Product Change Notification / RMES-02KZIM086

Date:

03-Feb-2021

Product Category:

Ethernet PHYs

PCN Type:

Manufacturing Change

Notification Subject:

CCB 2695.009 Final Notice: Qualification of ANAC as an additional assembly site for selected KSZ9131RNXxx and KSZ9031RNXxx device families available in 48L VQFN (7x7x0.9 mm) package.

Affected CPNs:

RMES-02KZIM086_Affected_CPN_02032021.pdf
RMES-02KZIM086_Affected_CPN_02032021.csv

Notification Text:

PCN Status: Final notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the icons found in the Affected CPNs section to the right.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .csv).

Description of Change: Qualification of ANAC as an additional assembly site for selected KSZ9131RNXxx and KSZ9031RNXxx device families available in 48L VQFN (7x7x0.9 mm) package.

Pre Change:
Assembled at ASCL assembly site.

Post Change:
Assembled at ASCL or ANAC assembly site.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	ASE Group Chung-Li (ASCL)	ASE Group Chung-Li (ASCL)	Amkor Assembly & Test (Shanghai) Co., LTD (ANAC)
Wire material	CuPdAu or Cu	CuPdAu or Cu	CuPdAu
Die attach material	EN-4900G	EN-4900G	CRM-1085A
Molding compound material	G700LA	G700LA	EMC-G631BQF
Lead frame material	C194	C194	C194
Lead Lock (Locking Hole)	No	No	No
Paddle size	224 x 224 mils	224 x 224 mils	211 x 211 mils
Exposed Pad	5.05 x 5.05	5.05 x 5.05	5.10 x 5.10

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve manufacturability by qualifying ANAC as an additional assembly site.

Change Implementation Status: In Progress

Estimated First Ship Date:
March 01, 2021 (date code: 2110)

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

Time Table Summary:

	February 2021				>	March 2021				
Workweek	06	07	08	09		10	11	12	13	14
Qual Report Availability	X									
Final PCN Issue Date	X									
Estimated Implementation Date						X				

Method to Identify Change: Traceability code

Qualification Reports:
Please open the attachments included with this PCN labeled as PCN_#_Qual_Report. PCN_JAON-07LFEV539_Qual_Report PCN_JAON-14ZJMR243_Qual_Report

Revision History: February 03, 2021: Issued final notification. Attached are the qualification reports and added the estimated first ship date by March 01, 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_JAON-07LFEV539_Qual_Report.pdf
PCN_JAON-14ZJMR243_Qual_Report.pdf
PCN_RMES-02KZIM086_Pre and Post Change Summary.pdf

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

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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)

KSZ9131RNXC
KSZ9131RNXI
KSZ9131RNXC-TR
KSZ9131RNXI-TR
KSZ9031RNXCC
KSZ9031RNXIC
KSZ9031RNXCC-TR
KSZ9031RNXIC-TR

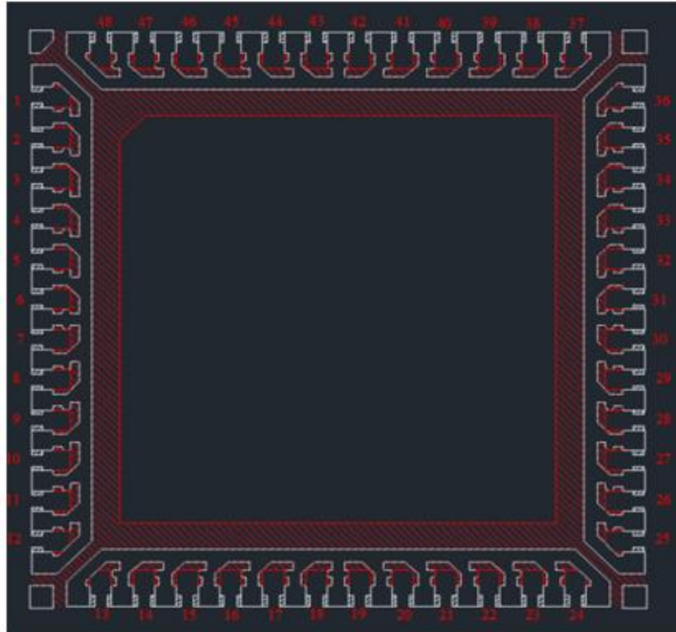
CCB 2695.009
Pre and Post Change Summary
PCN #: RMES-02KZIM086

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

Qualification of ANAC as an additional assembly site for selected KSZ9131RNXxx and KSZ9031RNXxx device families available in 48L VQFN (7x7x0.9 mm) package.

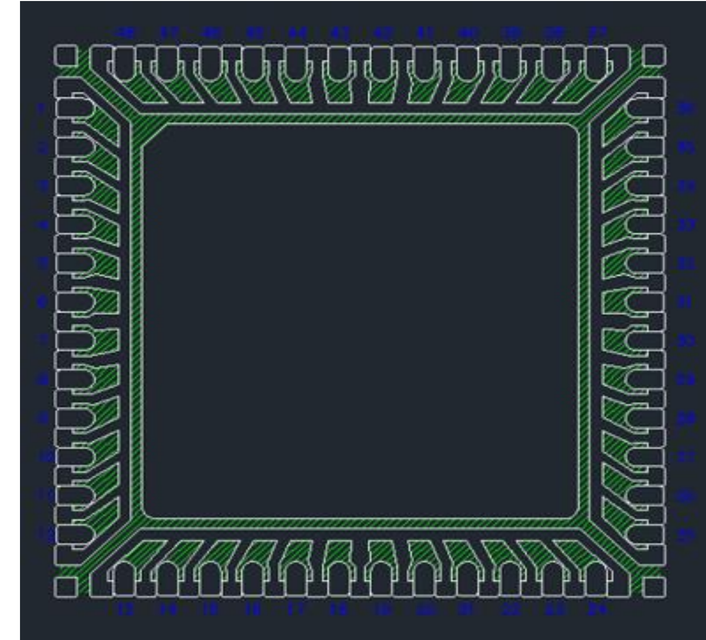
LEAD FRAME COMPARISON

ASCL



Paddle size	224 x 224 mils
Lead Lock (Locking Hole)	No
Exposed Pad	5.05 x 5.05

ANAC



Paddle size	211 x 211 mils
Lead Lock (Locking Hole)	No
Exposed Pad	5.10 x 5.10

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: JAON-07LFEV539

Date:
January 27, 2021

Qualification of ANAC as an additional assembly site for selected products available in 64L QFN (9x9x0.9mm) package using CRM-1085A die attach material. The 48L VQFN (7x7x0.9mm) package will qualify by similarity (QBS).

OBJECTIVE

Qualification of ANAC as an additional assembly site for selected products available in 64L QFN (9x9x0.9mm) package using CRM-1085A die attach material. The 48L VQFN (7x7x0.9mm) package will qualify by similarity.

QUAL ID	QAR2016-022
BD #	BDE-003798 Rev-01
PART #	STB041R4XAA0 (USB5734)
CCB #	2695 & 2695.009

PRODUCT INFORMATION

PACKAGE TYPE	QFN (SAWN)
PACKAGE LEAD COUNT & SIZE	64, 9X9x0.9mm
EXPOSED PAD SIZE	6.0 X 6.0mm
TERMINAL PITCH	0.5mm
PACKAGE CODE	R4X
WAFER DIAMETER	12 Inch
MANUFACTUR PART #	USB5734
CIRCUIT UNDER PAD	YES

Material used in the Assembly:

LEADFRAME PART NUMBER	101396563
LEADFRAME MATERIAL	C194 (ETCHED)
LEADFRAME INTERNAL PLATING	DOUBLE RING
LEADFRAME SURFACE	Cu – ROUGHENED
LEADLOCK (Locking Hole)	NO
DIE ATTACH EPOXY TYPE	CRM1085A
EPOXY – CONDUCTIVE	YES
WIRE TYPE	CuPdAu
DOWNBOND	YES
MOLDING COMPOUND TYPE	EMC-G631BQF
LEAD FINISH PROCESS	Matte Sn
MARKING	LASER

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	MARKING /Date Code
ANAC170900039.000	PA3W85.00_ WAFER 25 / TC14916524379.100	USB5734 A001 (e3) ATC-CN 1621SGU
ANAC170900040.000	PA3W85.00_ WAFER 25 / TC14916524379.100	USB5734 A001 (e3) ATC-CN 1621SGV
ANAC170900041.000	PA3W85.00_ WAFER 25 / TC14916524379.100	USB5734 A001 (e3) ATC-CN 1621SGW

Result [X] Pass [ ] Fail [ ] ____________________

The 64L Sawn QFN (9x9X0.9mm) package using CuPdAu wire, assembled by ANAC Pass Reliability test per QCI-39000.This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020D standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 3)	30°C/ 60%RH Moisture Soak 192 hrs. (IPC/JEDEC J-STD-020D)	IPC/ JEDEC J-STD-020D	240 240 240	0/240 0/240 0/240	Pass Pass Pass	LOT 1 LOT 2 LOT 3
<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 3)	Electrical Test: +25°C, +85°C SAT Bake 125°C, 24hrs Moisture Soak 192 hrs. 3x Convection-Reflow 260°C SAT Electrical Test : +25°C, +85°C	JESD22-A113	240 (0) Lot 1	240 240 240 240 240 240 240	PASS PASS	Good Devices
<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 3)	Electrical Test: +25°C, +85°C SAT Bake 125°C, 24hrs Moisture Soak 192 hrs. 3x Convection-Reflow 260°C SAT Electrical Test : +25°C, +85°C	JESD22-A113	240 (0) Lot 2	240 240 240 240 240 240 240	PASS PASS	Good Devices

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 3)	Electrical Test: +25°C, +85°C SAT Bake 125°C, 24hrs Moisture Soak 192 hrs. 3x Convection-Reflow 260°C SAT Electrical Test : +25°C, +85°C	JESD22-A113	240 (0) Lot 3	240 240 240 240 240 240 240	PASS PASS	Good Devices

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	Stress Condition: -65°C to +150°C, 500x, 1000x Electrical Test: +25°C / + 85°C	JESD22-A104	231 (0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
BHAST	Stress Condition: +130°C/85%RH, 96hrs, 192hrs Electrical Test: +25°C / + 85°C	JESD22-A110	231 (0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C units / lot
uHAST	Stress Condition: +130°C/85%RH, 96hrs, 192hrs Electrical Test: +25°C / + 85°C	JESD22-A110	231 (0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
High Temperature Storage Life	Stress Condition: Bake +150°C, 400hrs, 1008hrs Electrical Test : +25°C / + 85°C	JESD22-A103	231 (0)	231 0/231	Pass	Parts had no pre-conditioned 77 units / lot

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: JAON-14ZJMR243

Date:
January 27, 2021

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected MEC5055xx device family available in 132L DQFN at ANAC assembly site. The selected KSZ9131RNXxx and KSZ9031RNXxx device families available in 48L VQFN (7x7x0.9 mm) package will qualify by similarity (QBS).

OBJECTIVE

Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected MEC5055xx device family available in 132L DQFN at ANAC assembly site. The selected KSZ9131RNXxx and KSZ9031RNXxx device families available in 48L VQFN (7x7x0.9 mm) package will qualify by similarity (QBS).

QUAL ID	QAR2016-017
BD #	BDM-001022
PART #	TEA021NBXA1C (MEC5055)
CCB #	2532 and 2695.009

PRODUCT INFORMATION

PACKAGE TYPE	DQFN (PUNCH)
PACKAGE LEAD COUNT	132 (11X11x0.85mm)
PACKAGE CODE	NBX
MANUFACTUR PART #	TEA021NBXA1C (MEC5055)
CIRCUIT UNDER PAD	YES

Material used in the Assembly:

LEADFRAME PART NUMBER	101362794
LEADFRAME MATERIAL	C7025 (ETCHED)
LEADFRAME INTERNAL PLATING	DOUBLE RING
LEADFRAME SURFACE	Cu – roughened
LEADLOCK	YES
DIE ATTACH EPOXY TYPE	CRM1085A
EPOXY – CONDUCTIVE	YES
WIRE TYPE	CuPdAu
DOWNBOND	YES
MOLDING COMPOUND TYPE	EMC-G631BQF
LEAD FINISH PROCESS	Matte Tin
MARKING	LASER

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	MARKING /Date Code
ANAC170200049.000	W2K391.00 (#25) / TC11914324099.100	SMSC MEC5055-LZY-7 A1614-AB41 614VSUA ATC-CN (e3)
ANAC170200050.000	W2K391.00 (#25) / TC11914324099.100	SMSC MEC5055-LZY-7 A1614-AB41 614VSVA ATC-CN (e3)
ANAC170200051.000	W2K391.00 (#25) / TC11914324099.100	SMSC MEC5055-LZY-7 A1614-AB41 614VSYA ATC-CN (e3)

Result [X] Pass [ ] Fail [ ] ____________________

The 132L DQFN (11x11X0.85mm) package using ALS Leadframe with CuPdAu wire assembled by ANAC Pass Reliability test per QCI-39000.This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020D standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 3 - accelerated)	60°C/ 60%RH Moisture Soak 40 hrs. (IPC/JEDEC J-STD-020D)	IPC/ JEDEC J-STD-020D	160 160 160	0/160 0/160 0/160	Pass Pass Pass	LOT 1 LOT 2 LOT 3

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 3)	Electrical Test: +85°C	JESD22-A113	160 (0) Lot 1	160	PASS	Good Devices
	SAT			160		
	Bake 125°C, 24hrs			160		
	60°C/60%RH Moisture Soak 40hrs			160		
	3x Convection-Reflow 260°C			160		
	SAT			160		
	Electrical Test : +85°C			160	PASS	

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 3)	Electrical Test: +85°C	JESD22-A113	160 (0) Lot 2	160	PASS	Good Devices
	SAT			160		
	Bake 125°C, 24hrs			160		
	60°C/60%RH Moisture Soak 40hrs			160		
	3x Convection-Reflow 260°C			160		
	SAT			160		
	Electrical Test : +85°C			160	PASS	

Test Number	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 3)	Electrical Test: +85°C SAT Bake 125°C, 24hrs 60°C/60%RH Moisture Soak 40hrs 3x Convection-Reflow 260°C SAT Electrical Test : +85°C	JESD22-A113	160 (0) Lot 3	160 160 160 160 160 160 160	PASS PASS	Good Devices

PACKAGE QUALIFICATION REPORT						
Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	Stress Condition: -65°C to +150°C, 1000 Cycles Electrical Test: + 85°C	JESD22-A104	231 (0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
uHAST	Stress Condition: +130°C/85%RH, 96hrs, 192hrs. Electrical Test: + 85°C	JESD22-A110	231 (0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
High Temperature Storage Life	Stress Condition: Bake +150°C, 1008hrs Electrical Test : + 85°C	JESD22-A103	231 (0)	231 0/231	Pass	Parts had no Pre-Condition 77 units / lot