

Product Change Notification - KSRA-20CIED111

Date: 08 Feb 2018
Product Category: 8-bit PIC Microcontrollers; 16-Bit - Microcontrollers and Digital Signal Controllers
Notification subject: CCB 3014 Final Notice: Qualification of CuPdAu bond wire in selected products for 160K wafer technology available in 44L QFN (8x8x0.9mm) 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 for 160K wafer technology available in 44L QFN (8x8x0.9mm) package at NSEB assembly site

Pre Change:

Using gold (Au) bond wire, 8200T or 8600 die attach, G770HCD or G700LTD mold compound material, and C194 or AgCu lead frame material.

Post Change:

Using palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach, G700LTD mold compound material, 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	AgCu	C194	C194

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 08, 2018 (date code:1810)

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

Time Table Summary:

Workweek	June 2017					-->	February 2018				March 2018			
	22	23	24	25	26		05	06	07	08	09	10	11	12
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:
June 29, 2017: Issued initial notification.
February 08, 2018: Issued final notification. Attached the Qualification Report. Provided estimated first ship date on March 08, 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-20CIED111_Affected CPN.pdf](#)
 - [PCN_KSRA-20CIED111_Qual Report.pdf](#)
 - [PCN_KSRA-20CIED111_Affected CPN.xlsx](#)

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MICROCHIP

**QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY**

PCN#: KSRA-20CIED111

Date

January 12, 2018

**Qualification of palladium coated copper with gold flash
(CuPdAu) bond wire in selected products for 160K wafer
technology available in 44L QFN (8x8x0.9mm) package at
NSEB assembly site**



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected products for 160K wafer technology available in 44L QFN (8x8x0.9mm) package at NSEB assembly site
CCB No	3014
CN	ES134810-22955
QUAL ID	Q17195
MP CODE	DECS84T3XAXF
Part No.	PIC18F4682-E/ML
Bonding No.	BDM-001392
<u>Package</u>	
Type	44L QFN
Package size	8x8x0.9 mm
Die thickness	11 mils
Die size	177.40 x 227.40 mils
<u>Lead Frame</u>	
Paddle size	271.60 x 271.60 mils
Material	C194
Surface	Ag on lead only
Process	Etched
Lead Lock	Yes
Part Number	FR1139
Treatment	Micro- etched
<u>Material</u>	
Epoxy	8600 Conductive
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Tin



MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafet Lot No.	Date Code
NSEB182800943.000	GRSM412281952.500	1740M1E
NSEB182800944.000	GRSM412281952.500	1740M1G
NSEB182800945.000	GRSM412281952.500	1740M1H

Result Pass Fail _____

44L QFN (8x8x0.9mm) 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 C J-STD-020D	198	0/198	Pass	
Precondition Prior Perform Reliability Tests (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 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	 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 and 125°C System: J750	JESD22-A110		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	 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	JESD22-A103		45		45 units
	Electrical Test :+25°C and 125°C System: J750		45(0)	0/45	Pass	
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)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	

PCN_KSRA-20CIED111-CCB 3014 Final Notice: Qualification of CuPdAu bond wire in selected products for 160K wafer technology available in 44L QFN (8x8x0.9mm) package at NSEB assembly site

Affected Catalog Part Numbers (CPN)

PCN_KSRA-20CIED111
CATALOG_PART_NBR
DSPIC30F2023-20E/ML
DSPIC30F2023-30I/ML
DSPIC30F2023T-30I/ML
DSPIC30F2023T-30V/MLD31
DSPIC30F3010-20I/ML
DSPIC30F3010-30I/ML
DSPIC30F3010T-30I/ML
DSPIC30F3011-10I/MLB24
DSPIC30F3011-20E/ML
DSPIC30F3011-20I/ML
DSPIC30F3011-30I/ML
DSPIC30F3011T-10I/MLB21
DSPIC30F3012-20E/ML
DSPIC30F3012-20I/ML
DSPIC30F3012-30I/ML
DSPIC30F3012T-20I/ML
DSPIC30F3013-20E/ML
DSPIC30F3013-20I/ML
DSPIC30F3013-30I/ML
DSPIC30F3013-30I/MLB31
DSPIC30F3013T-20I/ML
DSPIC30F3013T-30I/ML
DSPIC30F3013T-30I/MLB31
DSPIC30F3014-20E/ML
DSPIC30F3014-20I/ML
DSPIC30F3014-30I/ML
DSPIC30F3014-30I/MLA31
DSPIC30F3014T-30I/MLA31
DSPIC30F4011-20E/ML
DSPIC30F4011-20I/ML
DSPIC30F4011-30I/ML
DSPIC30F4012-20E/ML
DSPIC30F4012-20I/ML
DSPIC30F4012-30I/ML
DSPIC30F4013-20E/ML
DSPIC30F4013-20I/ML
DSPIC30F4013-30I/ML
DSPIC30F4013-30I/MLB31
DSPIC30F4013T-30I/ML
DSPIC30F4013T-30I/MLB31
PIC16F884-E/ML
PIC16F884-I/ML
PIC16F884T-I/ML

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-20CIED111
CATALOG_PART_NBR
PIC16F887-E/ML
PIC16F887-I/ML
PIC16F887T-I/ML
PIC16F914-E/ML
PIC16F914-I/ML
PIC16F914T-I/ML
PIC16F917-E/ML
PIC16F917-I/ML
PIC16F917T-I/ML
PIC18F4221-E/ML
PIC18F4221-I/ML
PIC18F4321-E/ML
PIC18F4321-I/ML
PIC18F4410-E/ML
PIC18F4410-I/ML
PIC18F4420-E/ML
PIC18F4420-I/ML
PIC18F4420T-I/ML
PIC18F4423-E/ML
PIC18F4423-I/ML
PIC18F4423T-I/ML
PIC18F4450-I/ML
PIC18F4455-I/ML
PIC18F4455T-I/ML
PIC18F4458-I/ML
PIC18F4480-E/ML
PIC18F4480-I/ML
PIC18F4480T-I/ML
PIC18F4510-E/ML
PIC18F4510-I/ML
PIC18F4510T-I/ML
PIC18F4515-I/ML
PIC18F4520-E/ML
PIC18F4520-I/ML
PIC18F4520T-E/ML
PIC18F4520T-I/ML
PIC18F4523-E/ML
PIC18F4523-I/ML
PIC18F4523T-I/ML
PIC18F4525-E/ML
PIC18F4525-I/ML
PIC18F4525T-I/ML
PIC18F4550-I/ML

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-20CIED111
CATALOG_PART_NBR
PIC18F4550T-I/ML
PIC18F4553-I/ML
PIC18F4580-E/ML
PIC18F4580-I/ML
PIC18F4580T-I/ML
PIC18F4585-E/ML
PIC18F4585-H/ML
PIC18F4585-I/ML
PIC18F4585-I/MLC01
PIC18F4585T-I/ML
PIC18F4610-I/ML
PIC18F4620-E/ML
PIC18F4620-I/ML
PIC18F4620T-I/ML
PIC18F4680-E/ML
PIC18F4680-H/ML
PIC18F4680-I/ML
PIC18F4680T-I/ML
PIC18F4682-E/ML
PIC18F4682-I/ML
PIC18F4685-E/ML
PIC18F4685-I/ML
PIC18F4685T-I/ML
PIC18LF4221-I/ML
PIC18LF4221T-I/ML
PIC18LF4321-I/ML
PIC18LF4410-I/ML
PIC18LF4420-I/ML
PIC18LF4420T-I/ML
PIC18LF4423-I/ML
PIC18LF4423T-I/ML
PIC18LF4450-I/ML
PIC18LF4450T-I/ML
PIC18LF4455-I/ML
PIC18LF4455T-I/ML
PIC18LF4458-I/ML
PIC18LF4480-I/ML
PIC18LF4480T-I/ML
PIC18LF4510-I/ML
PIC18LF4510T-I/ML
PIC18LF4515-I/ML
PIC18LF4520-I/ML
PIC18LF4520T-I/ML

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-20CIED111
CATALOG_PART_NBR
PIC18LF4523-I/ML
PIC18LF4523T-I/ML
PIC18LF4525-I/ML
PIC18LF4525T-I/ML
PIC18LF4550-I/ML
PIC18LF4550T-I/ML
PIC18LF4553-I/ML
PIC18LF4580-I/ML
PIC18LF4585-I/ML
PIC18LF4585T-I/ML
PIC18LF4610-I/ML
PIC18LF4620-I/ML
PIC18LF4620-I/ML035
PIC18LF4620T-I/ML
PIC18LF4620T-I/ML035
PIC18LF4680-I/ML
PIC18LF4682-I/ML
PIC18LF4685-I/ML
PIC18LF4685T-I/ML