Product Change Notification / LIAL-06WFCQ261

Date:

03-Feb-2022

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 3405.001 Final Notice: Qualification of G700LA mold compound material for selected Atmel ATMEGA168PB, ATMEGA88PB, ATMEGA48PB, ATMEGA808 and ATMEGA1608 device families available in 32L TQFP (7x7x1mm) package assembled at ASCL assembly site.

Affected CPNs:

LIAL-06WFCQ261_Affected_CPN_02032022.pdf
LIAL-06WFCQ261_Affected_CPN_02032022.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 G700LA mold compound material for selected Atmel ATMEGA168PB, ATMEGA88PB, ATMEGA48PB, ATMEGA808 and ATMEGA1608 device families available in 32L TQFP (7x7x1mm) package assembled at ASCL assembly site.

Pre and Post Change Summary:

	Pre Change		**Post Change**	
Assembly Site	ASE Group Chung-Li (ASCL)		ASE Group Chung-Li (ASCL)	
Wire Material	Cu	PdCu	Cu	PdCu
Die Attach Material	EN-4900GC		EN-4900GC	
Molding Compound Material	CEL-9240HF10AK		G700LA	
Lead-Frame Material	EFTEC64		EFTEC64	

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve on-time delivery performance by qualifying G700LA mold compound material.

Change Implementation Status: In Progress

Estimated First Ship Date: February 17, 2022 (date code: 2208)

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

Time Table Summary:

	February 2022				
Workweek	06	07	08	09	10
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: February 03, 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_LIAL-06WFCQ261_Qual Report 1of2.pdf
PCN_LIAL-06WFCQ261_Qual Report 2of2.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.

Affected Catalog Part Numbers (CPN)

ATMEGA168PB-AU
ATMEGA168PB-AN
ATMEGA168PB-ANR
ATMEGA168PB-AUR
ATMEGA88PB-AU
ATMEGA48PB-AU
ATMEGA88PB-AN
ATMEGA48PB-AN
ATMEGA88PB-ANR
ATMEGA48PB-ANR
ATMEGA88PB-AUR
ATMEGA48PB-AUR
ATMEGA808-AF
ATMEGA1608-AF
ATMEGA1608-AU
ATMEGA808-AU
ATMEGA1608-AUR
ATMEGA808-AUR
ATMEGA1608-AFR
ATMEGA808-AFR

QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: LIAL-06WFCQ261

Date
March 16, 2019

Qualification of G700LA mold compound material for selected Atmel ATMEGA168PB, ATMEGA88PB, ATMEGA48PB, ATMEGA808 and ATMEGA1608 device families available in 32L TQFP (7x7x1mm) package assembled at ASCL assembly site. This is a qualification by similarity (QBS).

MICROCHIP

Package Qualification Report

Purpose: Qualification of G700LA mold compound material for selected Atmel ATMEGA168PB, ATMEGA88PB, ATMEGA48PB, ATMEGA808 and ATMEGA1608 device families available in 32L TQFP (7x7x1mm) package assembled at ASCL assembly site. This is a qualification by similarity (QBS).

Misc.	**Assembly site**	ASCL
	BD Number	BD_59B0C_ALV_02_00
	MP Code (MPC)	59B0CYY8XC01
	Part Number (CPN)	ATMEGA1609-AFR
	CCB No.	3405 and 3405.001
	Qual ID and Rev	QTP3439 Rev A
Lead-Frame	**Paddle size**	5x5 mm
	Material	C194
	Surface	Bare Cu with Ag lead & Flag
	Treatment	Ag plating (not rough)
	Process	Stamping
	Lead-lock	No
	Part Number	0048QP008C14
	Lead Plating	Sn Matte
Bond Wire	**Material**	CuPdAu
Die Attach	**Part Number**	EN-4900GC
	Conductive	Yes
MC	**Part Number**	G700LA
PKG	**PKG Type**	TQFP
	Pin/Ball Count	48
	PKG width/size	7x7 mm

Package Qualification Report

Manufacturing Information

Assembly Lot No.	**Date Code**
192800002	1841
192800003	1841
192800004	1841

Result: ☒ Pass ☐ Fail

TQFP 48 7x7mm (Y8X) in 59B0C/Fab4 at ASCL using 0.8 mil CuPdAu wire is qualified Industrial 125°C and passed Moisture/ Reflow Sensitivity Classification Level 3 per IPC/JEDEC J-STD-020E 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 3)	**Electrical Test:** +25°C System: Magnum Tester + Thermonics	JESD22-A113	693(0)	0/693		Good Devices
		231 units/ 3 Lots				
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	30°C/60%RH Moisture Soak 192 hrs. System: Climats Excal 5423-HE	IPC/JEDEC J-STD-020D	693(0)			
	3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)			
	Electrical Test: +25°C only System: Magnum Tester + Thermonics		693(0)	0/693	Pass	
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22A118	231(0)	0/231	Pass	Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: Magnum Tester + Thermonics	77 units/ 3 Lots	231(0)			

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Temp Cycle **-65°C to +150°C**	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2	JESD22-A104 77 units / 3 Lots	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +130°C System: Magnum Tester + Thermonics		231(0)	0/231	Pass	
	Bond Strength: Wire Pull Bond Shear		15(0)	0/15	Pass	
Biased Hast **110°C/85%**	**Stress Condition:** (Standard) +110°C/85%RH, 264 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A110 77 units / 3 Lots	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C , +130°C System: Magnum Tester + Thermonics		231(0)	0/231	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 **Electrical Test :** +25°C , +130°C System: Magnum Tester + Thermonics	JESD22-A103 45 units/ 3 Lots	135(0) 135(0)	0/135	Pass	
Physical Dimensions	Physical Dimension, 10 units from 3 lots	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	**Wire Bond Pull**	M2011.8 MIL-STD-883 1 Lot, 5 units	30(0) Wires	0/30		
	Wire Ball Shear	M2011.8 MIL-STD-883 1 Lot, 5 units	30(0) bonds	0/30		

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: LIAL-06WFCQ261

Date

December 24, 2018

Qualification of G700LA mold compound material for selected Atmel ATMEGA168PB, ATMEGA88PB, ATMEGA48PB, ATMEGA808 and ATMEGA1608 device families available in 32L TQFP (7x7x1mm) package assembled at ASCL assembly site. This is a qualification by similarity (QBS).

Package Qualification Report

Purpose: Qualification of G700LA mold compound material for selected Atmel ATMEGA168PB, ATMEGA88PB, ATMEGA48PB, ATMEGA808 and ATMEGA1608 device families available in 32L TQFP (7x7x1mm) package assembled at ASCL assembly site. This is a qualification by similarity (QBS).

Misc.	**Assembly site**	ASCL
	BD Number	BD_59B18_AIX_01_00
	MP Code (MPC)	59B187T4XC01
	Part Number (CPN)	ATMEGA324PB_AU
	CCB No.	3323 and 3405.001
	Qual ID and Rev	QTP3368 Rev A
Lead frame	**Paddle size**	5.21 x 5.21 mm
	Material	EFTEC64
	Surface	Double Ring
	Treatment	Standard
	Process	Etching
	Lead-lock	No
	Part Number	0044QP004D03
	Lead Plating	Sn Matte
Bond wire	**Material**	CuPdAu
Die Attach	**Part Number**	EN-4900GC
	Conductive	Yes
MC	**Part Number**	G700LA
PKG	**PKG Type**	TQFP
	Pin/Ball Count	44
	PKG width/size	10 x 10 mm

MICROCHIP

Package Qualification Report

Manufacturing Information

Assembly Lot No.	Wafer lot No.	Date Code
AG2Z4C563D	8241374GL	1817
AG2Z4C563B	8241374GL	1817
AG2Z4C563C	8241374GL	1817

Result: ☒ Pass ☐ Fail

59B18 Fab4 in TQFP 44 10x10mm (T4X) at ASCL using 0.8 mil CuPdAu wire is qualified as Industrial 125°C at Moisture/ Reflow Sensitivity Classification Level 3 per IPC/JEDEC J-STD-020E 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 3)	**Electrical Test:** +25°C	JESD22-A113	693(0)	0/693	Pass	Good Devices
	Bake 150°C, 24 hrs System: HERAEUS	IPC/JEDEC J-STD-020D	693(0)			
	30°C/60%RH Moisture Soak 192 hrs. System: Climats Excal 5423-HE	3 Lots of 231 units	693(0)			
	3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)			
	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: +130°C System: Magnum	3 Lots of 77 units	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, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: Magnum	3 Lots of 77 units	231(0)	0/231	Pass	
BIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X	JESD22- A110 3 Lots of 77 units	231(0)	0/231	Pass	Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, +130°C System: Magnum		231(0)			

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, 504H System: HERAEUS	JESD22-A103	45(0)			
	Electrical Test: +25°C, +130°C	1 Lot of 45 units	45(0)	0/45	Pass	
Physical Dimensions	Physical Dimension, 10 units from 3 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength **Data Assembly** **(0 Hour)**	Wire Pull: ***30 Bonds from min of 5 units***	M2011.8 MIL-STD-883	30(0) Wires	0/30	Pass	
	Bond Shear: (***30 Bonds from min of 5 units***	M2011.8 MIL-STD-883	30(0) bonds	0/30	Pass	