16	17		05	06	07	08	09	10	11	12	13
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:
April 24, 2016: Issued initial notification.
February 27, 2018: Issued final notification. Attached the Qualification Report. Revised the affected parts list. Provided estimated first ship date on March 27, 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-09NLQI319_Affected_CPN.pdf
PCN_KSRA-09NLQI319_Qual Report.pdf
PCN_KSRA-09NLQI319_Affected_CPN.xlsx

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

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QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: KSRA-09NLQI319

Date
October 04, 2017

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected products of the 150K and 160K wafer technology available in 28L QFN package at NSEB assembly site

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected products of the 150K and 160K wafer technology available in 28L QFN package at NSEB assembly site
CN	ES110936
QUAL ID	Q17132
MP CODE	C5AK1YM4XAXF
Part No.	PIC16F876AT-E/ML
Bonding No.	BDM-001320
CCB No.	2910 and 2910.001
Package	
Type	28L QFN
Package size	6x6x0.9 mm
Die thickness	11 mils
Die size	134.20 x 146.20 mils
Lead Frame	
Paddle size	173 x 173 mils
Material	COPPER EFTEC-64T
Surface	Ag on lead only
Process	Etched
Lead Lock	Yes
Part Number	FR0931
Treatment	Micro-etched
Material	
Epoxy	8600 Conductive
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
NSEB181300683.000	GRSM417311056.100	1725HSR
NSEB181300773.000	GRSM417311056.100	1725J37
NSEB181300774.000	GRSM417311056.100	1725J38

Result [X] Pass [ ] Fail [ ] _____

28L QFN (6x6x0.9mm) 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
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	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 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 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 **Electrical Test :**+25°C and 125°C System: J750	JESD22-A113	693(0)	693 693 693 693 0/693	Pass	Good Devices
Temp Cycle	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H **Electrical Test:** + 125°C System: J750	JESD22-A104	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C
HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X **Electrical Test:** + 25°C,85°C and 125°C System: J750	JESD22-A110	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HAST 6000X **Electrical Test:** +25°C System: J750	JESD22-A118	231(0)	231 0/231	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
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs System: SHEL LAB **Electrical Test :**+25°C and 125°C System: J750	JESD22-A103	 45(0)	45 0/45	 Pass	45 units
Solderability Temp 215°C	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	JESD22B-102E	22 (0)	22 22 0/22	 Pass	
Solderability Temp 245°C	**Steam Aging:** 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	
Physical Dimensions	Physical Dimension, 30 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (> 7.0 grams) Bond Shear (>15.00 grams)	M2011 JESD22-B116	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	

PCN_KSRA-09NLQI319 -CCB 2910 and 2910.001: Final Notice: Qualification of CuPdAu bond wire for selected products of 150K and 160K wafer technology available in 28L QFN package at NSEB assembly site

Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
DSPIC30F2011-20I/ML
DSPIC30F2011-30I/ML
DSPIC30F2012-20E/ML
DSPIC30F2012-20I/ML
DSPIC30F2012-30I/ML
MCP23016-I/ML
MCP23016T-I/ML
MCP23017-E/ML
MCP23017T-E/ML
MCP23S17-E/ML
MCP23S17T-E/ML
PIC16F570-E/ML
PIC16F570-I/ML
PIC16F570T-I/ML
PIC16F627A-E/ML
PIC16F627A-I/ML
PIC16F627AT-I/ML
PIC16F628A-E/ML
PIC16F628A-I/ML
PIC16F628AT-E/ML
PIC16F628AT-I/ML
PIC16F648A-E/ML
PIC16F648A-I/ML
PIC16F648AT-E/ML
PIC16F648AT-I/ML
PIC16F72-E/ML
PIC16F72-I/ML
PIC16F72T-I/ML
PIC16F737-E/ML
PIC16F737-I/ML
PIC16F737T-I/ML
PIC16F73-E/ML
PIC16F73-I/ML
PIC16F73T-I/ML
PIC16F767-E/ML
PIC16F767-I/ML
PIC16F767T-E/ML
PIC16F767T-I/ML
PIC16F76-I/ML
PIC16F76T-I/ML
PIC16F818-E/ML
PIC16F818-I/ML
PIC16F818T-I/ML

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
PIC16F819-E/ML
PIC16F819-I/ML
PIC16F819-I/MLTSL
PIC16F819T-E/ML
PIC16F819T-I/ML
PIC16F873A-E/ML
PIC16F873A-I/ML
PIC16F873AT-I/ML
PIC16F876A-E/ML
PIC16F876A-I/ML
PIC16F876AT-E/ML
PIC16F876AT-I/ML
PIC16F87-I/ML
PIC16F882-E/ML
PIC16F882-I/ML
PIC16F882T-I/ML
PIC16F883-E/ML
PIC16F883-I/ML
PIC16F883T-E/ML
PIC16F883T-I/ML
PIC16F883T-I/ML031
PIC16F886-E/ML
PIC16F886-I/ML
PIC16F886T-E/ML
PIC16F886T-I/ML
PIC16F886T-I/MLC06
PIC16F88-E/ML
PIC16F88-I/ML
PIC16F88T-I/ML
PIC16F913-E/ML
PIC16F913-I/ML
PIC16F913T-I/ML
PIC16F916-E/ML
PIC16F916-I/ML
PIC16F916T-I/ML
PIC16F916T-I/MLC02
PIC16LF627A-I/ML
PIC16LF627AT-I/ML
PIC16LF628A-I/ML
PIC16LF628AT-I/ML
PIC16LF648A-I/ML
PIC16LF648AT-I/ML
PIC16LF72-I/ML

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
PIC16LF72-I/ML026
PIC16LF72T-I/ML
PIC16LF737-I/ML
PIC16LF73-I/ML
PIC16LF73T-I/ML
PIC16LF767-I/ML
PIC16LF767T-I/ML
PIC16LF76-I/ML
PIC16LF76T-I/ML057
PIC16LF818-I/ML
PIC16LF818T-I/ML
PIC16LF819-I/ML
PIC16LF819T-I/ML
PIC16LF873A-I/ML
PIC16LF873AT-I/ML
PIC16LF876A-I/ML
PIC16LF876AT-I/ML
PIC16LF87-I/ML
PIC16LF88-I/ML
PIC16LF88T-I/ML
PIC18F1220-E/ML
PIC18F1220-H/ML
PIC18F1220-I/ML
PIC18F1220T-I/ML
PIC18F1230-E/ML
PIC18F1230-I/ML
PIC18F1230-I/MLXXX
PIC18F1320-E/ML
PIC18F1320-H/ML
PIC18F1320-I/ML
PIC18F1320T-I/ML
PIC18F1330-E/ML
PIC18F1330-I/ML
PIC18F1330-I/MLXXX
PIC18F1330-ICD/ML
PIC18F2221-E/ML
PIC18F2221-I/ML
PIC18F2221T-I/ML
PIC18F2321-E/ML
PIC18F2321-I/ML
PIC18F2410-E/ML
PIC18F2410-I/ML
PIC18F2420-E/ML

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
PIC18F2420-I/ML
PIC18F2420T-E/ML
PIC18F2420T-I/ML
PIC18F2423-E/ML
PIC18F2423-I/ML
PIC18F2423T-I/ML
PIC18F2510-E/ML
PIC18F2510-I/ML
PIC18F2510T-E/ML
PIC18F2510T-I/ML
PIC18F2520-E/ML
PIC18F2520-I/ML
PIC18F2520T-I/ML
PIC18F2523-E/ML
PIC18F2523-I/ML
PIC18F2523T-I/ML
PIC18LF1220-I/ML
PIC18LF1230-I/ML
PIC18LF1320-I/ML
PIC18LF1320T-I/ML
PIC18LF1330-I/ML
PIC18LF2221-I/ML
PIC18LF2321-I/ML
PIC18LF2321T-I/ML
PIC18LF2410-I/ML
PIC18LF2410T-I/ML
PIC18LF2420-I/ML
PIC18LF2420T-I/ML
PIC18LF2420T-I/ML025
PIC18LF2423-I/ML
PIC18LF2423T-I/ML
PIC18LF2510-I/ML
PIC18LF2510T-I/ML
PIC18LF2520-I/ML
PIC18LF2520T-I/ML
PIC18LF2523-I/ML
PIC18LF2523T-I/ML