Product Change Notification / NTDO-01ZZMF149

Date:

13-Feb-2022

Product Category:

Clock and Timing - Clock and Data Distribution

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4673 Final Notice: Qualification of MTAI as additional assembly site for selected SY56040A, SY5803xU, SY58040U, SY8911xU, SY8946xU, SY89540U and SY89859U Micrel device families available in 44L VQFN (7x7x0.9mm) package.

Affected CPNs:

NTDO-01ZZMF149_Affected_CPN_02132022.pdf
NTDO-01ZZMF149_Affected_CPN_02132022.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 new assembly site for selected SY56040A, SY5803xU, SY58040U, SY8911xU, SY8946xU, SY89540U and SY89859U Micrel device families available in 44L VQFN (7x7x0.9mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	Amkor Technology Philippine (P1/P2), INC. (ANAP)	Amkor Technology Philippine (P1/P2), INC. (ANAP)	Microchip Technology Thailand – (HQ) (MTAI)
Wire Material	Au	Au	Au
Wire Diameter	1.0/1.2 mils	1.0/1.2 mils	0.9 /1.3 mils
Die Attach Material	8290	8290	3280
Molding Compound Material	G700	G700	G700
Lead-Frame Material*	C194	C194	A194
	See Pre and Post Change attachment comparison		
Lead-Frame Paddle Size	137x137 mils	137x137 mils	157x157 mils
Lead-Frame Treatment	None	None	Roughening
Lead-Frame Lead Plating	Matte tin	Matte tin	Matte tin
Lead lock	No	No	Yes

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 site.

Change Implementation Status: In Progress

Estimated First Ship Date: March 30, 2022 (date code: 2214)

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

Time Table Summary:

	February 2022					March 2022			
Workweek	6	7	8	9	10	11	12	13	14
Final PCN Issue Date			x						
Qual Report Availability			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:
February 13, 2022: Issued final notification.

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

Attachments:

PCN_NTDO-01ZZMF149_Qual Report.pdf
PCN_NTDO-01ZZMF149_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.

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and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

CCB 4673
Pre and Post Change Summary
PCN #: NTDO-01ZZMF149

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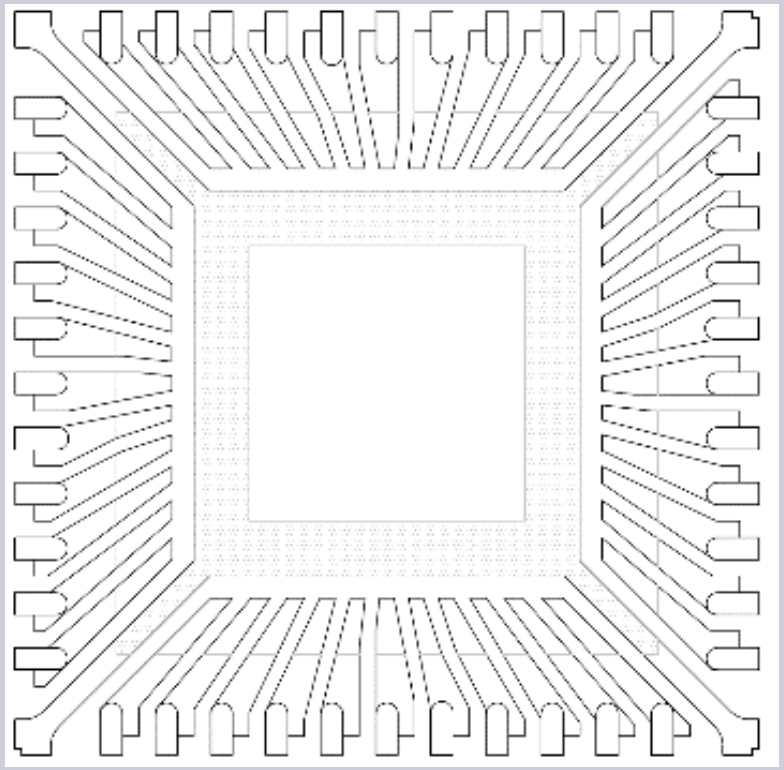
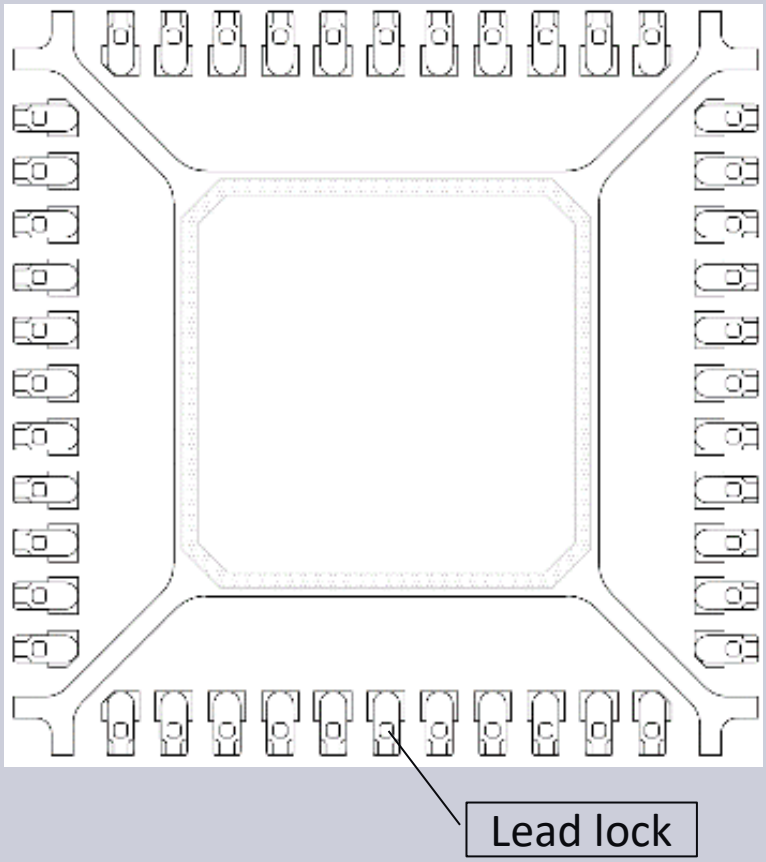
Lead-Frame Comparison

ANAP	MTAI
	

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 #: NTDO-01ZZMF149

Date:
December 20, 2021

Qualification of MTAI as additional assembly site for selected SY56040A, SY5803xU, SY58040U, SY8911xU, SY8946xU, SY89540U and SY89859U Micrel device families available in 44L VQFN (7x7x0.9mm) package.

Purpose	Qualification of MTAI as additional assembly site for selected SY56040A, SY5803xU, SY58040U, SY8911xU, SY8946xU, SY89540U and SY89859U Micrel device families available in 44L VQFN (7x7x0.9mm) package.
CN	ES360574
QUAL ID	R2100868
MP CODE	2C6107QPAA01
Part No.	SY89113UMY
Bonding No.	BDM-002924 Rev. A
CCB	4673
Package	
Type	44L VQFN
Package size	7x7x1.0 mm
Lead Frame	
Paddle size	157 x 157 mils
Material	A194
Surface	Ag Double ring
Treatment	Roughening
Process	Stamped
Lead Lock	Yes
Part Number	10104417
Material	
Epoxy	3280
Wire	Au wire
Mold Compound	G700
Plating Composition	Matte Tin

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PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI221702143.000	MCSO518445824.110	2129HWM
MTAI221702204.000	MCSO518445824.110	2129KQ6
MTAI221602741.000	MCSO518445824.110	2128CTM

Result [X] Pass [ ] Fail [ ] _____

44L VQFN (7x7x1.0 mm) 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
<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 1)	**Electrical Test:** +25°C and 85°C System: HP83K (F660)	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C and 85°C System: HP83K (F660)			0/693	Pass	

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 **Electrical Test:** +85°C System: HP83K (F660) **Bond Strength:** Wire Pull (> 3.00 grams) Bond Shear (> 18.00 grams)	JESD22-A104	231(0) 15 (0) 15 (0)	231 0/231 0/15 0/15	Pass Pass Pass	Parts had been pre-ponditioned at 260°C 77 units / lot
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X **Electrical Test:** +25°CSystem: HP83K (F660)	JESD22-A118	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 2.5 VoltsSystem: HAST 6000X **Electrical Test:** +25°C and 85°C System: HP83K (F660)	JESD22-A110	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 500 hrsSystem: TS BULE M	JESD22-A103		45		
	Electrical Test: +25°C and 85°C System: HP83K (F660)		45(0)	0/45	Pass	
Bond Strength Data Assembly	Wire Pull (> 3.00 grams) Bond Shear (> 18.00 grams)	Mil. Std. 883-2011 CDF-AEC-Q100-001	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	

Affected Catalog Part Numbers (CPN)

SY89113UMY
SY89113UMY-TR
SY89112UMY
SY89464UMY
SY89465UMY
SY89540UMY
SY89112UMY-TR
SY89464UMY-TR
SY89465UMY-TR
SY89540UMY-TR
SY58037UMY
SY58038UMY
SY58040UMY
SY56040ARMY
SY58037UMY-TR
SY58038UMY-TR
SY58040UMY-TR
SY56040ARMY-TR
SY89859UMY
SY89859UMY-TR