



Product Change Notification / JAON-19SJPJ307

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

For ATSAMD11D14A, ATSAMD10D1xA, ATSAMD09D14A and ATMPS001D14A device families:

	Pre Change	Post Change	
Assembly Site	ASE Inc. (ASE)	ASE Inc. (ASE)	Microchip Technology Thailand (Branch) (MMT)
Wire material	CuPdAu	CuPdAu	Au
Die attach material	NEX-130CTX	NEX-130CTX	8006NS
Molding compound material	G631H	G631H	G700
Lead frame material	C194	C194	C194
Lead frame paddle size	110x110	110x110	114x114
Lead frame DAP surface prep	Ag plated	Ag plated	Ag selective plated
Lead frame lead lock	No	No	Yes
	See pre and post change comparison		
MSL Classification	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-19SJPI307_Qual_Report.pdf](#)
[PCN_JAON-19SJPI307_Pre and Post Change_Summary.pdf](#)

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

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CCB 4398.001
Pre and Post Change Summary
PCN #: JAON-19SJPJ307



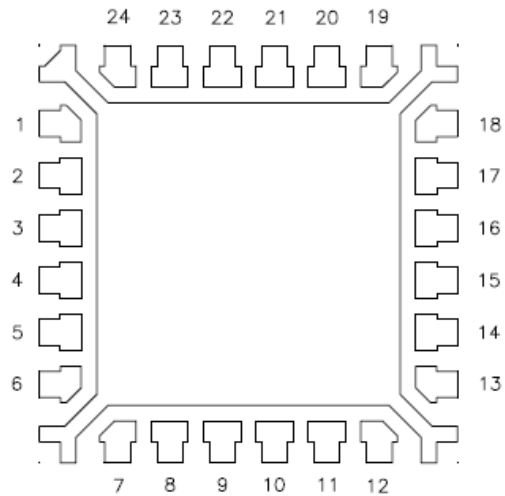
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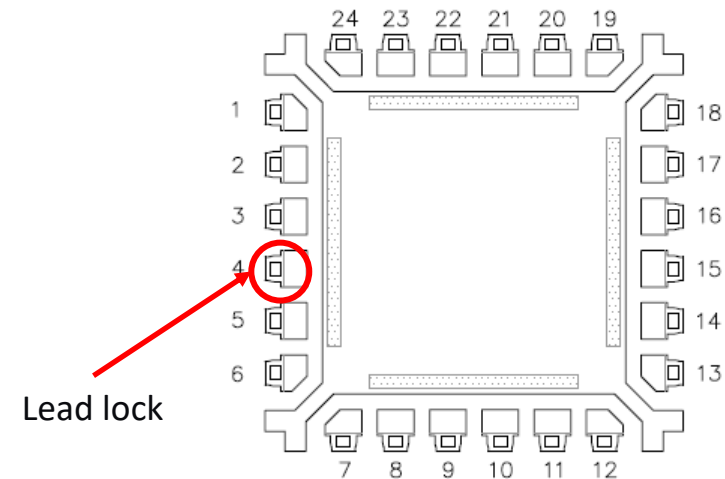
Lead frame Comparison

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.



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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.



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Package Qualification Report

Purpose: 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.

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



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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	
Precondition Prior Perform Reliability Tests (At MSL Level 1)	Electrical Test :25°C 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		
	Bake 150°C, 24 hrs System: HERAEUS			231 per lot			
	Moisture Soak 168h(85°C/85%RH) System: Climats Excal 5423-HE			231 per lot			
	Reflow 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					
Electrical Test :25°C 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
UNBIASED HAST	Stress Condition: (Standard) + 130°C, 85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8 Electrical Test: 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
HAST	Stress Condition: (Standard) 130°C, 85%RH, 96 hrs. VOLTS=5.5V System: HIRAYAMA HASTEST PC-422R8 Electrical Test: 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
Temp Cycle	Stress Condition: (Standard) -65°C to +150°C, 500 Cycles System : Votsch VTS ² 7012 Electrical Test: 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					
Temp Cycle	Bond Strength: 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	
High Temperature Storage Life	Stress Condition: Bake 175°C, 500 hrs System: HERAEUS Electrical Test: 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
Bond Strength, 0 Hour	System: 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	
Solderability	Bake: 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	

Affected Catalog Part Numbers (CPN)

ATSAAML10D14A-MF
ATSAAML10D15A-MF
ATSAAML10D16A-MF
ATSAAML11D14A-MF
ATSAAML11D15A-MFKPH
ATSAAML11D15A-MF
ATSAAML11D16A-MFKPH
ATSAAML11D16A-MF
ATSAAML10D14A-MU
ATSAAML10D15A-MU
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ATSAAMD10D14A-MUT
ATSAAMD10D13A-MUT
ATSAAMD09D14A-MUT
ATSAAMD10D14A-MUTB5
ATMPS001D14A-MUT
ATMPS001D14A-MUTA01
NI32D14-MUT
ATSAAMD11D14A-MUTN03