

Product Change Notification - KMIO-21YLLS346

Date:

02 Nov 2016

Product Category:

Analog (Linear & Mixed Signal) AND Interface

Notification subject:

CCB 2780 Initial Notice: Qualification of CuPdAu bond wire and A194-FH lead frame material for selected products of the 160K wafer technology available in 24L 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 A194-FH lead frame material for selected products of the 160K wafer technology available in 24L 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 A194-FH 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	A194-FH

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 A194-FH lead frame material at NSEB assembly site.

Change Implementation Status:

In Progress

Estimated Qualification Completion Date:

March 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:

	November 2016				->	March 2017				
Workweek	45	46	47	48		9	10	11	12	13
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:

November 02, 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_KMIO-21YLLS346_Qual Plan.pdf](#)

[PCN_KMIO-21YLLS346_Affected CPN.pdf](#)

[PCN_KMIO-21YLLS346_Affected CPN.xlsx](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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Affected Catalog Part Number (CPN)

PCN_KMIO-21YLLS346
CATALOG_PART_NBR
MCP23018-E/MJ
MCP23018T-E/MJ
MCP23S18-E/MJ
MCP23S18T-E/MJ



MICROCHIP

QUALIFICATION PLAN

PCN #: KMIO-21YLLS346

Date:

October 19, 2016

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and A194-FH lead frame material for selected products of the 160K wafer technology available in 24L QFN package at NSEB assembly site.

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Purpose: _____ Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and A194-FH lead frame material for selected products of the 160K wafer technology available in 24L QFN package at NSEB assembly site.

MP code: _____ DEDJ14J3XA00

Part No.: _____ MCP23018-EMJ

BD No: _____ BDM-001183

Process/CUP: _____ 160K TLM, no CUP

CCB No.: _____ 2780

Package

Type/pin _____ 24 pin QFN 4x4x0.9mm

Die size: _____ 59.0x59.5

Package Code: _____ J3X

MSL: _____ 1

Lead frame:

Paddle size: 110.2x110.2

Material A194-FH

Surface Ag on lead only

Treatment In-house roughening

Process Etched

Leadlock Yes

Part Number FR0049

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) 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		

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 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.