Product Change Notification / ASER-13KWIQ013

Date:

12-Dec-2022

Product Category:

32-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4978 Final Notice: Qualification of MMT as an additional assembly site for selected ATSAME5xxx and ATSAMD5xxx device families available in 128L TQFP (14x14x1mm) package.

Affected CPNs:

ASER-13KWIQ013_Affected_CPN_12122022.pdf
ASER-13KWIQ013_Affected_CPN_12122022.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 ATSAME5xxx and ATSAMD5xxx device families available in 128L TQFP (14x14x1mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	ASE Inc.	ASE Inc.	Microchip Technology

	(ASE)	(ASE)	Thailand (MMT)
Wire Material	Au/CuPdAu	Au/CuPdAu	CuPdAu
Die Attach Material	CRM-1076WA	CRM-1076WA	3280
Molding Compound Material	G631H	G631H	G700HA
Lead-Frame Material	C7025	C7025	C7025
Lead-Frame Paddle Size	240x240 mils	240x240 mils	190x190 mils
	See Pre and Post Change for Comparison		

Impacts to Data Sheet: None

Change Impact None

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

Change Implementation Status: In Progress

Estimated First Ship Date: December 28, 2022 (date code: 2253)

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

Time Table Summary:

	December 2021					**>**	**December 2022**				
Workweek	49	50	51	52	01		49	50	51	52	53
Initial PCN Issue Date				x							
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:
December 15, 2021: Issued initial notification.
December 12, 2022: Issued final notification. Attached the Qualification Report. Provided estimated first ship date to be on December 28, 2022.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachments:

PCN_ASER-13KWIQ0131_Pre and Post Change Summary.pdf
PCN_ASER-13KWIQ013_Qual Report_Corp.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.

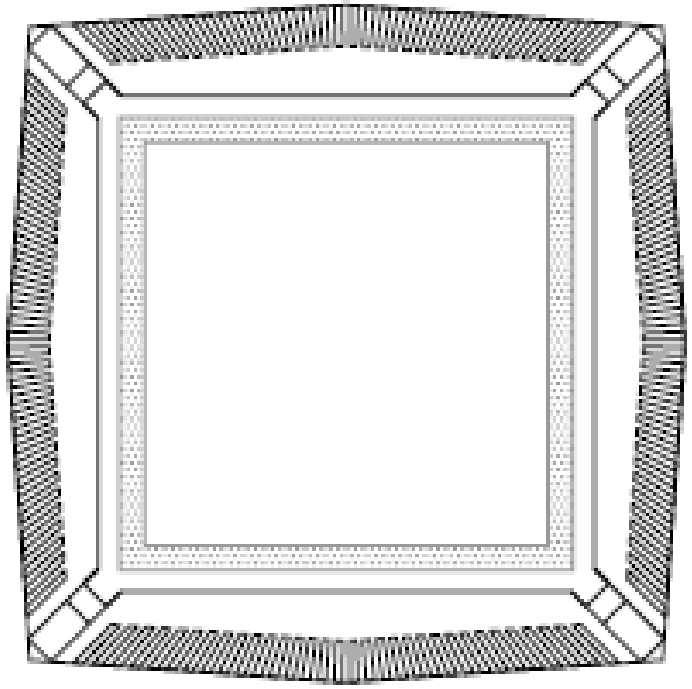
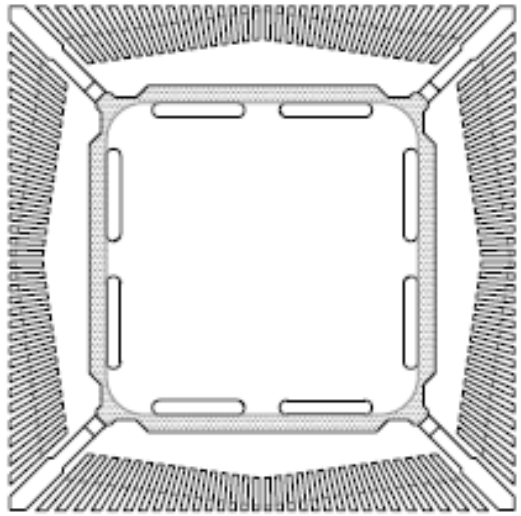
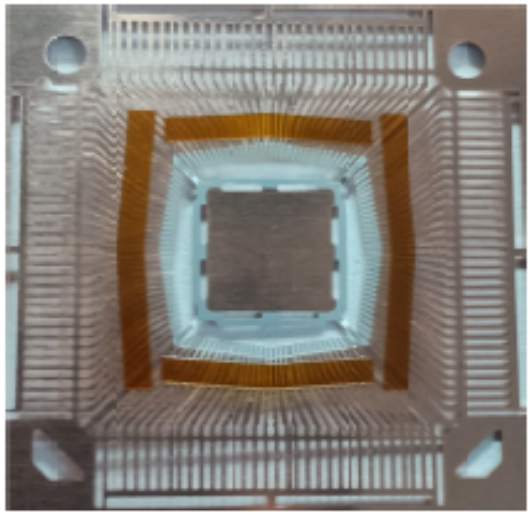
CCB 4978
Pre and Post Change Summary
PCN #: ASER-13KWIQ013

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

SMART | CONNECTED | SECURE

Qualification of MMT as an additional assembly site for selected ATSAME5xxx and ATSAMD5xxx device families available in 128L TQFP (14x14x1mm) package.

Lead Frame Design Comparison

ASE	MMT
	 
Paddle Size: 240x240 mils	Paddle Size: 190x190 mils

Affected Catalog Part Numbers (CPN)

ATSAME54P20A-AF
ATSAME54P19A-AF
ATSAMD51P19A-AF
ATSAMD51P20A-AF
ATSAME54P19A-AZ
ATSAME54P20A-AZ
ATSAMD51P19A-AZ
ATSAMD51P20A-AZ
ATSAME54P20A-AZ510
ATSAME54P19A-AZVAO
ATSAME54P20A-AZVAO
ATSAMD51P19A-AU
ATSAMD51P20A-AU
ATSAME54P19A-AU
ATSAME54P20A-AU
ATSAMD51P19A-AU-EFP
ATSAMD51P20A-AU-EFP
ATSAME54P19A-AU-EFP
ATSAME54P20A-AU-EFP
ATSAMD51P19A-AUN01
ATSAMD51P19A-AUT
ATSAMD51P20A-AUT
ATSAME54P19A-AUT
ATSAME54P20A-AUT
ATSAMD51P19A-AUT-EFP
ATSAMD51P20A-AUT-EFP
ATSAME54P19A-AUT-EFP
ATSAME54P20A-AUT-EFP
ATSAME54P20A-AUTEK1
ATSAME54P20A-AFT
ATSAME54P19A-AFT
ATSAMD51P19A-AFT
ATSAMD51P20A-AFT
ATSAME54P20A-AZT
ATSAME54P19A-AZT
ATSAMD51P19A-AZT
ATSAMD51P20A-AZT
ATSAME54P20A-AZT510
ATSAME54P19A-AZTVAO
ATSAME54P20A-AZTVAO

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: ASER-13KWIQ013

Date:
October 25, 2022

Qualification of MMT as an additional assembly site for selected ATSAME5xxx and ATSAMD5xxx device families available in 128L TQFP (14x14x1mm) package. This is Q006 Grade1 qualification.

MICROCHIP

Package Qualification Report

Purpose: **Qualification of MMT as an additional assembly site for selected ATSAME5xxx and ATSAMD5xxx device families available in 128L TQFP (14x14x1mm) package. This is Q006 Grade1 qualification.**

Misc.	**Assembly site**	MMT
	BD Number	BD-000266 rev02
	MP Code (MPC)	65106YZ2XC01
	Part Number (CPN)	ATSAME54P20A-AFT
	Qual ID and Revision	REQ2200501 Rev. A
	CCB Number	4978
Lead-Frame	**Paddle size**	190x190 mils
	Material	C7025
	Surface	Double Ag Ring Plated
	Treatment	None
	Process	Stamped
	Lead-lock	No
	Part Number	10112804
	Lead Plating	Matte Tin
	Strip Size	70x250mm
	Strip Density	30 units/strip
Bond Wire	**Material**	CuPdAu
Die Attach	**Part Number**	3280
	Conductive	Yes
MC	**Part Number**	G700HA
PKG	**PKG Type**	TQFP
	Pin/Ball Count	128
	PKG width/size	14x14x1mm

MICROCHIP

Package Qualification Report

Manufacturing Information:

Assembly Lot ID
MMT-224902006.000
MMT-224902038.000
MMT-224902039.000

Result ☑ Pass ☐ Fail ☐ _____

65106YZ2XC01 from 65nm UMC FAB on 128L TQFP 14x14mm (Z2X) package at MMT assembly is Q006 Grade1 qualified. It pass reliability test per QCI-39000 which was conducted at MPHL rel lab. This package is qualified Moisture/Reflow Sensitivity Classification Level 3 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 3)	**Electrical Test :25°C** Magnum	JESD22-A113, JIP/ IPC/JEDEC J-STD-020E	231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	Good Devices
	Bake 150°C, 24 hrs System: HERAEUS		231 per lot			
	Moisture Soak 192h(30°C/60%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 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	
	Electrical Test :25°C Magnum SV 1024		231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 500 hrs System: HERAEUS **Electrical Test:** 25°C, 125ºC System: Magnum	JESD22-A103	45 units per lot	Lot 1 0/45 Lot 2 0/45 Lot 3 0/45	Pass Pass Pass	
	Cross-section		units per lot	Lot 1, 0/1 Lot 2, 0/1 Lot 3, 0/1	Pass Pass Pass	
	Stress Condition: Bake 175°C, 10000 hrs System: HERAEUS **Electrical Test:** 25°C, 125ºC System: Magnum	JESD22-A103	44 units per lot	Lot 1 0/44 Lot 2 0/44 Lot 3 0/44	Pass Pass Pass	
	Cross-section		units per lot	Lot 1, 0/1 Lot 2, 0/1 Lot 3, 0/1	Pass Pass Pass	
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

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** (Standard) 130°C, 85%RH, 96 hrs. VOLTS=3.6V System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** 25°C, 125ºC System: Magnum	JESD22-A110	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	
	Stress Condition: (Standard) 130°C, 85%RH, 192 hrs. VOLTS=3.6V System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** 25°C , 125ºC System: Magnum	JESD22-A110	70 units per lot	Lot 1 0/70 Lot 2 0/70 Lot 3 0/70	Pass Pass Pass	
Temp Cycle	**Stress Condition:** (Standard) - 65°C/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 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	Parts had been pre-conditioned at 260°C
	Bond Strength: **System:** Dage Wire Bond Pull (> 2 grams) Wire Ball *Shear (>9.1 grams)* System: Dage	MILSTD883-2 Method 2011.10 AEC Q100.001	5 units, 30 bonds per lot	Lot 1 0/30 Lot 2 0/30 Lot 3 0/30	Pass Pass Pass	
	Stress Condition: (Standard) - 65°C/150°C, 1000 Cycles System : Votsch VTS^{2}7012 **Electrical Test:** 125°C System: Magnum	JESD22-A104	70 units per lot	Lot 1 0/70 Lot 2 0/70 Lot 3 0/70	Pass Pass Pass	
	Bond Strength: **System:** Dage Wire Bond Pull (> 2 grams) Wire Ball *Shear (>9.1 grams)* System: Dage	MILSTD883-2 Method 2011.10 AEC Q100.001	5 units, 30 bonds per lot	Lot 1 0/30 Lot 2 0/30 Lot 3 0/30	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Bond Strength, 0 Hour	**Bond Strength:** **System:** Dage Wire Bond Pull (> 2 grams) Wire Ball *Shear (>9.1 grams)* System: Dage	MILSTD883-2 Method 2011.10 AEC Q100.001	5 units, 30 bonds per lot	Lot 1 0/30 Lot 2 0/30 Lot 3 0/30	Pass Pass Pass	
Physical Dimensions		JESD22 B100 and B108	10 units per lot	0/30		
Standard Pb-free Solderability	> 95% lead coverage	J-STD-002D	22 units 1 lot	0/22	Pass	