Product Change Notification / GBNG-03JWKQ486

Date:

09-Nov-2021

Product Category:

32-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4443 Final Notice: Qualification of G631HQ mold compound material for selected Atmel AT32UC3Axxx and AT32UC3Cxxx device families available in 144L LQFP (20x20x1.4mm) package at ANAP assembly site.

Affected CPNs:

GBNG-03JWKQ486_Affected_CPN_11092021.pdf
GBNG-03JWKQ486_Affected_CPN_11092021.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 G631HQ mold compound material for selected Atmel AT32UC3Axxx and AT32UC3Cxxx device families available in 144L LQFP (20x20x1.4mm) package at ANAP assembly site.

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	Amkor Technology Philippine	Amkor Technology Philippine

	(P1/P2), INC. / ANAP		(P1/P2), INC. / ANAP
Wire material	AuPd		AuPd
Die attach material	3230		3230
Molding compound material	G700L		G631HQ
Lead frame material	C194		C194
Lead frame paddle size	276x276 mils	236x236 mils	276x276 mils
Lead frame design	See attached pre and post change comparison		

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability by qualifying G631HQ mold compound material with 276x276 mils lead frame paddle size at ANAP assembly site.

Change Implementation Status: In Progress

Estimated First Ship Date: December 10, 2021 (date code: 2150)

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

Time Table Summary:

	November 2021				**December 2021**				
Workweek	45	46	47	48	49	50	51	52	53
Qual Report Availability		X							
Final PCN Issue Date		X							
Estimated First Ship 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:November 5, 2020: Issued initial notification.**November 9, 2021:** Issued final notification. Attached the qualification report and added estimated first ship date by December 10, 2021.

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

Attachments:

PCN_GBNG-03JWKQ486_Qual Report.pdf
PCN_GBNG-03JWKQ486_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.

Affected Catalog Part Numbers (CPN)

AT32UC3A0512-ALTTA
AT32UC3A0512-ALTRA
AT32UC3A3128-ALUT
AT32UC3A3128S-ALUT
AT32UC3A3256-ALUT
AT32UC3A3256S-ALUT
AT32UC3A364-ALUT
AT32UC3A364S-ALUT
AT32UC3A3256-ALUTA1
AT32UC3A3256AU-ALUTA1
AT32UC3A3128-ALUR
AT32UC3A3128S-ALUR
AT32UC3A3256-ALUR
AT32UC3A3256S-ALUR
AT32UC3A364-ALUR
AT32UC3A364S-ALUR
AT32UC3A0512-ALUT
AT32UC3A0512-ALUR
AT32UC3C0512C-ALZT
AT32UC3C0128C-ALUT
AT32UC3C0256C-ALUT
AT32UC3C0512C-ALUT
AT32UC3C064C-ALUT
AT32UC3C0128C-ALUR
AT32UC3C064C-ALUR
AT32UC3C0512C-ALUR
AT32UC3C0256C-ALUR
AT32UC3C0512C-ALZR
AT32UC3A0128-ALUT
AT32UC3A0256-ALUT
AT32UC3A0128-ALUR
AT32UC3A0256-ALUR

PCN #: GBNG-03JWKQ486

PRE AND POST CHANGE SUMMARY
CCB 4443

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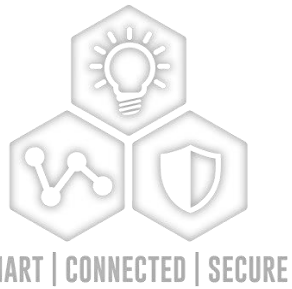
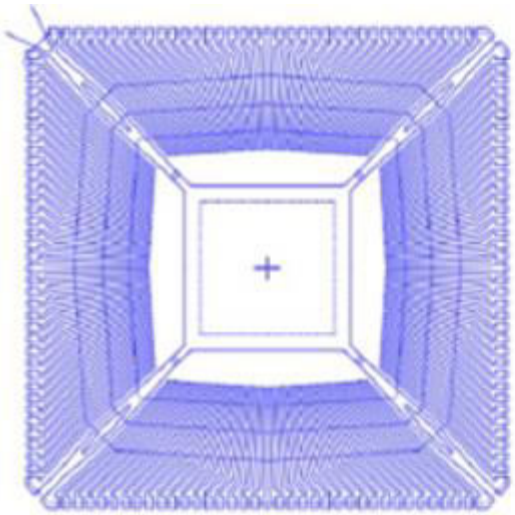
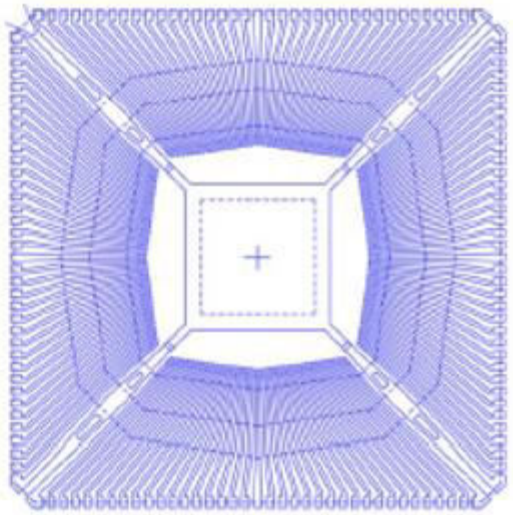


Lead frame Comparison

Pre Change



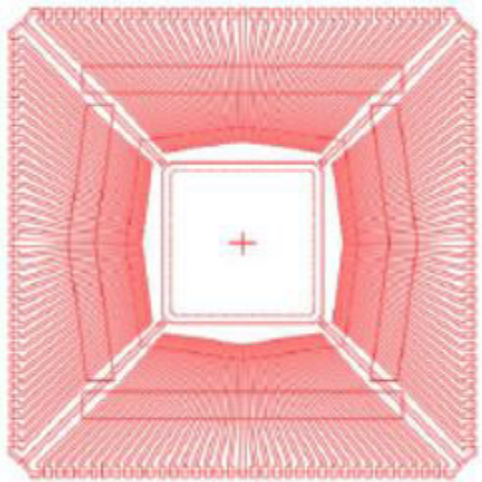
276x276 mils



236x236 mils

Strip Density	HDLF High Density Lead frame	HDLF High Density Lead frame
LF Paddle Size	276x276 mils	236x236 mils
DAP Surface Prep	Double Ring Ag	Double Ring Ag
Backside Dimple	Yes	Yes

Post Change



Strip Density	UDLF Ultra Density Lead frame
LF Paddle Sie	276x276 mils
DAP Surface Prep	Double Ring Ag
Backside Dimple	No

QUALIFICATION REPORT SUMMARY

PCN#: GBNG-03JWKQ486

Date:
September 24, 2021

Qualification of G631HQ mold compound material for selected Atmel AT32UC3Axxx and AT32UC3Cxxx device families available in 144L LQFP (20x20x1.4mm) package at ANAP assembly site. Q-100 Automotive Grade 1

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Package Qualification Report

Purpose: Qualification of G631HQ mold compound material for selected Atmel AT32UC3Axxx and AT32UC3Cxxx device families available in 144L LQFP (20x20x1.4mm) package at ANAP assembly site.

Misc.	Qual ID	QTP4442 Rev. A
	Assembly site	ANAP
	BD Number	BDM-002758A
	MP Code (MPC)	58U94YH8XC02
	Part Number (CPN)	AT32UC3C0512C-ALZR
	MSL information	MSL-3 @260C
	Assembly Shipping Media (T/R, Tube/Tray)	T/R
	Base Quantity Multiple (BQM)	800 units
	Reliability Site	MPHIL
	CCB#	4443
Lead-Frame	Paddle size	276x276 mils
	Material	C194
	DAP Surface Prep	Double Ring Ag
	Treatment	None
	Process	STAMPED
	Lead-lock	Yes
	Part Number	101384548
	Lead Plating	Matte Tin
	Strip Density	UDLF
Bond Wire	Material	AuPd
Die Attach	Part Number	3230
	Conductive	Yes
MC	Part Number	G631HQ
PKG	PKG Type	LQFP
	Pin/Ball Count	144
	PKG width/size	20x20x1.4mm

MICROCHIP

Package Qualification Report

Manufacturing Information

Assembly Lot No.
ANAP213300097.000
ANAP213300098.000
ANAP213300099.000

Result ☑ Pass ☐ Fail ☐ _____

58U94YH8XC02 using UDLF LF#101384548 and mold compound G631HQ with 0.15um wafer tech. in 144L LQFP 20x20x1.4mm from ANAP pass reliability stress tests per QCI-39000 conducted at MPHL rel lab. This package is qualified Moisture/Reflow Sensitivity Classification Level 3 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
Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Electrical Test :25°C** Magnum	JESD22-A113, JIP/ IPC/JEDEC J-STD-020E	231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	Good Devices
	Bake 150°C, 24 hrs System: HERAEUS		231 per lot			
	Moisture Soak 192h(30°C/60%RH) System: Climats Excal 5423-HE		231 per lot			
	Reflow 3x Convection-Reflow 265°C max System: Mancorp CR.5000F		231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	
	Electrical Test :25°C Magnum		231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

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 **Electrical Test:** 25°C System: Magnum	JESD22-A118	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	Parts had been pre-conditioned at 260°C
	Internal Package Analysis		5 units per lot	Lot 1, 0/5 Lot 2, 0/5 Lot 3, 0/5	Pass Pass Pass	
HAST	**Stress Condition:** (Standard) 130°C, 85%RH, 96 hrs. VOLTS=5.5V System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** 25°C /130°C System: Magnum	JESD22-A110	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	
	Internal Package Analysis		5 units per lot	Lot 1, 0/5 Lot 2, 0/5 Lot 3, 0/5	Pass Pass Pass	

PACKAGE QUALIFICATION REPORT

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 VTS^{2}7012 **Electrical Test:** 130°C System: Magnum	JESD22-A104	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	Parts had been pre-conditioned at 260°C
	Internal Package Analysis		5 units per lot	Lot 1, 0/5 Lot 2, 0/5 Lot 3, 0/5	Pass Pass Pass	
	Bond Strength: Wire Pull (> 1.75 grams) Bond *Shear (>12.6 grams)* System: Dage		5 units, 30 bonds per lot	Lot 1 0/30 Lot 2 0/30 Lot 3 0/30	Pass Pass Pass	
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 500 hrs System: HERAEUS **Electrical Test:** 25°C /130°C System: Magnum	JESD22-A103	45 units per lot	Lot 1 0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Bond Strength, 0 Hour	**System:** Dage Wire Pull (> 1.75 grams) Bond *Shear (>12.6 grams)*		5 units, 30 bonds per lot	Lot 1 0/30 Lot 2 0/30 Lot 3 0/30	Pass Pass Pass	
Solderability	**Bake:** Temp 155°C,4Hrs System: Oven Solder Bath: Temp.245°C Solder material: SAC305 Visual Inspection: External Visual Inspection	J-STD-002D	22 units from 1 lot	0/22	Pass	
Physical Dimension	Physical Dimension, 30 units from 3 lots	JESD22 -B100/B108	22 units per lot	Lot 1 0/22 Lot 2 0/22 Lot 3 0/22	Pass Pass Pass	