Product Change Notification / RMES-23FLBS013

Date:

01-Jul-2022

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 3296.002 Final Notice: Qualification of MTAI as a new assembly site for selected ATMEGA1284x, ATMEGA16xxx, ATMEGA32xxx, ATMEGA644xx and ATMEGA85x5x device families available in 44L TQFP (10x10x1mm) package.

Affected CPNs:

RMES-23FLBS013_Affected_CPN_07012022.pdf
RMES-23FLBS013_Affected_CPN_07012022.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 a new assembly site for selected ATMEGA1284x, ATMEGA16xxx, ATMEGA32xxx, ATMEGA644xx and ATMEGA85x5x device families available in 44L TQFP (10x10x1mm) package.

Pre and Post Change Summary:

	Pre Change	**Post Change**
Assembly Site	Lingsen Precision Industries, LTD. (LPI)	Microchip Technology Thailand (HQ (MTAI)
Wire Material	CuPdAu or Au	Au
Die Attach Material	CRM-1033BF	3280
Molding Compound Material	G700	G700
Lead-Frame Material	C7025	C7025
Lead-Frame Paddle Size	160x160 or 205x205 or 275x275	180x180 or 275x275
DAP Surface Prep	Ag plated	Bare Cu
Tray Comparison	Black Tray (Bakeable)	Black Tray (Bakeable) or Blue Tray (Non-Bakeable)
	See attached Pre and Post Change comparison	
Moisture Sensitivity Level (MSL) Classification Level	MSL 3	MSL 1

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability and on-time delivery performance by qualifying MTAI as a new assembly site.

Change Implementation Status: In progress

Estimated First Ship Date: July 15, 2022 (date code: 2229)

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

Time Table Summary:

	June 2022					**July 2022**				
Workweek	23	24	25	26	27	28	29	30	31	32
Qual Report				x						

Availability										
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:
June 24, 2022: Issued final notification. Attached is the qualification report and provided estimated first ship date by July 15, 2022.
July 01, 2022: Re-issued final notification. Added MSL Classification Level and Tray comparison in Pre and Post change summary table. Added attachment file (ppt) for Tray comparison.

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

Attachments:

PCN_RMES-23FLBS013_Pre and Post Change_Summary.pdf
PCN_RMES-23FLBS013_Qual Report.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

Terms and Conditions:

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QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: RMES-23FLBS013

Date:
June 21, 2022

Qualification of MTAI as an additional assembly site for selected Atmel products available in 44L TQFP 10x10x1mm package. The qualification of MTAI as a new assembly site for selected ATMEGA1284x, ATMEGA16xxx, ATMEGA32xxx, ATMEGA644xx and ATMEGA85x5x device families available in 44L TQFP (10x10x1mm) package will be qualify by similarity (QBS).

PACKAGE QUALIFICATION REPORT

Purpose: Qualification of MTAI as an additional assembly site for selected Atmel products available in 44L TQFP 10x10x1mm package. The qualification of MTAI as a new assembly site for selected ATMEGA1284x, ATMEGA16xxx, ATMEGA32xxx, ATMEGA644xx and ATMEGA85x5x device families available in 44L TQFP (10x10x1mm) package will be qualify by similarity (QBS).

Misc.	Assembly site	MTAI
	BD Number	BDM-001705 rev.A
	MP Code (MPC)	354787T4XC01
	Part Number (CPN)	ATMEGA644
	CCB No.	3296, 3296.001, 3296.002 and 3296.003
	QTP No. and Rev	3393 Rev A
Lead-Frame	Paddle size	180x180 mils
	Material	C7025
	Surface	Bare Cu on paddle
	Treatment	Roughening
	Process	Stamped
	Lead-lock	No
	Part Number	10104412
	Lead Plating	Matte Tin
Bond Wire	Material	Au
Die Attach	Part Number	3280
	Conductive	Yes
Mold Compound	Part Number	G700
PKG	PKG Type	TQFP
	Pin/Ball Count	44
	PKG width/size	10x10 mm
	MSL	MSL1/260

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PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer No.	Date Code
MTAI184804027.000	MCSO518476707.100	18089QW
MTAI184804028.000	MCSO518476707.100	18089QY
MTAI184804029.000	MCSO518476707.100	18089R0

Result ☒ Pass ☐ Fail ☐ ____________________

Atmel 35478 using Au wire in 44L TQFP 10x10 package at MTAI is qualified at Moisture/ Reflow Sensitivity Classification Level 1 per IPC/JEDEC J-STD-020D standard. No delamination were observed on all the units.

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 : +**90°C	JESD22-A113	958(0)	0/958		Good Devices
			135(0)	0/135	Passed	
	Bake 150°C, 24 hrs System: HERAEUS		958(0)			
	85°C/85%RH Moisture Soak 168 hrs. System: Climats Excal 5423-HE	IPC/JEDEC J-STD-020D	958(0)			
	3x Convection-Reflow 265°C max System: Mancorp CR.5000F		958(0) 135(0)	 0/135	 Passed	
	Electrical Test :+90°C		958(0)	0/958	Passed	
Temp Cycle	**Stress Condition:** (Standard) 65°C to +150°C, 500 Cycles System : VOTSCH VT 7012 S2	JESD22-A104	252			Parts had been pre-conditioned at 260°C
	Electrical Test: 90°C, System: MAGNUM05 (Handtest)		252(0)	0/252	Passed	
	Bond Strength: Wire Pull (> 2.50 grams) Bond Shear (>15.00 grams)		15(0)	0/15	Passed	
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	252			Parts had been pre-conditioned at 260°C
	Electrical Test: +90°C System: MT9510 Handler:2580		252(0)	0/252	Passed	

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. **Bias Volt:** 5.5 Volts System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:**+90°C System: MT9510 Handler:2580	JESD22-A110	250 250(0)	0/250	Passed	Parts had been pre-conditioned at 260°C
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs System: HERAEUS **Electrical Test :+**90°C	JESD22-A103	50 50(0)	0/50	Passed	50 units
Solderability **Temp 245°C**	**Bake:** Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Solder material: SnPb Visual Inspection: External Visual Inspection	JESD22B-102E	15 (0)	0/15	Passed	Performed at MPHIL
Bond Strength **Data Assembly**	Wire Pull (> 2.50 grams) Bond Shear (>15.00 grams)	M2011.8 MIL-STD-883 M2011.8 MIL-STD-883	30(0) Wires 30(0) Wires		Passed	

CCB 3296.002
Pre and Post Change Summary
PCN#: RMES-23FLBS013

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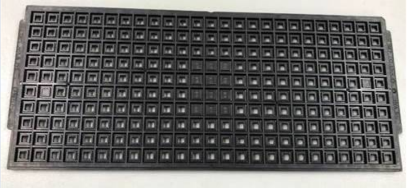
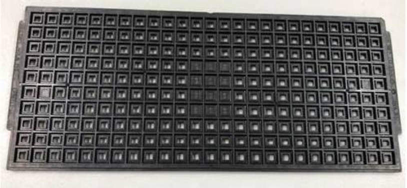
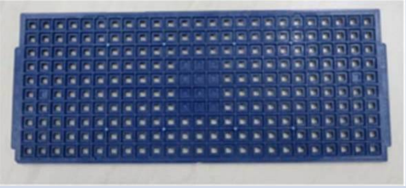
Tray comparison

Pre change (LPI)	Post Change (MTAI)
 Black Tray - Bakeable	 **Or**  Black Tray – Bakeable **or** Blue Tray - Non-bakeable
MSL Classification Level = 3	MSL Classification Level = 1

RMES-23FLBS013 - CCB 3296.0 ATMEGA1 ATMEGA3 ATMEGA644xx and ATMEGA85x5x device families availa

Affected Catalog Part Numbers(CPN)

ATMEGA644PA-AN
ATMEGA644PA-ANR
ATMEGA644-20AU
ATMEGA644V-10AU
ATMEGA644-20AUR
ATMEGA644V-10AUR
ATMEGA324PV-10AU
ATMEGA324P-20AU
ATMEGA324P-20AQR
ATMEGA324P-20AUR
ATMEGA644PV-10AU
ATMEGA644P-20AU
ATMEGA644PV-10AQ
ATMEGA644PV-10AQR
ATMEGA644PV-10AUR
ATMEGA644P-20AUR
ATMEGA1284-AU
ATMEGA1284-AUR
ATMEGA324PA-AN
ATMEGA324A-AURA3
ATMEGA16-16AU
ATMEGA16-16AUA2
ATMEGA16L-8AU
ATMEGA16-16AUR
ATMEGA16L-8AUR
ATMEGA32-16AU
ATMEGA32L-8AU
ATMEGA32A-AURA5
ATMEGA32L-8AUR
ATMEGA164A-AUA2
ATMEGA164PA-AN
ATMEGA164PA-ANR
ATMEGA164A-AURA2
ATMEGA8515-16AUR
ATMEGA8535-16AU
ATMEGA8535L-8AU
ATMEGA8535-16AUR
ATMEGA8535L-8AUR
ATMEGA32-16AUA3
ATMEGA32L-8AUA3
ATMEGA32-16AQ
ATMEGA32-16AQR

ATMEGA32L-8AURA0
ATMEGA32L-8AURA2
ATMEGA32L-8AURA4
ATMEGA164P-20AQ
ATMEGA164PV-10AQ
ATMEGA164P-20AQRA1