Date:

18-Oct-2022

Product Category:

Crypto Authentication

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5249 Final Notice: Qualification of MTAI as an additional assembly site for selected ATECC108A, ATECC508A, ATSHA204A, ATECC608A, ATECC608B and ECC608-TFLXWPC device families available in 8L SOIC (3.90mm) package using QMI519 die attach material.

Affected CPNs:

GBNG-09ECUY508_Affected_CPN_10182022.pdf
GBNG-09ECUY508_Affected_CPN_10182022.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 MTAI as an additional assembly site for selected ATECC108A, ATECC508A, ATSHA204A, ATECC608A, ATECC608B and ECC608-TFLXWPC device families available in 8L SOIC (3.90mm) package using QMI519 die attach material.

Pre and Post Change Summary:

	Pre Change	Post Change

Assembly Site	ATX Semiconductor (Shanghai)Co. Ltd (ASSH)	ATX Semiconductor (Shanghai)Co. Ltd (ASSH)	Microchip Technology Thailand (MTAI)
Wire Material	PdCu	PdCu	CuPdAu
Die Attach Material	EN-4900G	EN-4900G	QMI519
Molding Compound Material	G700LY	G700LY	G600V
Lead-Frame Material*	C194	C194	CDA194
Lead-Frame Paddle Size	70 x 70 / 90 x 90 mils	70 x 70 / 90 x 90 mils	90 x 90 mils
DAP Surface Prep	PPF	PPF	Bare Cu
Lead Plating	NiPdAu	NiPdAu	Matte tin

Note: *C194, A194 or CDA194 Lead frame material are the same, it is just a MCHP internal labelling difference.

Impacts to Data Sheet: None

Change Impact None

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

Change Implementation Status: In Progress

Estimated First Ship Date: October 31, 2022 (date code: 2245)

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

Time Table Summary:

	September 2022					**>**	**October 2022**				
Workweek	36	37	38	39	40		41	42	43	44	45
Initial PCN Issue Date			x								
Qual Report Availability									x		
Final PCN Issue Date									x		
Estimated											x

Implementation Date											

Method to Identify Change: Traceability Code

Qualification Report: Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

Revision History: September 13, 2022: Issued initial notification.
October 18, 2022: Issued final notification. Attached the Qualification Report. Revised the Impact to datasheet from Yes to None. Revised the ASSH plant name from ASE Advanced Semiconductor (Shanghai) Co., Ltd. to ATX Semiconductor (Shanghai)Co., Ltd. Provided estimated first ship date to be on October 31, 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_GBNG-09ECUY508 Qual Report.pdf
PCN_GBNG-09ECUY508_Pre and Post Change_Summary.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.

GBNG-09ECUY508 - CCB 5249 Final Notice: Qualification of MTAI as an additional assembly site for selected ATECC108A, ATECC508A , ATSHA204A , ATECC608A
ATECC608B and ECC608-TFLXWPC device families available in 8L SOIC (3.90mm) package using QMI519 die attach material.
Affected Catalog Part Numbers(CPN)

ATSHA204A-SSHMD-B
ATSHA204A-SSHDA-B
ATSHA204A-SSH1S-B
ATSHA204A-SSHDA-T
ATSHA204A-SSHCZ-T
ATSHA204A-TCSMS
ATECC608B-SSHMD-B
ATECC608A-TNGACTS-B
ATECC608B-TNGACTS-B
ATECC608B-SSHCZ-B
ATECC608B-SSHDA-B
ATECC608A-TNGLORAS-B
ATECC608A-SSHMD-B
ATECC608B-TNGLORAS-B
ATECC608B-TNGTLSS-B
ATECC608B-TFLXTLSS-PROTO
ATECC608A-TNGTLSS-B
ATECC608A-TFLXTLSS-PROTO
ATECC108A-SSHDA-B
ATECC108A-SSHCZ-B
ATECC508A-SSHDA-B
ATECC508A-SSHCZ-B
ATECC508A-SSHHL-B
ATECC508A-SSHRA-B
ATECC508A-SSHMT-B
ATECC608A-SSHDA-B
ATECC608A-SSHCZ-B
ATECC608A-SSHHL-B
ATECC508A-SSH1P-T
ECC608-TFLXWPCS-PROTO
ATECC608B-SSVDA-B
ATECC608B-SSVHL-T
ATECC608B-SSVDA-T
ATECC608B-SSHHL-T
ATECC108A-SSHDA-T
ATECC108A-SSHCZ-T
ATECC508A-SSHDA-T
ATECC508A-SSHCZ-T
ATECC508A-SSHHL-T
ATECC508A-SSHRA-T
ATECC508A-SSHMT-T
ATECC508A-SSHZC-T
ATECC508A-SSHZJ-T
ATECC508A-SSHAW-T
ATECC508A-SSHWA-T
ATECC508A-SSHC9-T
ATECC608A-SSHDA-T
ATECC608A-SSHCZ-T
ATECC608A-SSHHL-T
ATECC608A-SSH4P-T
ATECC608A-TNGACTS-C
ATECC608B-TNGACTS-C
ATECC608A-TNGLORAS-C
ATECC608B-TNGLORAS-C
ATECC608B-TNGTLSS-C
ATECC608A-TNGTLSS-C

ECC608-TFLXWPCS
ATECC608A-TNGACTS-G
ATECC608B-TNGACTS-G
ATECC608A-TNGLORAS-G
ATECC608B-TNGLORAS-G
ATECC608B-TNGTLSS-G
ATECC608A-TNGTLSS-G
ATECC508A-SSH1F-T
ATECC508A-SSH1M-T
ATECC608A-SSH4N-T
ATECC508A-SSHC6-T
ATECC508A-SSH1L-T
ATECC608A-SSH2P-T
ATECC608A-SSH3M-T
ATECC608B-SSH3S-T
ATECC608B-SSHA5-T
ATECC608B-SSHA6-T
ATECC608B-SSHCZ-T
ATECC608B-SSHDA-T
ATECC608A-SSHGA-T
ATECC608B-SSHKA-T
ATECC608A-SSHXA-T
ATECC608B-TCSMS
ATECC608B-TFLXTLSS
ATECC608A-TCSMS
ATECC608A-TFLXTLSS

QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN#: GBNG-09ECUY508

Date
October 12, 2022

Qualification of MTAI as an additional assembly site for selected ATECC108A, ATECC508A, ATSHA204A, ATECC608A, ATECC608B and ECC608-TFLXWPC device families available in 8L SOIC (3.90mm) package using QMI519 die attach material.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an additional assembly site for selected ATECC108A, ATECC508A, ATSHA204A, ATECC608A, ATECC608B and ECC608-TFLXWPC device families available in 8L SOIC (3.90mm) package using QMI519 die attach material.
QUAL ID	R2200905 Rev B
MPC CODE	58962TC2XTXA
Part No.	ATECC608A-SSHXA-T
Bonding No.	BD-000861 Rev. 02
CCB No.	5249
Package	
Type	8L SOIC
Package size	150 mils
Lead Frame	
Paddle size	90x90 mils
Material	CDA194
Surface	Bare Cu
Process	Stamped
Lead Lock	No
Part Number	10100812
Treatment	BOT
Material	
Epoxy	QMI519
Wire	CuPdAu
Mold Compound	G600V
Plating Composition	Matte Sn

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI231902058.000	U8CD923045545.120	2232Q2Y
MTAI231902378.000	U8CD923045545.120	2232R44
MTAI232000036.000	U8CD923045545.120	2233RD1

Result ☒ Pass ☐ Fail ☐ ____________________

8L SOIC (150 mils) assembled by MTAI pass reliability test per QCI-39000. This package was qualified the 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, 85°C and 100°C System: NEXTEST_PT Bake 150°C, 24 hrs. System: CHINEE 85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 **Electrical Test:** +25°C, 85°C and 100°C System: NEXTEST_PT	JESD22-A113 JIP/ IPC/JEDEC J-STD-020E	693(0)	693 693 693 693 0/693	Pass	Good Devices

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** -65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H	JESD22A104		231		Parts had been pre-conditioned at 260°C 77 units / lot
	Electrical Test: +85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	
	Stress Condition: -65°C to +150°C, 1000 Cycles System: TABAI ESPEC TSA-70H			231		
	Electrical Test: +85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.50 grams)		15 (0)	0/15	Pass	
	Bond Shear (>15.00 grams)		15 (0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X	JESD22A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, 85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X			231		
	Electrical Test: +25°C, 85°C and 100°C System: NEXTEST_PT		231(0)	0/231	Pass	77 units / lot

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, 504 hrs System: SHEL LAB	JESD22-A103		45		45 units
	Electrical Test: +25°C, 85°C and 100°C System: NEXTEST_PT		45(0)	0/45	Pass	
Solderability **Temp 215°C**	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63, Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
Solderability **Temp 245°C**	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
Physical Dimensions	Physical Dimension, 10 units / 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>3.00 grams)	Mil. Std. 883-2011	30 (0)	0/30	Pass	
	Bond Shear (>10.00 grams)	CDF-AEC-Q100-001	30 (0) bonds	0/30	Pass	

CCB 5249
Pre and Post Change Summary
PCN #: GBNG-09ECUY508

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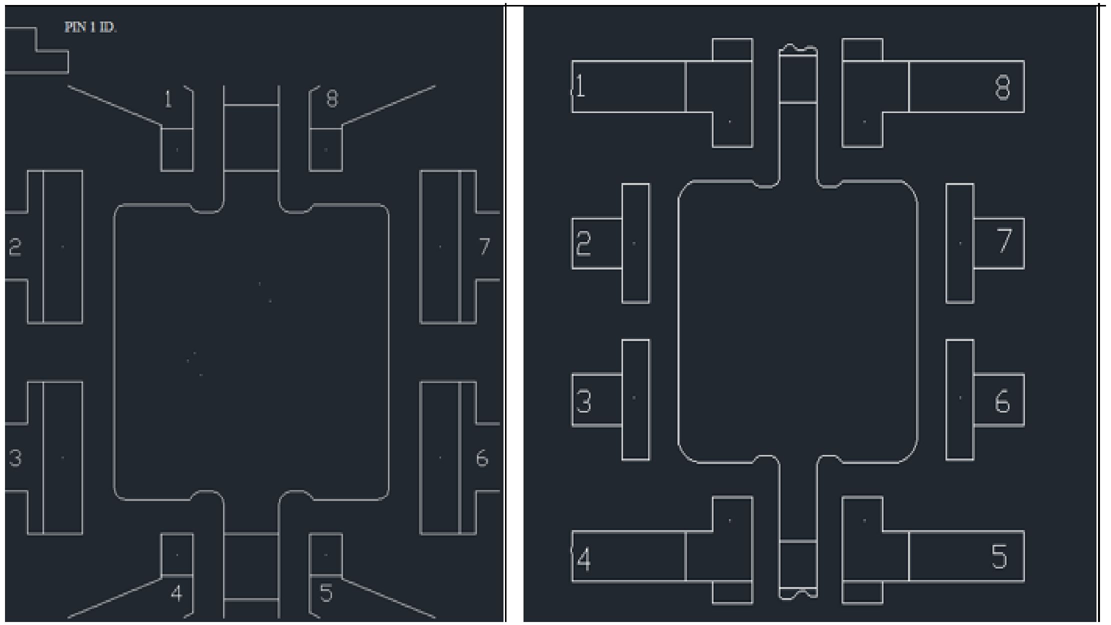
LEAD FRAME COMPARISON

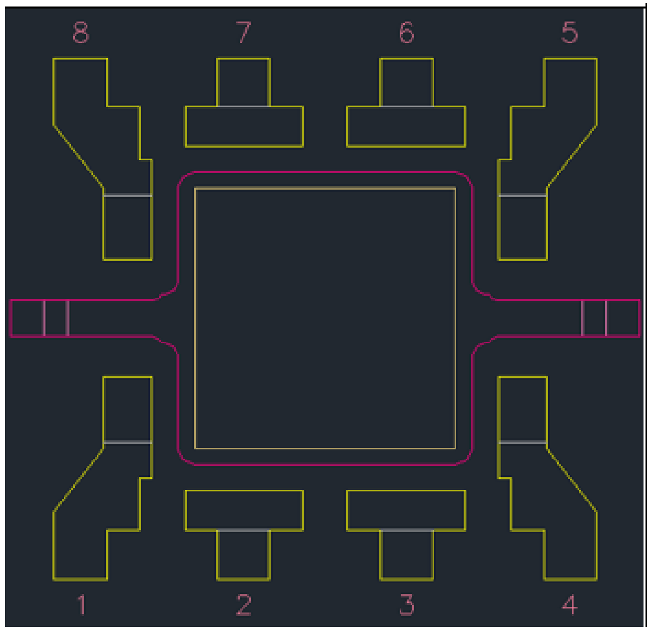
ASSH



Note: Not to scale

Lead frame DAP surface prep	**PPF**
Lead Plating	**NiPdAu**
Lead-Frame Paddle Size	**70 x 70 / 90 x 90**

MTAI



Note: Not to scale

Lead frame DAP surface prep	**Bare Cu**
Lead Plating	**Matte tin**
Lead-Frame Paddle Size	**90 x 90**