Product Change Notification / RMES-02XBET158

Date:

02-Aug-2021

Product Category:

32-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4407 Final Notice: Qualification of new lead frame design with Double ring Ag on die attach paddle (DAP) surface prep material for selected AT32UC3B0512, AT32UC3C2512C, AT32UC3C2128C, AT32UC3C2256C and AT32UC3C264C device families available in 64L TQFP (10x10x1mm) package using 295x295 mils lead frame paddle size at ANAP assembly site.

Affected CPNs:

RMES-02XBET158_Affected_CPN_08022021.pdf
RMES-02XBET158_Affected_CPN_08022021.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 new lead frame design with Double ring Ag on die attach paddle (DAP) surface prep material for selected AT32UC3B0512, AT32UC3C2512C, AT32UC3C2128C, AT32UC3C2256C and AT32UC3C264C device families available in 64L TQFP (10x10x1mm) package using 295x295 mils lead frame paddle size at ANAP assembly site.

Pre and Post Change Summary:

	Pre Change	Post Change

Assembly Site	Amkor Technology Philippine (P1/P2), INC. (ANAP)		Amkor Technology Philippine (P1/P2), INC. (ANAP)
Wire material	AuPd		AuPd
Die attach material	3230		3230
Molding compound material	G700L		G700L
Lead frame material	C194		C194
Lead frame Paddle size	295x295 mils	224x240 mils	295x295 mils
Lead frame die attach paddle (DAP) surface prep material	Double Ring Ag	Ring Ag	Double Ring Ag
	See Pre and Post Change attachment for lead frame comparison		

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve manufacturability by qualifying new lead frame design with Double ring Ag on die attach paddle (DAP) surface prep material using 295x295 mils lead frame paddle size

Change Implementation Status: In Progress

Estimated First Ship Date:
August 30, 2021(date code: 2136)

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

Time Table Summary:

	August 2021				
Workweek	32	33	34	35	36
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: August 02, 2021: 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_RMES-02XBET158_Pre and Post Change_Summary.pdf
PCN_RMES-02XBET158_Qual_Report.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)

AT32UC3B0512-A2UT
AT32UC3B0512-A2UR
AT32UC3C2512C-A2ZT
AT32UC3C2128C-A2ZT
AT32UC3C2256C-A2ZT
AT32UC3C2128C-A2UT
AT32UC3C2256C-A2UT
AT32UC3C2512C-A2UT
AT32UC3C264C-A2UT
AT32UC3C2128C-A2UR
AT32UC3C2256C-A2UR
AT32UC3C2512C-A2UR
AT32UC3C264C-A2UR
AT32UC3C2512C-A2ZR
AT32UC3C2128C-A2ZR
AT32UC3C2256C-A2ZR

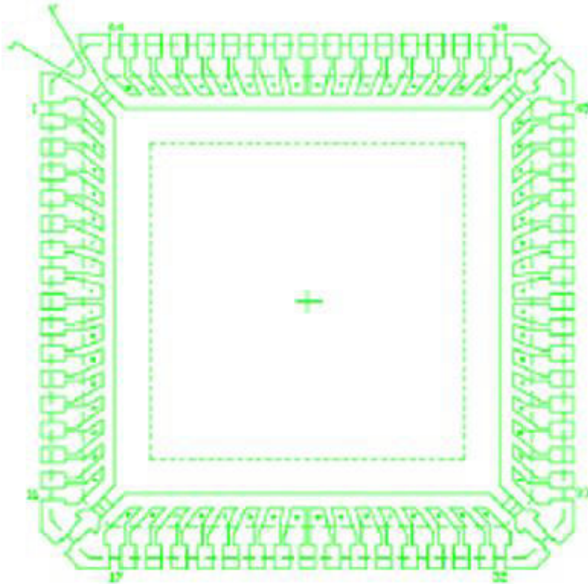
CCB 4407
Pre and Post Change Summary
PCN#: RMES-02XBET158

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

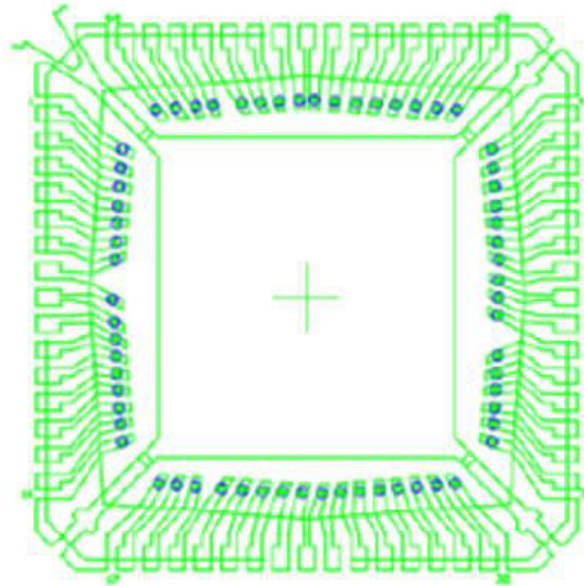
Qualification of new lead frame design with Double ring Ag on die attach paddle (DAP) surface prep material for selected AT32UC3B0512, AT32UC3C2512C, AT32UC3C2128C, AT32UC3C2256C and AT32UC3C264C device families available in 64L TQFP (10x10x1mm) package using 295x295 mils lead frame paddle size at ANAP assembly site.

LeadFrame Comparison

PRE CHANGE

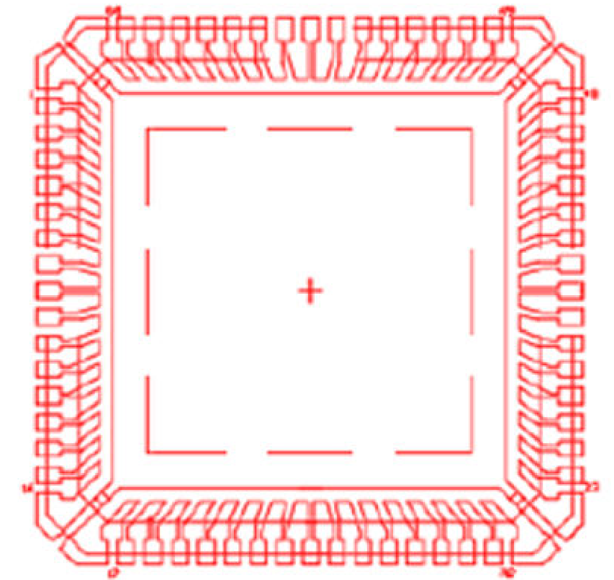


Lead frame material	C194
Lead frame Paddle size	295x295 mils
Lead frame die attach paddle (DAP) surface prep material	Double Ring Ag



Lead frame material	C194
Lead frame Paddle size	224x240 mils
Lead frame die attach paddle (DAP) surface prep material	Ring Ag

POST CHANGE



Lead frame material	C194
Lead frame Paddle size	295x295 mils
Lead frame die attach paddle (DAP) surface prep material	Double Ring Ag

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: RMES-02XBET158

Date:
June 28, 2021

Qualification of new lead frame design with Double ring Ag on die attach paddle (DAP) surface prep material for selected AT32UC3B0512, AT32UC3C2512C, AT32UC3C2128C, AT32UC3C2256C and AT32UC3C264C device families available in 64L TQFP (10x10x1mm) package using 295x295 mils lead frame paddle size at ANAP assembly site.

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Package Qualification Report

Purpose: Qualification of new lead frame design with Double ring Ag on die attach paddle (DAP) surface prep material for selected AT32UC3B0512, AT32UC3C2512C, AT32UC3C2128C, AT32UC3C2256C and AT32UC3C264C device families available in 64L TQFP (10x10x1mm) package using 295x295 mils lead frame paddle size at ANAP assembly site.

Misc.	Assembly site	ATP
	BD Number	BDM-002743A
	MP Code (MPC)	58U94YV2XV01
	Part Number (CPN)	AT32UC3C2512C-A2ZRV01
	MSL information	MSL-3 @260C
	Assembly Shipping Media (T/R, Tube/Tray)	Tray
	Base Quantity Multiple (BQM)	160 units
	Reliability Site	MPHIL
	Qual ID	QTP4355 Rev. A
	CCB No.	4407
Lead-Frame	Paddle size	295x295 mil
	Material	C194
	DAP Surface Prep	Double Ring Ag
	Treatment	None
	Process	Etched
	Lead-lock	No
	Part Number	101387176
	Lead Plating	Matte Tin
	Strip Size	Confidential
	Strip Density	VHDLF
Bond Wire	Material	AuPd
Die Attach	Part Number	3230
	Conductive	Yes
MC	Part Number	G700L
PKG	PKG Type	TQFP
	Pin/Ball Count	64
	PKG width/size	10x10x1mm

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Package Qualification Report

Manufacturing Information

WAFER LOT ID	ASSY LOT ID
U8CD920525660.100	ANAP213400197.000
U8CD920525660.100	ANAP213400198.000
U8CD920525660.100	ANAP213500002.000

Result ☑ Pass ☐ Fail ☐ ____________

58U94YV2XV01 using VHDLF LF#101387176 with 0.15um wafer tech. in 64L TQFP 10x10x1mm at ATP 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
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	

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 VTS²7012 **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
	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 Lot 2 0/45 Lot 3 0/45	Pass Pass 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	