Product Change Notification - KMIO-21YLLS346

Date: 18 Aug 2017

Product Category: Interface- Serial Peripherals

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:
Final 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 First Ship Date:
September 18, 2017 (1738)

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

Time Table Summary:

	November 2016				->	August 2017					September 2017			
Workweek	45	46	47	48		31	32	33	34	35	36	37	38	39
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:
November 02, 2016: Issued initial notification.
August 18, 2017: Issued final notification. Attached qualification report. Provided estimated first ship date on September 18, 2017.

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_Affected CPN.pdf
PCN_KMIO-21YLLS346_Qual Report.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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KMIO-21YLLS346-CCB 2780 Final Notice: Qualification of CuPdAu bond wire and A194-FH lead frame material in selected products of the 160K wafer technology available in 24L QFN package at NSEB assembly site.

Affected Catalog Part Number (CPN)

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

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: KMIO-21YLLS346

Date
April 28, 2017

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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PACKAGE QUALIFICATION REPORT

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.
CN	ES085085-18119
QUAL ID	Q17017
MP CODE	DEDJ14J3XA00
Part No.	MCP23018-E/MJ
Bonding No.	BDM-001183 Rev. A
CCB No.	2780
Package	
Type	24L QFN
Package size	4x4x0.9 mm
Die thickness	11 mils
Die size	56.50 x 57.00 mils
Lead Frame	
Paddle size	110 x 110 mils
Material	A194-FH
Surface	Ag on lead only
Process	Etched
Lead Lock	Yes
Part Number	FR0049
Treatment	In-house roughening
Material	
Epoxy	8600
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
NSEB174200289.000	GRSM417101166.510	17023DV
NSEB174200292.000	GRSM417101166.510	17023E2
NSEB174200300.000	GRSM417101166.510	17023EG

Result [X] Pass [ ] Fail [ ] _____

24L QFN (4x4x0.9) 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	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test :+25°C and 125°C System: J750			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H **Electrical Test:** + 25°C and 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 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
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	
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	
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	