



## Product Change Notification / JAON-19SJPJ307

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### Date:

25-May-2021

### Product Category:

32-bit Microcontrollers

### PCN Type:

Manufacturing Change

### Notification Subject:

CCB 4398.001 Final Notice: Qualification of MMT as an additional assembly site for selected Atmel ATSAML10D1xA, ATSAML11D1xA, ATSAMD11D14A, ATSAMD10D1xA, ATSAMD09D14A and ATMPS001D14A device families available in 24L VQFN (4x4x0.9mm) package.

### Affected CPNs:

[JAON-19SJPJ307\\_Affected\\_CPN\\_05252021.pdf](#)

[JAON-19SJPJ307\\_Affected\\_CPN\\_05252021.csv](#)

### Notification Text:

**PCN Status:** Final notification

**PCN Type:** Manufacturing Change

**Microchip Parts Affected:** Please open one of the files 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 MMT as an additional assembly site for selected Atmel ATSAML10D1xA, ATSAML11D1xA, ATSAMD11D14A, ATSAMD10D1xA, ATSAMD09D14A and ATMPS001D14A device families available in 24L VQFN (4x4x0.9mm) package.

**Pre and Post Change Summary:** *For ATSAML10D1xA and ATSAML11D1xA device families:*

	Pre Change	Post Change	
<b>Assembly Site</b>	ASE Group Chung-Li (ASCL)	ASE Group Chung-Li (ASCL)	Microchip Technology Thailand (Branch) (MMT)
<b>Wire material</b>	CuPdAu	CuPdAu	Au
<b>Die attach material</b>	ATB-125	ATB-125	8006NS
<b>Molding compound material</b>	G700	G700	G700
<b>Lead frame material</b>	C194	C194	C194
<b>Lead frame DAP surface prep</b>	Double Ag Ring Plated	Double Ag Ring Plated	Ag selective plated
<b>Lead frame lead lock</b>	No	No	Yes
	See pre and post change comparison		

For ATSAMD11D14A, ATSAMD10D1xA, ATSAMD09D14A and ATMPS001D14A device families:

	Pre Change	Post Change	
<b>Assembly Site</b>	ASE Inc. (ASE)	ASE Inc. (ASE)	Microchip Technology Thailand (Branch) (MMT)
<b>Wire material</b>	CuPdAu	CuPdAu	Au
<b>Die attach material</b>	NEX-130CTX	NEX-130CTX	8006NS
<b>Molding compound material</b>	G631H	G631H	G700
<b>Lead frame material</b>	C194	C194	C194
<b>Lead frame paddle size</b>	110x110	110x110	114x114
<b>Lead frame DAP surface prep</b>	Ag plated	Ag plated	Ag selective plated
<b>Lead frame lead lock</b>	No	No	Yes
	See pre and post change comparison		
<b>MSL Classification</b>	MSL 3	MSL 3	MSL 1

**Impacts to Data Sheet:** Yes. Package Outline Drawing (POD)

Feature	Dimension	ASCL / ASE 24L VQFN-WFS 4x4			MMT 24L VQFN-WFS 4x4		
		MIN	NOM	MAX	MIN	NOM	MAX
Number of Pins	n	24			24		
Pitch	e	0.50 REF			0.50 BSC		
Overall Height	A	0.80	0.85	0.90	0.80	0.90	1.00
Standoff	A1	0.00	-	0.05	0.00		0.05
Terminal Thickness	A3	0.203 REF			0.203 REF		
Overall Width	D	3.90	4.00	4.10	3.90	4.00	4.10
Exposed Pad Width	D2	2.55	2.60	2.65	2.55	2.60	2.65
Overall Length	E	3.90	4.00	4.10	3.90	4.00	4.10
Exposed Pad Length	E2	2.55	2.60	2.65	2.55	2.60	2.65
Terminal Width	b	0.20	0.25	0.30	0.20	0.25	0.30

Terminal Length	L	0.35	0.40	0.45	0.35	0.40	0.45
Contact-to-Exposed Pad	K	0.20	-	-		0.30 REF	

**Change Impact:**None

**Reason for Change:**To improve on-time delivery performance by qualifying MMT as an additional assembly site.

**Change Implementation Status:**In Progress

**Estimated First Ship Date:**May 28, 2021 (date code: 2122)

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

**Time Table Summary:**

	May 2021				
Workweek	1 9	2 0	2 1	2 2	2 3
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:**May 25, 2021: Issued final notification. Attached the qualification report. Provided estimated first ship date to be on May 28, 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\\_JAON-19SJPJ307\\_Qual\\_Report.pdf](#)
- [PCN\\_JAON-19SJPJ307\\_Pre and Post Change\\_Summary.pdf](#)

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

**Terms and Conditions:**

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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)

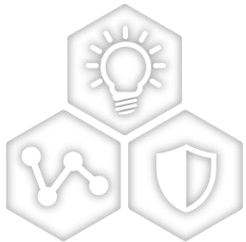
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ATSAAMD09D14A-MUT  
ATSAAMD10D14A-MUTB5  
ATMPS001D14A-MUT  
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NI32D14-MUT  
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**CCB 4398.001**  
**Pre and Post Change Summary**  
**PCN #: JAON-19SJPJ307**



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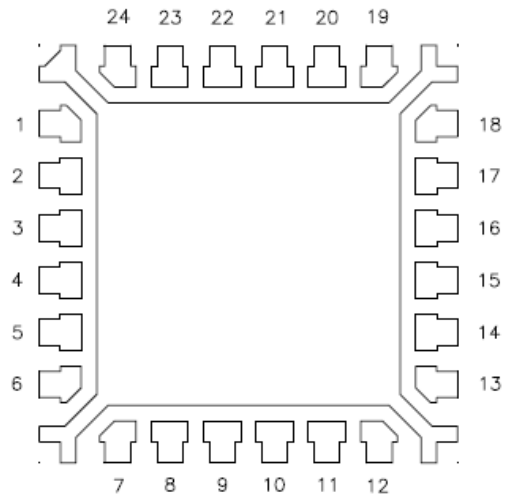
A Leading Provider of Smart, Connected and Secure Embedded Control Solutions



SMART | CONNECTED | SECURE

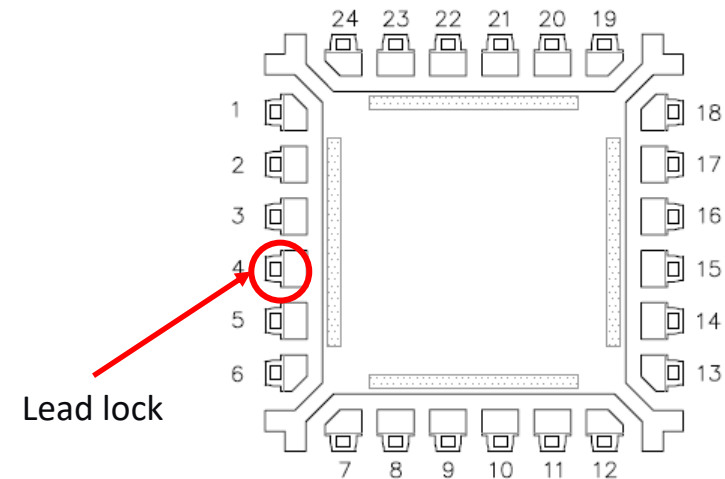
# Lead frame Comparison

## Pre Change ASE / ASCL



	ASE	ASCL
LF Paddle Size	110x110	114x114
DAP Surface Prep	Ag Plated	Double Ag Ring Plated
Lead-Lock	No	

## Post Change MMT



LF Paddle Size	114x114
DAP Surface Prep	Ag selective plated
Lead-Lock	Yes

Note: The lead lock hole fills with mold compound during the assembly process and provides improved protection against moisture penetration around the interface edges between pins and mold compound.



**MICROCHIP**

**QUALIFICATION REPORT SUMMARY**  
RELIABILITY LABORATORY

**PCN #: JAON-19SJPJ307**

**Date**

**April 14, 2021**

**Qualification of MMT as an additional assembly site for selected Atmel ATSAML10D1xA, ATSAML11D1xA, ATSAMD11D14A, ATSAMD10D1xA, ATSAMD09D14A and ATMPS001D14A device families available in 24L VQFN (4x4x0.9mm) package. This is an Automotive Q100 Grade 1 qualification.**





# MICROCHIP

## Package Qualification Report

**Purpose:** Qualification of MMT as an additional assembly site for selected Atmel ATSAML10D1xA, ATSAML11D1xA, ATSAMD11D14A, ATSAMD10D1xA, ATSAMD09D14A and ATMP5001D14A device families available in 24L VQFN (4x4x0.9mm) package. This is an Automotive Q100 Grade 1 qualification.

Misc.	Assembly site	MMT
	BD Number	BDM-002728/A
	MP Code (MPC)	661A6YU3BVC1
	Part Number (CPN)	ATSAML10D16A-MZTVAO
	MSL information	1
	Assembly Shipping Media (T/R, Tube/Tray)	T/R
	Base Quantity Multiple (BQM)	6000
	Reliability Site	MPHIL
	Qual ID	QTP 4379 rev A
	CCB No.	4398 and 4398.001
Lead Frame	Paddle size	114x114
	Material	C194
	DAP Surface Prep	Ag selective plated
	Treatment	Roughening
	Process	Etched
	Lead-lock	Yes
	Part Number	10102401
	Lead Plating	Matte tin
	Strip Size	70x250mm
Strip Density	700	
Wire	Material	Au
Die Attach	Part Number	8006NS
	Conductive	No
Mold Compound	Part Number	G700
Package	PKG Type	VQFN
	Pin/Ball Count	24
	PKG width/size	4x4mm



# MICROCHIP

## Package Qualification Report

### Manufacturing Information

Wafer Lot No.	Assembly Lot No.
U08D920525728.400	MMT-213101314.000
U08D920525728.400	MMT-213102060.000
U08D920525728.400	MMT-213102061.000

**Result**

Pass

Fail

661A6YU3BVC1 using 8006NS screen print in 24L VQFN-WFS 4x4 U3B assembled at MMT pass reliability test per QCI-39000 which was conducted at MPHL rel lab. This package is qualified Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks	
<b>Precondition Prior Perform Reliability Tests (At MSL Level 1)</b>	<b>Electrical Test :25°C</b> Magnum	JESD22- A113,  JIP/ IPC/JEDE C J-STD- 020E	231 per lot	Lot 1 0/231	Pass	Good Devices	
				Lot 2 0/231	Pass		
				Lot 3 0/231	Pass		
	<b>Bake</b> 150°C, 24 hrs System: HERAEUS			231 per lot			
	<b>Moisture Soak</b> 168h(85°C/85%RH) System: Climats Excal 5423-HE			231 per lot			
	<b>Reflow</b> 3x Convection-Reflow 265°C max System: Mancorp CR.5000F			231 per lot	Lot 1 0/231	Pass	
	Lot 2 0/231	Pass					
	Lot 3 0/231	Pass					
<b>Electrical Test :25°C</b> Magnum		231 per lot	Lot 1 0/231	Pass			
	Lot 2 0/231		Pass				
	Lot 3 0/231		Pass				

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>UNBIASED HAST</b>	<b>Stress Condition:</b> (Standard) + 130°C, 85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8  <b>Electrical Test:</b> 25°C System: Magnum	JESD22-A118	77 units per lot	Lot 1 0/77  Lot 2 0/77  Lot 3 0/77	Pass  Pass  Pass	Parts had been pre-conditioned at 260°C
<b>HAST</b>	<b>Stress Condition:</b> (Standard) 130°C, 85%RH, 96 hrs. VOLTS=5.5V System: HIRAYAMA HASTEST PC-422R8  <b>Electrical Test:</b> 25°C /125°C System: Magnum	JESD22-A110	77 units per lot	Lot 1 0/77  Lot 2 0/77  Lot 3 0/77	Pass  Pass  Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
<b>Temp Cycle</b>	<b>Stress Condition:</b> (Standard) -65°C to +150°C, 500 Cycles System : Votsch VTS <sup>2</sup> 7012  <b>Electrical Test:</b> 125°C System: Magnum	JESD22-A104	77 units per lot	Lot 1 0/77	Pass	Parts had been pre-conditioned at 260°C
	Lot 2 0/77			Pass		
Lot 3 0/77	Pass					
<b>Temp Cycle</b>	<b>Bond Strength:</b> Wire Pull (> 1.75 grams) Bond <i>Shear</i> (>12.6 grams) System: Dage		5 units, 30 bonds per lot	Lot 1 0/30	Pass	
				Lot 2 0/30	Pass	
				Lot 3 0/30	Pass	
<b>High Temperature Storage Life</b>	<b>Stress Condition:</b> Bake 175°C, 500 hrs System: HERAEUS  <b>Electrical Test:</b> 25°C /125°C System: Magnum	JESD22-A103	45 units per lot	Lot 1 0/45	Pass	
				Lot 2 0/45	Pass	
				Lot 3 0/45	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>Bond Strength, 0 Hour</b>	<b>System:</b> Dage Wire Pull (> 1.75 grams) Bond <i>Shear</i> (>12.6 grams)		5 units, 30 bonds per lot	Lot 1 0/30  Lot 2 0/30  Lot 3 0/30	Pass  Pass  Pass	
<b>Solderability</b>	<b>Bake:</b> Temp 155°C,4Hrs System: Oven Solder Bath: Temp.245°C Solder material: SAC305 Visual Inspection: External Visual Inspection	J-STD-002D	22 units from 1 lot	0/22	Pass	