

Product Change Notification - KSRA-09NLQI319

Date: 24 Apr 2017
Product Category: 16-Bit - Microcontrollers and Digital Signal Controllers; Interface- Serial Peripherals; 8-bit PIC Microcontrollers
Notification subject: CCB 2910 and 2910.001: Initial Notice: Qualification of CuPdAu bond wire for selected products of 150K and 160K wafer technology available in 28L QFN package at NSEB assembly site
Notification text: **PCN Status:**
 Initial 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 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	NSEB Assembly Site		NSEB Assembly Site
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 Qualification Completion Date:

September 2017

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary:

Workweek	April 2017						-->	September 2017				
	13	14	15	16	17	18		35	36	37	38	39
Initial PCN Issue Date					X							

PCN_KSRA-09NLQI319 -CCB 2910 and 2910.001: Initial 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
DSPIC30F1010-20E/MM
DSPIC30F1010-30I/MM
DSPIC30F2010-20E/MM
DSPIC30F2010-20I/MM
DSPIC30F2010-30I/MM
DSPIC30F2010T-20E/MM
DSPIC30F2010T-20I/MM
DSPIC30F2010T-30I/MM
DSPIC30F2010T-30V/MMA31
DSPIC30F2011-20E/ML
DSPIC30F2011-20I/ML
DSPIC30F2011-30I/ML
DSPIC30F2012-20E/ML
DSPIC30F2012-20I/ML
DSPIC30F2012-30I/ML
DSPIC30F2012T-30I/ML
DSPIC30F2020-20E/MM
DSPIC30F2020-30I/MM
DSPIC30F2020T-30I/MM
MCP23016-I/ML
MCP23016T-I/ML
MCP23017-E/ML
MCP23017T-E/ML
MCP23S17-E/ML
MCP23S17T-E/ML
PIC16F570-E/ML
PIC16F570-E/MV
PIC16F570-I/ML
PIC16F570-I/MV
PIC16F570T-I/ML
PIC16F570T-I/MV
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

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
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
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

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
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
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

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
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
PIC18F2331-E/MM
PIC18F2331-I/MM
PIC18F2331T-I/MM
PIC18F2410-E/ML
PIC18F2410-I/ML
PIC18F2420-E/ML
PIC18F2420-I/ML
PIC18F2420T-E/ML
PIC18F2420T-I/ML
PIC18F2423-E/ML
PIC18F2423-I/ML
PIC18F2423T-I/ML
PIC18F2431-E/MM
PIC18F2431-I/MM
PIC18F2431T-E/MM
PIC18F2431T-I/MM
PIC18F2480-E/ML
PIC18F2480-I/ML
PIC18F2480-I/MLC01
PIC18F2480T-E/ML
PIC18F2480T-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

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Affected Catalog Part Numbers (CPN)

PCN_KSRA-09NLQI319
CATALOG_PART_NBR
PIC18F2523-I/ML
PIC18F2523T-I/ML
PIC18F2580-E/ML
PIC18F2580-I/ML
PIC18F2580T-E/ML
PIC18F2580T-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
PIC18LF2331-I/MM
PIC18LF2331T-I/MM
PIC18LF2410-I/ML
PIC18LF2410T-I/ML
PIC18LF2420-I/ML
PIC18LF2420T-I/ML
PIC18LF2420T-I/ML025
PIC18LF2423-I/ML
PIC18LF2423T-I/ML
PIC18LF2431-I/MM
PIC18LF2431T-I/MM
PIC18LF2480-I/ML
PIC18LF2480T-I/ML
PIC18LF2510-I/ML
PIC18LF2510T-I/ML
PIC18LF2520-I/ML
PIC18LF2520T-I/ML
PIC18LF2523-I/ML
PIC18LF2523T-I/ML
PIC18LF2580-I/ML



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QUALIFICATION PLAN SUMMARY

PCN#: KSRA-09NLQI319

Date

April 05,2017

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

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

CCB #: 2910 and 2910.001

MP code: C5AK1YM4XAXF
Part No.: PIC16F876AT-E/ML
BD No: BDM-001329
Process/CUP: 150K

Package

Type/pin: QFN
Package Code: 28
Die size: 136.7x148.7
MSL: 1

Bill Of Material

Subcon facility	NSEB
Package type/pin	28QFN
Package code	M4X
<u>Lead frame:</u>	
Part number	FR0931
Paddle size:	173.2x173.2 mils.
Material	COPPER EFTEC-64T
Leadframe Internal Plating (spot/ring/double ring)	Ag on lead only
Treatment roughened/brown oxide(BOT)/micro-etched/none	Micro-etched
Process (Etched/Stamped)	Etched
Leadframe thickness	8 mils.
Leadframe downset	No
Leadlock	Yes
Strip size(row x column)	7 x 9
Strip type	315 Unit/ Strip
Shipped Strip/Singulated	Strip
<u>Wire:</u>	
Material	CuPdAu Wire
<u>Die Attach Epoxy:</u>	
Part Number	8600
Conductive	Conductive
<u>Mold Compound:</u>	
Part Number	G700LTD
<u>Lead finish:</u>	Matte tin

Test Name	Conditions	Reliability Stress Read Point	Pre & Post Reliability Stress Test Temperature	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Test Site	Special Instructions
		-40°C to +125°C datasheet operating range (E Temp)	-40°C to +125°C datasheet operating range (E Temp)								
Standard Pb-free Solderability	JESD22B-102E; Perform 8 hours of steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Standard Pb-free: Matte tin/ NiPdAu finish, SAC solder, wetting temp 245°C for both SMD & through hole packages.			22	5	1	27	>95% lead coverage	5		Standard Pb-free solderability is the requirement. SnPb solderability (backward solderability- SMD reflow soldering) is required for any plating related changes and highly recommended for other package BOM changes.
Backward Solderability	JESD22B-102E; Perform 8 hour steam aging for Matte tin finish and 1 hr steam aging for NiPdAu finish prior to testing. Backward: Matte tin/ NiPdAu finish, SnPb solder, wetting temp 215°C for SMD.			22	5	1	27	>95% lead coverage	5		
Wire Bond Pull - WBP	Mil. Std. 883-2011			5	0	1	5	0 fails after TC	5		
Wire Bond Pull - WBP	CDF-AEC-Q100-001			5	0	1	5		5		
Wire Bond Shear - WBS	CDF-AEC-Q100-001			5	0	1	5		5		
Physical Dimensions	Measure per JESD22 B100 and B108			10	0	3	30	0	5		
External Visual	Mil. Std. 883-2009/2010			All devices prior to submission for qualification testing	0	3	ALL	0	5		

Test Name	Conditions	Reliability Stress Read Point	Pre & Post Reliability Stress Test Temperature	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Test Site	Special Instructions
		-40°C to +125°C datasheet operating range (E Temp)	-40°C to +125°C datasheet operating range (E Temp)								
HTSL (High Temp Storage Life)	'JESD22A-103. 150°C for 1008 or 175°C for 504 hours. Read points at 1000 hours. Electrical test pre and post stress at +25°C and hot temp.	500hrs	+125°C	45	5	1	50	0	10		Spares should be properly identified.
Preconditioning - Required for surface mount devices	+150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020D for package type. Perform SAM analysis using the standard sample size. MSL1 @+260°C		+125°C	231	15	3	738	0	15		Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.
HAST	'+130°C/85% RH for 96hrs + 192hrs. Electrical test pre and post stress at +25°C and hot temp.	96 hrs/192hrs	+125°C	77	5	3	246	0	10		Perform per the requirements in AEC-Q006. Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
UHAST	+130°C/85% RH for 96 /192hrs	130°C/85% RH for 96 /192hrs	+25°C	77	5	3	246	0	10		Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
Temp Cycle	cond C -65°C to +150°C for 1000 Cycles... Electrical test pre and post stress at hot temp.	Cond C: 500cycle -1X, 1000cycles-2X	+125°C	77	5	3	246	0	15		Perform per the requirements in AEC-Q006. Spares should be properly identified. Use the parts which have gone through Pre-conditioning.