

**Product Change Notification - JAON-22CQBF728**


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**Date:**

25 May 2020

**Product Category:**

8-bit Microcontrollers

**Affected CPNs:**

**Notification subject:**

CCB 3702.003 and 3702.004 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach and G700LTD mold compound material for selected ATML AT90CAN64, AT90CAN128, AT90PWM81xx and ATMEGA168PA device families available in 32L VQFN (5x5x0.9mm) and 64L VQFN (9x9x0.9mm) packages at NSEB 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, 8600 die attach and G700LTD mold compound material for selected ATML AT90CAN64, AT90CAN128, AT90PWM81xx and ATMEGA168PA device families available in 32L VQFN (5x5x0.9mm) and 64L VQFN (9x9x0.9mm) packages at NSEB assembly site.

**Pre Change:**

For 32L VQFN: Using gold (Au) bond wire, 8600 die attach, G770HCD mold compound and A194 lead frame material.

For 64L VQFN: Using gold (Au) bond wire, 8200T die attach, G770HCD mold compound and EFTEC 64T lead frame material.

**Post Change:**

For both 32L and 64L VQFN: Using palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach, G700LTD mold compound and EFTEC 64T lead frame material.

**Pre and Post Change Summary:**

		Pre Change	Post Change
<b>Assembly Site</b>		UTAC Thai Limited LTD.  (NSEB)	UTAC Thai Limited LTD.  (NSEB)
<b>Wire material</b>		Au	CuPdAu
<b>Die attach material</b>	64L VQFN	8200T	8600
	32L VQFN	8600	
<b>Molding compound material</b>		G770HCD	G700LTD
<b>Lead frame material</b>	64L VQFN	EFTEC 64T	EFTEC 64T
	32L VQFN	A194	

**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:**

July 10, 2020 (date code: 2028)

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

**Time Table Summary:**

Workweek	May 2020					->	July 2020				
	18	19	20	21	22		27	28	29	30	31
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:**

**May 25, 2020:** Issued final 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 JAON-22CQBF728 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.

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JAON-22CQBF728 - CCB 3702.003 and 3702.004 Final Notice: Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach and G700LTD mold compound material for selected ATML AT90CAN64, AT90CAN128, AT90PWM81xx and ATMEGA168PA device families available in 32L VQFN (5x5x0.9mm) and 64L VQFN (9x9x0.9mm) packages at NSEB assembly site.

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Affected Catalog Part Numbers (CPN)

ATMEGA168PA-MU  
ATMEGA168PA-MUR  
AT90PWM81EP-16MN  
AT90PWM81OS-B16MNR  
AT90CAN64-16MU  
AT90CAN64-16MU-HCM  
AT90CAN64-16MUR  
AT90CAN128-16MU  
AT90CAN128-16MUR



**MICROCHIP**

**QUALIFICATION REPORT SUMMARY**  
RELIABILITY LABORATORY

**PCN #: JAON-22CQBF728**

**Date**  
**December 19, 2019**

**Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach and G700LTD mold compound material for selected Atmel products available in 64L VQFN package at NSEB assembly site. The selected ATML AT90CAN64, AT90CAN128, AT90PWM81xx and ATMEGA168PA device families available in 32L VQFN (5x5x0.9mm) and 64L VQFN (9x9x0.9mm) packages will qualify by similarity. This is an Automotive Grade 1 qualification.**



## MICROCHIP PACKAGE QUALIFICATION REPORT

**Purpose:** Qualification of palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach and G700LTD mold compound material for selected Atmel products available in 64L VQFN package at NSEB assembly site. The selected ATML AT90CAN64, AT90CAN128, AT90PWM81xx and ATMEGA168PA device families available in 32L VQFN (5x5x0.9mm) and 64L VQFN (9x9x0.9mm) packages will qualify by similarity. This is an Automotive Grade 1 qualification.

<u>Misc.</u>	Assembly site	NSEB
	BD Number	BDM-002057B
	MP Code (MPC)	355T7YTPBC01
	Part Number (CPN)	AT90CAN128-15MZ
	Qual ID	QTP3827 Rev. A
	CCB No.	3702, 3702.001, 3702.003 and 3702.004
<u>Lead-Frame</u>	Paddle size	6.7x6.7
	Material	EFTEC 64T
	Surface	Non rough
	Treatment	Yes (In house roughening)
	Process	Etched
	Lead-lock	Yes
	Part Number	FR0691
	Lead Plating	Selective Ag (Finger only)
	Strip Size	70x250mm
Strip Density	120 unit/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



# MICROCHIP PACKAGE QUALIFICATION REPORT

## Manufacturing Information:

Assembly Lot No.
<i>NSEB200700001.000</i>
<i>NSEB200700002.000</i>
<i>NSEB200700002.000</i>

Result



Pass



Fail



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vQFN Matt Sn 9x9 64L Package with PdCuAu wire in Utac for DNP lead frame is qualified **Automotive Grade 1** and Passed Moisture/ Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020D standard. No delaminations were observed on all the units.

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard / Method	Qty. (Acc.)	Def/SS	Result	Remarks
<u>Precondition</u> <u>Prior Perform</u> <u>Reliability</u> <u>Tests (At MSL</u> <u>Level 3)</u>	<b>Electrical Test : +25°C, +85°C, +125°C</b> System:	JESD22- A113 231 units of 3 Lots	693(0)	0/693	Pass	
	<b>Bake 150°C, 24 hrs</b> System:		693(0)			
	<b>30°C/60%RH Moisture Soak 192 hrs.</b> System: Climats Excal 5423-HE	IPC/JED EC J- STD- 020E	693(0)			
	<b>3x Convection-Reflow 265°C max</b> System: Mancorp CR.5000F		693(0)	0/693	Pass	
	<b>Electrical Test :+25°C, +85°C, +125°C</b> System:		693(0)	0/693	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard / Method	Qty. (Acc.)	Def/SS	Result	Remarks
<u>Temp Cycle</u> <u>Parts had been</u> <u>pre-conditioned</u> <u>at 260°C</u>	<b>Stress Condition: (Standard)</b> -65°C to +150°C, 500 Cycles  System :	JESD22- A104  77 units of 3 Lots	231(0)			
	<b>Electrical Test : +85°C, +125°C</b>  System: Mav VT		231(0)	0/231	Pass	
	<b>Bond Strength:</b> Wire /Stitch Pull Bond Shear		15(0)	0/15	Pass	
	<b>Stress Condition: (Standard)</b> -65°C to +150°C, 1000 Cycles  <b>Electrical Test : +85°C, +125°C</b>  System: Mav VT		213(0)	0/213	Pass	
			213(0)	0/213	Pass	
	<b>Bond Strength:</b> Wire /Stitch Pull Bond Shear		15(0)	0/15	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard / Method	Qty. (Acc.)	Def/SS	Result	Remarks
<b><u>Biased HAST</u></b>  <u>Parts had been pre-conditioned at 260°C</u>	<b>Stress Condition: (Standard)</b> +130°C/85%RH, 96hrs. Bias Volt: 5.5 Volts  System :	JESD22-A104  77 units of 3 Lots	231(0)			
	<b>Electrical Test : +25°C, +85°C, +125°C</b>  System: Mav VT		231(0)	0/231	Pass	
	<b>Bond Strength:</b> Wire /Stitch Pull Bond Shear		15(0)	0/15	Pass	
	<b>Stress Condition: (Standard)</b> +130°C/85%RH, 192hrs. Bias Volt: 5.5 V  System : VOTSCH VT 7012 S2		213(0)			
	<b>Electrical Test :+25°C, +85°C, +125°C</b>  System: Mav VT		213(0)	0/213	Pass	
	<b>Bond Strength:</b> Wire /Stitch Pull Bond Shear		15(0)	0/15	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>UnBiased HAST</b>  <u>Parts had been pre-conditioned at 260°C</u>	<b>Stress Condition: (Standard)</b> +130°C/85%RH, 96hrs  System :	JESD22-A104	231(0)			
	<b>Electrical Test :+25°C</b>  System: Mav VT		231(0)	0/213	Pass	
	<b>Stress Condition: (Standard)</b> +130°C/85%RH, 192hrs. Bias Volt: 5.5 V  System : VOTSCH VT 7012 S2		231(0)			
	<b>Electrical Test :+25°C</b>  System: Mav VT		231(0)	0/231	Pass	
<b>High Temperature Storage Life</b>	<b>Stress Condition: (Standard)</b> Bake 175°C, 500 hrs  System : VOTSCH VT 7012 S2	JESD22-A104	135(0)			
	<b>Electrical Test :+25°C, +85°C, +125°C</b>  System: Mav VT		135(0)	0/135	Pass	
	<b>Stress Condition: (Standard)</b> Bake 175°C, 1000 hrs  System : VOTSCH VT 7012 S2		132(0)			
	<b>Electrical Test : +25°C, +85°C, +125°C</b>  System: Mav VT		132(0)	0/132	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Bond Strength</b> <b>Data Assembly</b>	Wire /Stitch Pull	M2011.8	35(0)	0/35	Pass	
	Bond Shear	MIL-STD-883	35(0)	0/35	Pass	