



Product Change Notification - KSRA-28OGQI966

Date:

01 Feb 2019

Product Category:

8-bit Microcontrollers

Affected CPNs:**Notification subject:**

CCB 3661 Initial Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected Atmel products of AT90USB646 and AT90USB647 device families available in 64L VQFN package at NSEB assembly site.

Notification text:**PCN Status:**

Initial 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 for selected Atmel products of AT90USB646 and AT90USB647 device families available in 64L VQFN package at NSEB assembly site.

Pre Change:

Assembled using gold (Au) bond wire and G770HCD molding compound material.

Post Change:

Assembled using palladium coated copper with gold flash (CuPdAu) bond wire and G700LTD molding compound material.

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	UTAC Thai Limited / NSEB	UTAC Thai Limited / NSEB
Wire material	Au	CuPdAu
Die attach material	8600	8600
Molding compound material	G770HCD	G700LTD
Lead frame material	EFTEC 64T	EFTEC 64T

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 and G700LTD molding compound material.

Change Implementation Status:

In Progress

Estimated Qualification Completion Date:



July 2019

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. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary:

Workweek	February 2019					-->	July 2019				
	05	06	07	08	09		27	28	29	30	31
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:

February 01, 2019: 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_KSRA-28OGQI966_Qual_Plan.pdf](#)

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

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Affected Catalog Part Numbers (CPN)

AT90USB646-MU

AT90USB646-MUR

AT90USB647-16MU

AT90USB647-MU

AT90USB647-MUR



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QUALIFICATION PLAN SUMMARY

PCN#: KSRA-28OGQI966

**Date:
January 24, 2019**

**Qualification of palladium coated copper with gold flash
(CuPdAu) bond wire for selected Atmel products of
AT90USB646 and AT90USB647 device families available in
64L VQFN package at NSEB assembly site.**

Purpose: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire for selected Atmel products of AT90USB646 and AT90USB647 device families available in 64L VQFN package at NSEB assembly site.

CCB No.: 3661

MP code: 355T6TTJBC01

Part No.: AT90USB647-MUR

BD No: BDM-002023-A

Process/CUP: No

Type/pin: VQFN 64L

Package Code: TJB

MSL: 3

Package/Die Data:

<u>Misc.</u>	Assembly site	NSEB
	BD Number	BDM-002023-A
	MP Code (MPC)	355T6TTJBC01
	Part Number (CPN)	AT90USB647-MUR
<u>Lead-Frame</u>	Paddle size	7.7x7.7
	Material	EFTEC 64T
	DAP Surface Prep	Non rough
	Treatment	Yes (In house roughening)
	Process	Etched
	Lead-lock	Yes
	Part Number	FR0158
	Lead Plating	Matt Sn, Selective Ag (Finger and Double ring on DAP)
	Strip Size	70x250mm
	Strip Density	120u/strip
<u>Bond Wire</u>	Material	CuPdAu
<u>Die Attach</u>	Part Number	8600
	Conductive	Conductive
<u>MC</u>	Part Number	G700LTD
<u>PKG</u>	PKG Type	QFN
	Pin/Ball Count	64
	PKG width/size	9x9x0.85
<u>Die</u>	Die Thickness	11mils
	Die Size	228x178mil
	Fab Process (site)	MCSO 6"

Test Name	Conditions	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	ATE Test Site	REL Test Site	Special Instructions
Standard Pb-free Solderability	J-STD-002D ; Perform 8 hour 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	MPHIL	NSEB/ MPHIL	Standard Pb-free solderability is the requirement. SnPb solderability (backward solderability- SMD reflow soldering) is required for any plating related changes and highly recommended for other package BOM changes.
Wire Bond Pull - WBP	Mil. Std. 883-2011	5	0	1	5	0 fails after TC	5	MPHIL	NSEB/ MPHIL	30 bonds from a min. 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001	5	0	1	5		5	MPHIL	NSEB/ MPHIL	30 bonds from a min. 5 devices.
Physical Dimensions	Measure per JESD22 B100 and B108	10	0	3	30	0	5	MPHIL	NSEB/ MPHIL	
External Visual	Mil. Std. 883-2009/2010	All devices prior to submission for qualification testing	0	3	ALL	0	5	MPHIL	NSEB/ MPHIL	
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-020E for package type; Electrical test pre and post stress at +25°C and hot temp. MSL3 @ 260°C	231	15	3	738	0	15	MPHIL	MPHIL	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 96 hours /192hrs	77	5	3	246	0	10	MPHIL	MPHIL	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
UHAST	+130°C/85% RH for 96 hrs/192hrs. Electrical test pre and post stress at +25°C	77	5	3	246	0	10	MPHIL	MPHIL	Spares should be properly identified. Use the parts which have gone through Pre-conditioning
Temp Cycle	-65°C to +150°C for 500 cycles/1000cycles. Electrical test pre and post stress at hot temp; 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress.	77	5	3	246	0	15	MPHIL	MPHIL	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.