Product Change Notification - LIAL-20HILO069

Date:

28 Feb 2019

Product Category:

Microprocessors

Affected CPNs:

Notification subject:

CCB 3431 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 2100AC die attach and KE-G1250NAS mold compound in selected products available in 217L LFBGA package at ASE assembly site

Notification text:

PCN Status:

Final notification

PCN Type:

Manufacturing Change

Microchip Parts Affected:

Please open one of the icons found in the Affected CPNs section above.

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, 2100AC die attach and KE-G1250NAS mold compound in selected products available in 217L LFBGA package at ASE assembly site

Pre Change:

Using palladium coated copper (PdCu) bond wire, 2100AS die attach material and KE-G1250LKDS mold compound material

Post Change:

Using palladium coated copper with gold flash (CuPdAu) bond wire, 2100AC die attach material and KE-G1250NAS mold compound material

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	ASE Inc. (ASE)	ASE Inc. (ASE)
Wire material	PdCu	CuPdAu
Die attach material	2100AS	2100AC
Molding compound material	KE-G1250LKDS	KE-G1250NAS
Lead frame material	HL832NX-A	HL832NX-A

Impacts to Data Sheet:

None

Change Impact:

None

Reason for Change:

To improve on-time delivery performance by qualifying palladium coated copper with gold flash (CuPdAu) bond wire

Change Implementation Status:

In Progress

Estimated First Ship Date:
March 28, 2019 (date code: 1914)
NOTE: Please be advised that after the estimated first ship date customers may receive pre and post change parts.
Time Table Summary:

	June 2018					-->	February 2019					March 2019				
Workweek	22	23	24	25	26		05	06	07	08	09	10	11	12	13	14
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 25, 2018: Issued initial notification.
February 28, 2019: Issued final notification. Attached the Qualification Report. Provided estimated first ship date on March 28, 2019.

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_LIAL-20HILO069_Qual_Report.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

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If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN)

AT91SAM9G20B-CU
AT91SAM9G20B-CU-101
AT91SAM9G20B-CU-103
AT91SAM9G20B-CU-999

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: LIAL-20HILO069

Date
January 28, 2018

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 2100AC die attach and KE-G1250NAS mold compound in selected products available in 217L LFBGA package at ASE assembly site

MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose: **Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 2100AC die attach and KE-G1250NAS mold compound in selected products available in 217L LFBGA package at ASE assembly site**

Qual ID: **QTP3578 Rev. A**

CCB No.: **3431**

Misc.	Assembly site	ASE
	BD Number	BD_91001_CGF_14_C_2.0
	MP Code (MPC)	910017ATBC04
	Part Number (CPN)	91SAM9G20B-CU
Substrate	Core Material	HL832NX-A
	Core Thickness	200+/-30um
	L1/L2 Thickness	Min 0.18um/Min 0.18um
	Process	Normal
	Part Number	1209581131 (ASE p/n)
	BGA Composition	NiAu
	SM Material	AUS308
	SM Thickness	50+/-15um
	Drill Size	150um
	Line/Space Specs	Min. 30um / Min. 20um
	Part Number	51000251E1 (ASE p/n) (CLR-1A PLUS)
Bond Wire	Material	CuPdAu
Die Attach	Conductive	Conductive
	Part Number	1400210121 (2100AC)
Mold Compound	Part Number	1801530141 (KE-G1250NAS)
PKG	PKG Type	LFBGA
	Pin/Ball Count	217
	PKG width/size	15x15 mm
	Ball Pitch	0.80 mm
	Bonding Diagram/ Qual Report	AAH@A110850007-A
Die	Fab Process (site)	91K (UMC, 12”)
	Die Thickness	6 mils
	Die Size	4.164 x 4.286mm
Solder ball	Composition	98.5SN/1.0AG/0.5CU (SAC105)
	Ball size	0.4mm diameter

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	**Wafer Lot No.**	**Date Code**
ASE-191400083.000	U12A919107007.000	1827
ASE-191400085.000	U12A919107007.000	1827
ASE-191400088.000	U12A919107007.000	1827

Result ☑ Pass ☐ Fail ☐ ____________________

Standard BOM for LFBGA217 package 15x15x1.4mm for 91K devices with PdCuAu wire in ASE passed all Package Reliability testing with Moisture/Reflow Sensitivity Classification Level 3 at 260C 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
Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Electrical Test :** 25°C, 85°C System: D10 Tester / Thermonics	JESD22-A113	539(0)	0/539		3 lots. Good Devices
	Bake 125°C, 24 hrs System: HERAEUS		539(0)	0/539		
	30°C/60%RH Moisture Soak 192 hrs. System: Climats Excal 5423-HE	IPC/JEDEC J-STD-020D	539	0/539		
	3x Convection-Reflow 265°C max System: Mancorp CR.5000F		539	0/539		
	Electrical Test :25°C, 85°C System: D10 Tester / Thermonics		539	0/539	PASS	3 lots.
Temp Cycle -55°C to +125°C	**Stress Condition:** (Standard) -55°C to +125°C, 500 Cycles System : VOTSCH	JESD22-A104	270	0/270		3 lots. Parts had been pre-conditioned at 260°C
	Electrical Test: +85°C (3 lots) System: D10 Tester / Thermonics		270	0/270	PASS	
	Bond Strength: Wire Pull (> 2.50 grams) Bond *Shear (>15.00 grams)*		15	0/15	PASS	
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	269	0/269		3 lots. Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: D10 Tester / Thermonics		269	0/269	PASS	3 lots
	Bond Strength: Wire Pull (> 2.50 grams) Bond *Shear (>15.00 grams)*		15	0/15	PASS	
HIGH TEMPERATURE STORAGE LIFE	**Stress Condition:** Bake 175°C, 500 hrs System: HERAEUS	JESD22-A103	180	0/180		3 lots.
	Electrical Test: 25°C, 85°C System: D10 Tester / Thermonics		180	0/180	PASS	3 lots.
	Bond Strength: Wire Pull (> 2.50 grams) Bond *Shear (>15.00 grams)*		15	0/15	PASS	3 lots.
Bond Strength Data Assembly	Wire Pull (> 2.50 grams) Bond Shear (>15.00 grams)	M2011.8 MIL-STD-883	30 (0) wires	0/30	PASS	
Physical Dimensions	Physical Dimension, 10 units per 3 lots	JESD22-B100/B108	10 (0) units	0/10	PASS	Performed at Subcon