Product Change Notification / KSRA-20GCJX052

Date:

23-Apr-2021

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4311 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and G631HQ mold compound material for selected Atmel ATMEGAxxM1, ATMEGAxxU2, AT90USB162 and ATXMEGAxxE5 device families available in 32L TQFP (7x7x1.0mm) package at ANAP assembly site.

Affected CPNs:

KSRA-20GCJX052_Affected_CPN_04232021.pdf
KSRA-20GCJX052_Affected_CPN_04232021.csv

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.

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 G631HQ mold compound material for selected Atmel ATMEGAxxM1, ATMEGAxxU2, AT90USB162 and ATXMEGAxxE5 device families available in 32L TQFP (7x7x1.0mm) package at ANAP assembly site.

Pre Change: Assembled using palladium coated copper (PdCu) bond wire and G700Y molding compound material

Post Change:
Assembled using palladium coated copper with gold flash (CuPdAu) bond wire and G631HQ molding compound material

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	Amkor Technology Philippine (P1/P2), INC. / ANAP	Amkor Technology Philippine (P1/P2), INC. / ANAP
Wire material	PdCu	CuPdAu
Die attach material	3230	3230
Molding compound material	G700Y	G631HQ
Lead frame material	C194 ESH	C194 ESH

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve productivity by qualifying palladium coated copper with gold flash (CuPdAu) bond wire.

Change Implementation Status: In Progress

Estimated First Ship Date: April 30, 2021 (date code: 2118)

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

Time Table Summary:

	July 2020						April 2021				
Workweek	27	28	29	30	31	-->	14	15	16	17	18
Initial PCN Issue Date				X							
Qual Report Availability										X	
Final PCN Issue Date										X	
Estimated First Ship 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:July 21, 2020: Issued initial notification.**April 23, 2021**: Issued final notification. Attached the qualification report. Provided estimated first ship date to be on April 30, 2021.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachments:

PCN_KSRA-20GCJX052_Qual_Report.pdf

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

Terms and Conditions:

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.

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)

ATMEGA32M1-AU
ATMEGA16M1-AU
ATMEGA32M1-AUR
ATMEGA64M1-AU
ATMEGA16U2-AU
ATMEGA8U2-AU
ATMEGA16U2-AUR
ATMEGA8U2-AUR
ATMEGA32U2-AU
ATMEGA32U2-AUR
AT90USB162-16AU
AT90USB162-16AUR
ATXMEGA8E5-AU
ATXMEGA16E5-AU
ATXMEGA32E5-AU
ATXMEGA8E5-AN
ATXMEGA16E5-AN
ATXMEGA32E5-AN
ATXMEGA16E5-ANR
ATXMEGA8E5-ANR
ATXMEGA32E5-ANR
ATXMEGA8E5-AUR
ATXMEGA16E5-AUR
ATXMEGA32E5-AUR

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: KSRA-20GCJX052

Date:
March 11, 2021

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and G631HQ mold compound material for selected Atmel ATMEGAxxM1, ATMEGAxxU2, AT90USB162 and ATXMEGAxxE5 device families available in 32L TQFP (7x7x1.0mm) package at ANAP assembly site.

Package Classification Report

Purpose: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire and G631HQ mold compound material for selected Atmel ATMEGAxxM1, ATMEGAxxU2, AT90USB162 and ATXMEGAxxE5 device families available in 32L TQFP (7x7x1.0mm) package at ANAP assembly site.

Misc.	Assembly site	ANAP (ATP)
	BD Number	BDM-002653A
	MP Code (MPC)	355T97T5XC03
	Part Number (CPN)	AT90USB162-16AU
	MSL information	MSL-3 @260C
	Assembly Shipping Media (T/R, Tube/Tray)	ATP ship in Tray , MCHP ship in T/R
	Base Quantity Multiple (BQM)	ATP = 250 , MCHP = 2,000
	CCB No.	4311
	Qual ID	QTP4261
Lead-Frame	Paddle size	197x197 mil
	Material	C194 ESH
	DAP Surface Prep	Double Ring
	Treatment	No
	Process	Stamped
	Lead-lock	No
	Part Number	101386770 (VHDLF)
	Lead Plating	Matte Tin
	Strip Size	250x70mm
	Strip Density	VHDLF
Bond Wire	Material	CuPdAu
Die Attach	Part Number	3230
	Conductive	Yes
MC	Part Number	G631HQ
PKG	PKG Type	TQFP
	Pin/Ball Count	32
	PKG width/size	7x7x1mm

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Package Classification Report

Manufacturing Information

Assembly Lot No.	Qty
ANAP212200250.000	1000
ANAP212200251.000	1000
ANAP212300001.000	1000

Result [X] Pass [ ] Fail [ ] ______________________

355T97T5XC03 in 32L TQFP 7x7 at ANAP using VHDLF LF#101386770 Passed at Moisture/ Reflow Sensitivity Classification Level 3 per IPC/JEDEC J-STD-020E standard. No delamination were observed on all the units.

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Pre- Test: +25°C** System: MAV1_VT / MT9510	JESD22-A113, JIP/ IPC/JEDEC J-STD-020E	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp		693(0)	0/693	Pass	
	Bake 125°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 30°C/60%RH Moisture Soak 192hrs. System: Climats Excal 5423-HE		693(0)			
	Reflow 3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)			
	Post Test: +25°C System: MAV1_VT / MT9510		693(0)	0/693	Pass	
Temperature Cycle Parts had been pre-conditioned at 260°C	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2	JESD22-A104	231(0)			
	Electrical Test : +85°C System:MAV1_VT / MT9510		231(0)	0/231	Pass	
	Bond Strength: (5 units per Lot) Wire Pull Bond Shear		15(0)	0/15	Pass	
	Stress Condition: (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2		215(0)			

	Electrical Test : +85°C System:MAV1_VT / MT9510		215(0)	0/215	Pass	
	Bond Strength: (5 units per Lot) Wire Pull Bond Shear		15(0)	0/15	Pass	
Biased HAST Parts had been pre-conditioned at 260°C	**Stress Condition:** (Standard) 130°C / 85% RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	231(0)			
	Electrical Test : +25°C, +85°C System:MAV1_VT / MT9510		231(0)	0/231	Pass	
	Bond Strength: (5 units per Lot) Wire Pull Bond Shear		15(0)	0/15	Pass	
	Stress Condition: (Standard) 130°C / 85% RH, 96H System: HIRAYAMA HASTEST PC-422R8		215(0)			
	Electrical Test : +25°C, +85°C System:MAV1_VT / MT9510		215(0)	0/215	Pass	
	Bond Strength: (5 units per Lot) Wire Pull Bond Shear		15(0)	0/15	Pass	

UnBiased HAST Parts had been pre-conditioned at 260°C	**Stress Condition:** (Standard) 130°C / 85% RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A104	231(0)			
	Electrical Test : +25°C System:MAV1_VT / MT9510		231(0)	0/231	Pass	
	Stress Condition: (Standard) 130°C / 85% RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A104	231(0)			
	Electrical Test : +25°C System:MAV1_VT / MT9510		231(0)	0/231	Pass	
HTSL	**Stress Condition:** (Standard) 175°C to +150°C, 504 H System: HERAEUS	JESD22-A104	231(0)			
	Electrical Test : +25°C, +85°C System:MAV1_VT / MT9510		231(0)	0/231	Pass	
Solderability	**Bake:** Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Solder material: Pb Free Material Visual Inspection: External Visual Inspection	J-STD-002	25 (0)	0/25	Pass	Performed at MPHIL
Physical Dimensions		JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	**Wire Bond Pull**	M2011.8 MIL-STD-883	30(0) Wires	0/30	Pass	
	Wire Ball Shear		30(0) bonds	0/30	Pass	