Product Change Notification / ALAN-09MQYA495

Date:

01-Mar-2022

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4888 Initial Notice: Qualification of TMGR as an additional fabrication site for selected Atmel ATMEGA64xx, ATMEGA12xx, ATMEGA25xx and ATTINY25xx device families available in various packages.

Affected CPNs:

ALAN-09MQYA495_Affected_CPN_03012022.pdf
ALAN-09MQYA495_Affected_CPN_03012022.csv

Notification Text:

PCN Status: Initial 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 TMGR as an additional fabrication site for selected Atmel ATMEGA64xx, ATMEGA12xx, ATMEGA25xx and ATTINY25xx device families available in various packages.

Pre and Post Change Summary:

	Pre Change	Post Change	
Fabrication Site	Microchip Technology Colorado (MCSO)	Microchip Technology Colorado (MCSO)	Microchip Technology Tempe – Fab 2 (TMGR)
Wafer Size	6 inches	6 inches	8 inches

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability by qualifying TMGR as an additional fabrication site.

Change Implementation Status: In Progress

Estimated Qualification Completion Date: March 2022

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary

	March 2022				
Workweek	10	11	12	13	14
Initial PCN Issued date	X				
Qual Report Availability					X
Final PCN Issue Date					X

Method to Identify Change: Traceability code

Qualification Plan: Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

Revision History: March 1, 2022: Issueance of initial 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_ALAN-09MQYA495_Qual Plan.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.

QUALIFICATION REPORT SUMMARY

PCN# ALAN-09MQYA495

Date:
October 13, 2020

Qualification of TMGR as an additional fabrication site for selected Atmel ATMEGA64xx and ATTINY25xx device families available in various packages.

MICROCHIP

Package Qualification Report

Purpose: Qualification of TMGR as an additional fabrication site for selected Atmel ATMEGA64xx and ATTINY25xx device families available in various packages.

MP code: 35H73QRXBTBD

Part No.: MEGA328

BD No: BDE006095-01

Qual ID QTP4157 Rev A

CCB#: 4136 and 4888

Package:

Type 32 VQFN

Width or Size 5x5x0.9 mm

Leadframe:

Material C194

Plating None

Part Number 10103202

Surface treatment Roughened

Paddle size 150 x 150 mils

Process Etched Solder

Plating:

Material Matte tin

Wire:

Material CuPdAu

Die Attach Film:

Part Number 3280

Conductive Yes

Mold Compound:

Type G700LTD

MICROCHIP

Package Qualification Report

Manufacturing Information

Lot Number	Wafer Lot No.
MMT-210101091.000	TMPE220377258.110
MMT-210101092.000	TMPE220377258.110
MMT-210201607.000	TMPE220377258.110

Result [X] Pass [ ] Fail [ ] _____

35H73 in 32 VQFN (5x5x0.9 mm) using CuPdAu wire at MMT is Passed at Moisture/ Reflow Sensitivity Classification Level 1 per IPC/JEDEC J-STD-020E standard and Qualified AEC-Q006 Grade 1. 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 :** 25°C	JESD22-A113	693(0)	0/693		Good Devices
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 85°C/85%RH Moisture Soak 168hrs. System: Climats Excal 5423-HE	IPC/JEDEC J-STD-020E	693(0)			
	3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)			
	Electrical Test : 25°C		693(0)	0/693	Pass	

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
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 : 125°C		231(0)	0/231	Pass	
	Bond Strength: Wire Bond Pull Wire Ball Shear		15(0)	0/15	Pass	
	Stress Condition: (Standard) -65°C to +150°C, 1000 Cycles System: VOTSCH VT 7012 S2		213(0)			
	Electrical Test : 125°C		213(0)	0/216	Pass	
	Bond Strength: Wire Bond Pull Wire Ball Shear		15(0)	0/15	Pass	

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. 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	
	Stress Condition: (Standard) +130°C/85%RH, 192 hrs. System: HIRAYAMA HASTEST PC-422R8		231(0)			
	Electrical Test: +25°C		231(0)	0/231	Pass	
BIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, +125°C		231(0)	0/231	Pass	
	Bond Strength: Wire Pull Bond Shear		15(0)	0/15	Pass	
	Stress Condition: (Standard) +130°C/85%RH, 192 hrs. System: HIRAYAMA HASTEST PC-422R8		213(0)			
	Electrical Test: +25°C, +125°C		213(0)	0/213	Pass	
	Bond Strength: Wire Pull Bond Shear		15(0)	0/15	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	JESD22-A103	2310)			
	Electrical Test : +25°C , +125°C		231(0)	0/231	Pass	
	Cross Section		3(0)	0/3	Pass	
	Stress Condition: Bake 175°C,1000 hrs System: HERAEUS		228(0)			
	Electrical Test : +25°C , +125°C		228(0)	0/228	Pass	
	Cross Section		3(0)	0/3	Pass	
Solderability Temp 245°C	**Bake:** Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Solder material: SAC305 Visual Inspection: External Visual Inspection	J-STD-002	25 (0)	0/25	Pass	
Physical Dimensions	Physical Dimension, 10 units from 3 lot	JESD22-B100/B108	30(0)	0/30	Pass	
Bond Strength Data Assembly	Wire Pull	M2011.8 MIL-STD-883	30(0) Wires	0/30	Pass	
Bond Strength Data Assembly	Bond Shear	M2011.8 MIL-STD-883	30(0) bonds	0/30	Pass	

QUALIFICATION PLAN SUMMARY

PCN# ALAN-09MQYA495

Date:
February 4, 2022

Qualification of TMGR as an additional fabrication site for selected Atmel ATMEGA64xx and ATTINY25xx device families available in various packages.

Purpose: Qualification of TMGR as an additional fabrication site for selected Atmel ATMEGA64xx, ATMEGA12xx, ATMEGA25xx and ATTINY25xx device families available in various packages.

CCB# 4888

PROCESS QUALIFICATION PLAN			
Test Name	**Test Condition**	**Sample Size**	**# of Lots**
Early Life Failure Rate	150°C/24 Hrs	800 ea min	3 Lots
High Temperature Operating Life	125°C/1000 hrs	77 ea min	3 Lots
Retention	175°C/1000 hrs	77 ea min	3 Lots
Endurance Cyling (Flash)	Room (10K cycles)	77 ea min	3 Lots
	-40°C (10K cycles)	77 ea min	3 Lots
	125°C (10K cycles)	77 ea min	3 Lots
Endurance Cyling (EEPROM)	Room (100K cycles)	77 ea min	3 Lots
	-40°C (100K cycles)	77 ea min	3 Lots
	125°C (100K cycles)	77 ea min	3 Lots
ESD	HBM 2KV min	12 units	1 Lot
Latch-up	100 mA @ 85°C	12 units	1 Lot

Affected Catalog Part Numbers (CPN)

ATMEGA6490-16AU
ATMEGA6490V-8AU
ATMEGA6450V-8AU
ATMEGA6450-16AU
ATMEGA649-16MU
ATMEGA645V-8MU
ATMEGA649V-8MU
ATMEGA645-16MU
ATMEGA649V-8AU
ATMEGA645-16AU
ATMEGA649-16AU
ATMEGA645V-8AU
ATMEGA6450V-8AUR
ATMEGA6450-16AUR
ATMEGA6490-16AUR
ATMEGA6490V-8AUR
ATMEGA645V-8MUR
ATMEGA649-16MUR
ATMEGA645-16MUR
ATMEGA649V-8MUR
ATMEGA649-16AUR
ATMEGA645V-8AUR
ATMEGA649V-8AUR
ATMEGA645-16AUR
ATTINY25-20MF
ATTINY25V-10MF
ATTINY25-20SSH
ATTINY25V-10SSH
ATTINY25-20SH
ATTINY25V-10SH
ATTINY25-20SSU
ATTINY25V-10SSU
ATTINY25-20SU
ATTINY25V-10SU
ATTINY25-20PU
ATTINY25V-10PU
ATTINY25-20MU
ATTINY25V-10MU
ATTINY25V-10SSN
ATTINY25-20SSN
ATTINY25-20SN
ATTINY25V-10SN
ATTINY25V-10SSNR
ATTINY25-20SSNR
ATTINY25-20SNR
ATTINY25V-10SNR

ATTINY25-20SSHR
ATTINY25V-10SSHR
ATTINY25V-10SHR
ATTINY25-20SHR
ATTINY25-20SSURA1
ATTINY25-20SSUR
ATTINY25V-10SSUR
ATTINY25-20SUR
ATTINY25V-10SUR
ATTINY25-20MUR
ATTINY25V-10MUR
ATTINY25-20MFR
ATTINY25-20MFR675
ATTINY25-20MFR673
ATTINY25V-10MFR
ATMEGA1280-16CU
ATMEGA1280V-8CU
ATMEGA640-16CU
ATMEGA640V-8CU
ATMEGA1280-16AU
ATMEGA1280V-8AU
ATMEGA640V-8AU
ATMEGA640-16AU
ATMEGA1280-16AU-HCM
ATMEGA1281V-8MU
ATMEGA1281-16MU
ATMEGA1281-16AU
ATMEGA1281V-8AU
ATMEGA1280-16CUR
ATMEGA1280V-8CUR
ATMEGA640-16CUR
ATMEGA640V-8CUR
ATMEGA1280-16AUR
ATMEGA1280V-8AUR
ATMEGA640V-8AUR
ATMEGA640-16AUR
ATMEGA640-16AURA0
ATMEGA1281-16MUR
ATMEGA1281V-8MUR
ATMEGA1281V-8AUR
ATMEGA1281-16AUR
ATMEGA2560-16CU
ATMEGA2560V-8CU
ATMEGA2560-16AU
ATMEGA2560V-8AU
ATMEGA2560-16AU-HCM
ATMEGA2561V-8MUA0
ATMEGA2561-16MU
ATMEGA2561V-8MU

ATMEGA2561-16AU

ATMEGA2561V-8AU

ATMEGA2560-16CUR

ATMEGA2560V-8CUR

ATMEGA2560-16AUR

ATMEGA2560V-8AUR

ATMEGA2561V-8MURA0

ATMEGA2561-16MUR

ATMEGA2561V-8MUR

ATMEGA2561-16AURA0

ATMEGA2561-16AUR

ATMEGA2561V-8AUR