

Product Change Notification - GBNG-11DXBN660

Date: 21 Oct 2016
Product Category: Analog (Linear & Mixed Signal) AND Interface
Notification subject: CCB 2770 Initial Notice: Qualification of CuPdAu bond wire and C194 lead frame material in selected products of the 150K wafer technology available in 20L 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 and C194 lead frame material in selected products of the 150K wafer technology available in 20L QFN package at NSEB assembly site.

Pre Change:

Using gold (Au) bond wire and EFTEC-64T lead frame material.

Post Change:

Using palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame 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	8600	8600
Molding compound material	G700LTD	G700LTD
Lead frame material	EFTEC-64T	C194

Impacts to Data Sheet:

None

Change Impact:

None

Reason for Change:

To improve manufacturability by qualifying palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material at NSEB assembly site.

Change Implementation Status:

In Progress

Estimated Qualification Completion Date:

February 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.

Time Table Summary:

	October 2016				->	February 2017				
Workweek	41	42	43	44		5	6	7	8	9
Initial PCN Issue Date			X							
Qual Report Availability								X		
Final PCN Issue Date								X		

Method to Identify Change:

Traceability code

Qualification Plan:

Please open the attachments included with this PCN labeled as PCN_#_Qual Plan.

Revision History:**October 21, 2016:** Issued initial notification.

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_GBNG-11DXBN660_Qual_Plan.pdf](#)[PCN_GBNG-11DXBN660_Affected_CPN.pdf](#)[PCN_GBNG-11DXBN660_Affected_CPN.xlsx](#)

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Affected Catalog Part Number (CPN)

PCN_GBNG-11DXBN660
CATALOG_PART_NBR
MCP23008-E/ML
MCP23008T-E/ML
MCP23S08-E/ML
MCP23S08T-E/ML



MICROCHIP

QUALIFICATION PLAN

PCN #: GBNG-11DXBN660

**Date:
October 5, 2016**

**Qualification of palladium coated copper with gold flash
(CuPdAu) bond wire and C194 lead frame material in selected
products of the 150K wafer technology available in 20L QFN
package at NSEB assembly site**

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Purpose: _____ Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and C194 lead frame material in selected products of the 150K wafer technology available in 20L QFN package at NSEB assembly site.

MP code: _____ C5BQ14G4XA00

Part No.: _____ MCP23008-EML

BD No: _____ BDM-001185

Process/CUP: _____ 150K DLM, no CUP

CCB No.: _____ 2770

Package

Type/pin _____ 20 pin QFN 4x4x0.9mm

Package Code _____ G4X

Die size: _____ 49.7x58.1

MSL: _____ 1

Lead frame:

Paddle size: 2.9x2.9 mm.

Material C194-FH

Surface Ag on lead + Ag ring

Treatment In-house roughening

Process Etched

Lead-lock Yes

Part Number FR0995

Wire:

Material CuPdAu

Die Attach Epoxy:

Part Number 8600

Conductive Yes

Mold Compound:

Part Number G700LTD

Lead finish: 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 soldering)- 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 pull / ball shear is performed after stress testing and decapsulation.
Wire Bond Pull - WBP	CDF-AEC-Q100-001			5	0	1	5		5		Wire pull / ball shear is performed after stress testing and decapsulation.
Wire Bond Shear - WBS	CDF-AEC-Q100-001			5	0	1	5		5		Wire pull / ball shear is performed after stress testing and decapsulation.
Physical Dimensions	Measure per JESD22 B100 and B108			10	0	3	30	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)								
External Visual	Mil. Std. 883-2009/2010			All devices prior to submission for qualification testing	0	3	ALL	0	5		
HTSL (High Temp Storage Life)	'JESD22A-103. 150°C for 1008 hours. Read points at 1000 hours. Electrical test pre and post stress at +25°C and hot temp.	500hrs	+25°C, +85°C, +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. MSL 1		+25°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	+25°C, +85°C, +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.

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)								
Temp Cycle	cond C -65°C to +150°C for Cycles. Electrical test pre and post stress at hot temp.	Cond C: 500cycle -1X, 1000cycles-2X	+85°C, +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. When performing the WBP test, include the corner bond pads.