Product Change Notification / NTDO-21XSFE180

Date:

03-Jan-2023

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4853 Final Notice: Qualification of MMT as an additional assembly site for selected Atmel ATMEGA324PB device family available in 44L VQFN (7x7x1mm) package using CuPdAu wire.

Affected CPNs:

NTDO-21XSFE180_Affected_CPN_01032023.pdf
NTDO-21XSFE180_Affected_CPN_01032023.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 ATMEGA324PB device family available in 44L VQFN (7x7x1mm) package using CuPdAu wire.

Pre and Post Change Summary:

	Pre Change	Post Change

Assembly Site		ASE Group Chung-Li (ASCL)	ASE Group Chung-Li (ASCL)	Microchip Technology Thailand Branch (MMT)
MSL Information		MSL 3	MSL 3	MSL 1
Wire material		CuPdAu/Cu	CuPdAu/Cu	CuPdAu
Die attach material		EN-4900G	EN-4900G	3280
Molding compound material		G700LA	G700LA	G700LTD
Lead frame	Material	C194	C194	C194
	Paddle size	213x213 mils	213x213 mils	213x213 mils
	DAP Surface Prep	Bare Cu	Bare Cu	Bare Cu
	Design	Please see attached Pre and Post Change comparison		

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve on-time delivery performance by qualifying MMT as an additional assembly site using CuPdAu wire.

Change Implementation Status: In Progress

Estimated First Ship Date: January 30, 2023 (date code: 2305)

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

Time Table Summary:

	September 2021					>	January 2023				
Workweek	36	37	38	39	40		1	2	3	4	5
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: September 26, 2021: Issued initial notification.
January 3, 2023: Issued final notification. Attached the Qualification Report. Duplicate CPNs were removed. Revised wire material for ASCL from CuPdAu to CuPdAu/Cu and removed wire material notes. Provided estimated first ship date to be on January 30, 2023.

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-21XSFE180_Qualification Report.pdf
PCN_NTDO-21XSFE180 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.

NTDO-21XSFE180 - CCB 4853 Final Notice: Qualification of MMT
as an additional assembly site for selected Atmel ATMEGA324PB device
family available in 44L VQFN (7x7x1mm) package using CuPdAu wire.

Affected Catalog Part Numbers(CPN)

ATMEGA324PB-MU
ATMEGA324PB-MN
ATMEGA324PB-MNR
ATMEGA324PB-MUR

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: NTDO-21XSFE180

Date:

December 8, 2022

Qualification of MMT as an additional assembly site for selected Atmel ATMEGA324PB device family available in 44L VQFN (7x7x1mm) package using CuPdAu wire.

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Package Qualification Report

Purpose: Qualification of MMT as an additional assembly site for selected Atmel ATMEGA324PB device family available in 44L VQFN (7x7x1mm) package using CuPdAu wire.

CCB No.: 4853

Misc.	**Assembly site**	MMT
	BD Number	BD-000184/01 Rev. A
	MP Code (MPC)	59B187SSBC01
	Part Number (CPN)	ATMEGA324PB-MU
	Assembly Shipping Media (T/R, Tube/Tray)	Tray
	Base Quantity Multiple (BQM)	360
Lead-Frame	**Paddle size**	213x213 mils
	Material	C194
	DAP Surface Prep	Bare Cu
	Treatment	BOT
	Process	Etched
	Lead-lock	Yes
	Part Number	10104415
	Lead Plating	Matte Tin
	Strip Size	250x70mm
	Strip Density	240 units/strip
Bond Wire	**Material**	CuPdAu
Die Attach	**Part Number**	3280
	Conductive	Yes
MC	**Part Number**	G700LTD
PKG	**PKG Type**	VQFN
	Pin/Ball Count	44
	PKG width/size	7x7x1.0mm

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Package Qualification Report

Manufacturing Information

Assembly Lot No.	MPC	Package
MMT-230701695.000	59B187SSBC01	44L VQFN 7x7 (SSB)
MMT-230701640.100	59B187SSBC01	44L VQFN 7x7 (SSB)
MMT-230700540.100	59B187SSBC01	44L VQFN 7x7 (SSB)

Result:

[X] **Pass** [ ] **Fail** [ ] ____________________

59.91K wafer on 44L VQFN 7x7mm (SSB) using CuPdAu wire at MMT is qualified the Moisture/ Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard. No delamination observed. All units are passing electrical testing.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests **MSL-1 @ 260C**	**Electrical Test :** +25°C	JESD22-A113,	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp	JIP/ IPC/JEDEC J-STD-020E	693(0)	0/693	Pass	
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 85°C/85%RH Moisture Soak 168hrs. System: Climats Excal 5423-HE		693(0)			
	Reflow 3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)	0/693		
	Electrical Test : +25°C		693(0)	0/693	Pass	
Temp Cycle	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2	JESD22-A104	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +105°C		231(0)	0/231	Pass	
	Bond Strength: Wire Pull Bond Shear		15(0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C		231(0)	0/231	Pass	
BIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96H System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, +105°C		231(0)	0/231	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 Taken from 3 lot with 45 units **Electrical Test :** +25°C +105°C	JESD22-A103	135 (0) 135 (0)	0/135	Pass	
Solderability **Temp 245°C**	**Bake:** Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Taken from 1 lot with min 22 units	J-STD-002	22 (0)	0/22	Pass	Performed at MPHIL
Wire sweep	Wire sweep Inspection 15 Wires / lot	-	45(0) Wires	0/45	Pass	
Physical Dimensions	Physical Dimension, 10 units / 3 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull 3 lots, 30 wires per lot from 5 units min	M2011.8 MIL-STD-883	35(0) Wires	0/35	Pass	
Bond Strength Data Assembly	Bond Shear 3 lots, 30 bonds per lot from 5 units min	M2011.8 MIL-STD-883	35(0) bonds	0/35	Pass	

CCB 4853

Pre and Post Change Summary

PCN # NTDO-21XSFE180

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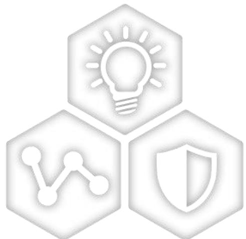
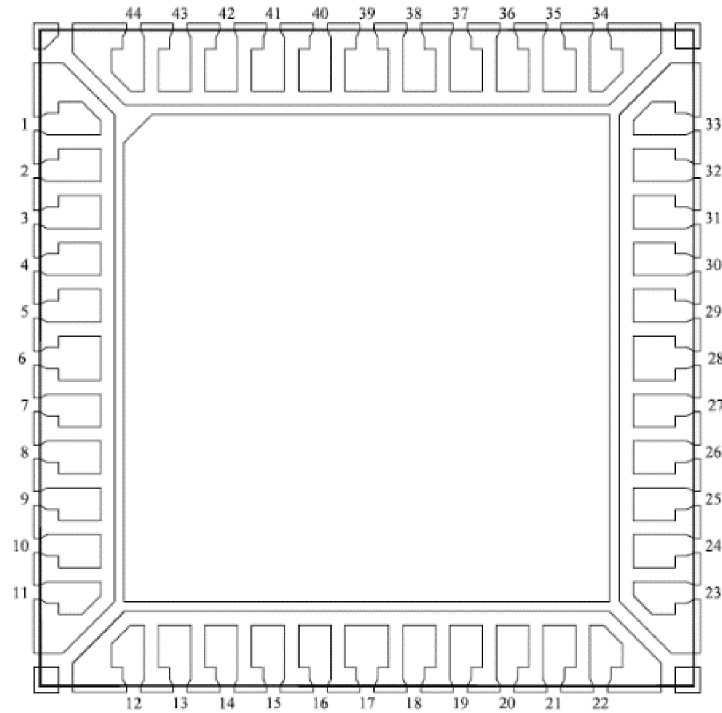
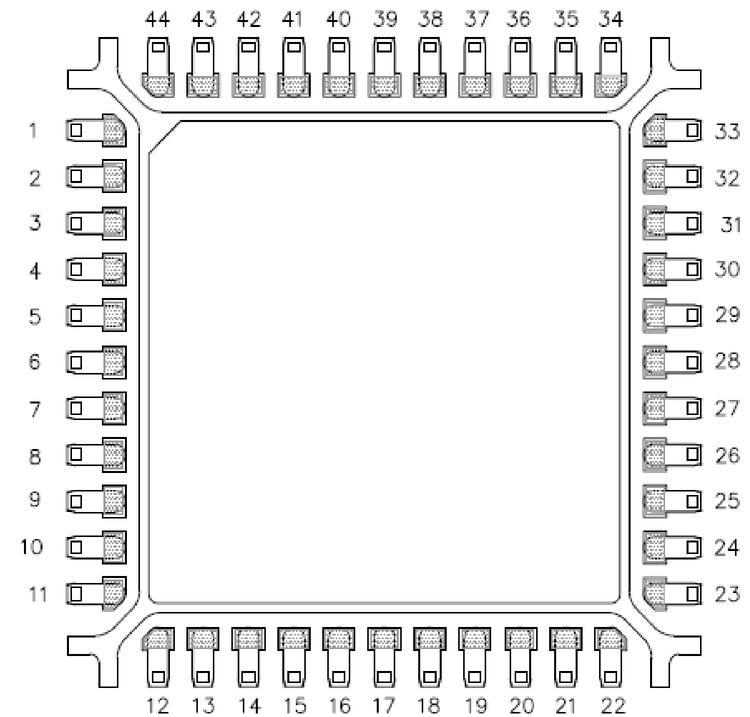


Lead frame Comparison

Pre Change ASCL	Post Change MMT



MSL Information		MSL 3
Wire material		CuPdAu / Cu
Die attach material		EN-4900G
Molding compound material		G700LA
Lead frame	Material	C194
	Paddle size	213x213 mils
	DAP Surface Prep	Bare Cu



MSL Information		MSL 1
Wire material		CuPdAu
Die attach material		3280
Molding compound material		G700LTD
Lead frame	Material	C194
	Paddle size	213x213 mils
	DAP Surface Prep	Bare Cu

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