



Product Change Notification / ALAN-190QMD341

Date:

05-Jun-2023

Product Category:

32-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 6148 Final Notice: Qualification of MP3A as an additional assembly site for ATSAMD21G1xx, ATSAMC21G1xx, ATSAMD20G1xx, ATSAML21G1xx, ATSAML22G1xx, ATSAMC20G1xx device families available in 48L VQFN (7x7x0.9mm) package.

Affected CPNs:

[ALAN-190QMD341_Affected_CPN_06052023.pdf](#)

[ALAN-190QMD341_Affected_CPN_06052023.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 MP3A as an additional assembly site for ATSAMD21G1xx, ATSAMC21G1xx, ATSAMD20G1xx, ATSAML21G1xx, ATSAML22G1xx, ATSAMC20G1xx device families available in 48L VQFN (7x7x0.9mm) package.

Pre and Post Change Summary:

	Pre Change		Post Change		
Assembly Site	Microchip Technology Thailand (HQ) (MTAI)	Microchip Technology Thailand (Branch) (MMT)	Microchip Technology Thailand (HQ) (MTAI)	Microchip Technology Thailand (Branch) (MMT)	Microchip Technology Inc. (MPHIL-3) (MP3A)
Wire Material	Au	Au	Au	Au	Au
Die Attach Material	3280	3280	3280	3280	3280
Molding Compound Material	G700LTD	G700LTD	G700LTD	G700LTD	G700LTD
Lead-Frame Material	C194	C194	C194	C194	C194
Lead-Frame Paddle Size	217x217 mils	217x217 mils	217x217 mils	217x217 mils	217x217 mils
DAP Surface Prep	Bare Cu	Bare Cu	Bare Cu	Bare Cu	Bare Cu

Impacts to Data Sheet:None

Change Impact:None

Reason for Change:To improve productivity by qualifying MP3A as an additional assembly site.

Change Implementation Status:In Progress

Estimated First Ship Date:June 26, 2023 (date code: 2326)

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

Time Table Summary:

	February 2023					>	June 2023				
Workweek	0	0	0	0	0		2	2	2	2	2
	5	6	7	8	9		2	3	4	5	6
Initial PCN Issue Date				x							

Affected Catalog Part Numbers (CPN)

ATSAMD21G16L-MUTN01
ATSAMD21G18A-MUTN01
ATSAMC21G16A-MNTS2
ATSAMC21G17A-MUTS2
ATSAMD21G16L-MNTP01
ATSAMD21G17A-MUA1
ATSAMD21G18A-MUA1
ATSAMD21G17A-MUTA1
ATSAMD21G18A-MUTA1
ATSAMD21G17A-MUTA0
ATSAMD20G18A-MUA2
ATSAMD20G14A-MUA2
ATSAMD20G15A-MUA2
ATSAMD20G16A-MUA2
ATSAMD20G17A-MUA2
ATSAMD20G14A-MUTA2
ATSAMD20G15A-MUTA2
ATSAMD20G16A-MUTA2
ATSAMD20G17A-MUTA2
ATSAMD20G18A-MUTA2
ATSAMD21G17L-MF
ATSAMD21G17L-MU
ATSAMD21G17L-MN
ATSAMD21G17L-MNT
ATSAMD21G17L-MUT
ATSAMD21G17L-MFT
ATSAMD21G15B-MF
ATSAMD21G16B-MF
ATSAMD21G16B-MU
ATSAMD21G15B-MU
ATSAMD21G16L-MNT
ATSAMD21G16B-MUT
ATSAMD21G15B-MUT
ATSAMD21G16L-MUT
ATSAMD21G15B-MFT
ATSAMD21G16B-MFT
ATSAML21G16B-MNT
ATSAML21G17B-MNT
ATSAML21G18B-MNT
ATSAML21G18B-MNT-SLL
ATSAML21G17B-MNT-SLL
ATSAML21G16B-MUT
ATSAML21G17B-MUT
ATSAML21G18B-MUT
ATSAML21G18B-MUT-SLL
ATSAML22G16A-MUT

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ATSAML22G17A-MUT
ATSAML22G18A-MUT
ATSAMD21G16L-MNTA7
ATSAMD20G16B-MU
ATSAMD20G15B-MU
ATSAMD20G14B-MU
ATSAMD20G16B-MN
ATSAMD20G14B-MN
ATSAMD20G15B-MN
ATSAMD20G16B-MNT
ATSAMD20G14B-MNT
ATSAMD20G15B-MNT
ATSAMD20G16B-MUT
ATSAMD20G14B-MUT
ATSAMD20G15B-MUT
ATSAMC21G17A-MU
ATSAMC20G15A-MNT
ATSAMC20G16A-MNT
ATSAMC20G17A-MNT
ATSAMC20G18A-MNT
ATSAMC21G15A-MNT
ATSAMC21G16A-MNT
ATSAMC21G17A-MNT
ATSAMC21G18A-MNT
ATSAMC21G18A-MUT
ATSAMC20G15A-MUT
ATSAMC20G16A-MUT
ATSAMC20G17A-MUT
ATSAMC20G18A-MUT
ATSAMC21G15A-MUT
ATSAMC21G16A-MUT
ATSAMC21G17A-MUT
ATSAMC20G17A-MUTS2
ATSAMC21G18A-MUT64
ATSAMD21G17A-MF
ATSAMD21G18A-MF
ATSAMD21G18A-MU
ATSAMD21G17A-MU
ATSAMD21G18A-MU-SLL
ATSAMD21G17A-MUT
ATSAMD21G18A-MUT
ATSAMD21G17A-MFT
ATSAMD21G18A-MFT
ATSAMD20G14A-MU
ATSAMD20G15A-MU
ATSAMD20G16A-MU
ATSAMD20G17A-MU
ATSAMD20G18A-MU
ATSAMD20G14A-MN

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ATSAMD20G15A-MN
ATSAMD20G16A-MN
ATSAMD20G17A-MN
ATSAMD20G18A-MN
ATSAMD20G14A-MNT
ATSAMD20G15A-MNT
ATSAMD20G16A-MNT
ATSAMD20G17A-MNT
ATSAMD20G18A-MNT
ATSAMD20G14A-MUT
ATSAMD20G15A-MUT
ATSAMD20G16A-MUT
ATSAMD20G17A-MUT
ATSAMD20G18A-MUT



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**QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY**

PCN #: ALAN-190QMD341

**Date:
May 24, 2023**

**Qualification of MP3A as an additional assembly site for
ATSAMD21G1xx, ATSAMC21G1xx, ATSAMD20G1xx,
ATSAML21G1xx, ATSAML22G1xx, ATSAMC20G1xx device
families available in 48L VQFN (7x7x0.9mm) package.**



Purpose: Qualification of MP3A as an additional assembly site for ATSAMD21G1xx, ATSAMC21G1xx, ATSAMD20G1xx, ATSAML21G1xx, ATSAML22G1xx, ATSAMC20G1xx device families available in 48L VQFN (7x7x0.9mm) package.

CCB: 6148

<u>Misc.</u>	Assembly site	MP3A (MPHIL3)
	BD Number	BD-001280 /A
	MP Code (MPC)	661P27T3BC01
	Part Number (CPN)	ATSAMC21G17A-MU
	MSL information	MSL-1/260
	Assembly Shipping Media (T/R, Tube/Tray)	Tray
	Base Quantity Multiple (BQM)	416
	Reliability Site	MPHIL
	Qual ID	REQ2300707 Rev. B
<u>Lead-Frame</u>	Paddle size	217x217 mils
	Material	C194
	DAP Surface Prep	Bare Cu
	Treatment	BOT
	Process	Etched
	Lead-lock	Yes
	Part Number	10104803
	Lead Plating	Matte Tin
	Strip Size	250x70 mm
Strip Density	240 units/strip	
<u>Bond Wire</u>	Material	Au
<u>Die Attach</u>	Part Number	3280
	Conductive	Yes
<u>MC</u>	Part Number	G700LTD
<u>PKG</u>	PKG Type	VQFN
	Pin/Ball Count	48
	PKG width/size	7x7x0.9mm



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Package Qualification Report

Manufacturing Information

Assembly Lot ID
MP3A235200011.000
MP3A235200007.000
MP3A235200006.000

Result

Pass

Fail

661P2 in 48L VQFN 7x7 (T3B) using Au wire and assembled at MP3A 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 M1_PV_512	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: VOTSCH VC4034		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 M1_PV_512		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
High Temperature Storage Life	<p>Stress Condition: Bake 175°C, 500 hrs System: HERAEUS</p> <p>Electrical Test: 25°C /85°C/125°C System: M1_PV_512</p>	JESD22-A103	45 units 1 lot	Lot 1 0/45	Pass	
HAST	<p>Stress Condition: (Standard) 130°C, 85%RH, 96 hrs. VOLTS=5.5V System: HIRAYAMA HASTEST PC-422R8</p> <p>Electrical Test: 25°C /85°C/125°C System: M1_PV_512</p>	JESD22-A110	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
UNBIASED HAST	<p>Stress Condition: (Standard) + 130°C, 85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8</p> <p>Electrical Test: 25°C System: M1_PV_512</p>	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

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Temp Cycle	Stress Condition: (Standard) - 65°C/150°C, 500 Cycles System : Votsch VTS ² 7012 Electrical Test: 85°C/125°C System: M1_PV_512	JESD22-A104	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
Wire Bond Pull WBP , 0 Hour		Mil. Std. 883-2011	5 units, 30 bonds 1 lot	Lot 1 0/30	Pass	
Wire Bond Shear WBS, 0Hour		CDF-AEC-Q100-001	5 units, 30 bonds 1 lot	Lot 1 0/30	Pass	
Standard Pb-free Solderability	>95% lead coverage	J-STD-002E	22 units 1 lot	0/22	Pass	