



## Product Change Notification - KSRA-11JPBE431

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**Date:**

31 Mar 2020

**Product Category:**

Ethernet PHYs

**Affected CPNs:****Notification subject:**

CCB 2672.002 and CCB 2672.003 Final Notice: Qualification of ASE as a new assembly site for selected Micrel KSZ8091xx, KSZ8081xx and SPNZ8011xx device families available in 32L VQFN (5X5X0.9mm) and 24L VQFN (4X4X0.9mm) packages using palladium coated copper wire with gold flash (CuPdAu) bond wire.

**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 above.

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

**Description of Change:**

Qualification of ASE as a new assembly site for selected Micrel KSZ8091xx, KSZ8081xx and SPNZ8011xx device families available in 32L VQFN (5X5X0.9mm) and 24L VQFN (4X4X0.9mm) packages using palladium coated copper wire with gold flash (CuPdAu) bond wire.

**Pre Change:**

Assembled at TICP using silver (Ag) bond wire

**Post Change:**

Assembled at ASE using palladium coated copper wire with gold flash (CuPdAu) bond wire.

**Pre and Post Change Summary:**

	Pre Change	Post Change
Assembly Site	Taiwan IC Packing Corp (TICP)	ASE Inc (ASE)
Wire material	Ag	CuPdAu
Die attach material	EN4900	EN4900
Molding compound material	G631	G631
Lead frame material	C194	C194

**Impacts to Data Sheet:**

None

**Change Impact:**

None

**Reason for Change:**

To improve manufacturability by qualifying ASE as a new assembly site

**Change Implementation Status:**

In Progress

**Estimated First Ship Date:**



April 30, 2020 (date code: 2018)

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

**Time Table Summary:**

	June 2018					📅	March 2020					April 2020			
Workweek	22	23	24	25	26	📅	10	11	12	13	14	15	16	17	18
Initial PCN Issue Date		X													
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:**

**June 05, 2018:** Issued initial notification.

**March 31, 2020:** Issued final notification. Attached the qualification report. Provided estimated first date to be on April 30, 2020. Revised the notification subject and description of change to specify device families and updated the affected CPN list to only include parts based on the change scope. The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

**Attachment(s):**

[PCN\\_KSRA-11JPBE431\\_Qual\\_Report.pdf](#)

Please contact your local [Microchip sales office](#) with questions or concerns regarding this notification.

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KSRA-11JPBE431 - CCB 2672.002 and CCB 2672.003 Final Notice: Qualification of ASE as a new assembly site for selected Micrel KSZ8091xx, KSZ8081xx and SPNZ8011xx device families available in 32L VQFN (5X5X0.9mm) and 24L VQFN (4X4X0.9mm) packages using palladium coated copper wire with gold flash (CuPdAu) bond wire.

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Affected Catalog Part Numbers (CPN)

KSZ8091RNBCA  
KSZ8081MNXCA  
KSZ8091MNXCA  
SPNZ801174  
KSZ8081RNBCA-TR  
KSZ8091RNBCA-TR  
KSZ8081MNXCA-TR  
KSZ8091MNXCA-TR  
KSZ8081RNBIA-TR  
KSZ8091RNBIA-TR  
KSZ8081MNXIA-TR  
KSZ8091MNXIA-TR  
KSZ8081RNACA  
KSZ8081RNACA-TR  
KSZ8081RNDCA-TR  
KSZ8091RNACA-TR  
KSZ8091RNDCA-TR  
KSZ8081RNAIA-TR  
KSZ8081RNDIA-TR  
KSZ8091RNAIA-TR  
KSZ8091RNDIA-TR



## **Qualification Report Summary**

**PCN#: KSRA-11JPBE431**

**Date:  
February 12, 2020**

**Qualification of ASE as a new assembly site for selected Micrel KSZ8091xx, KSZ8081xx and SPNZ8011xx device families available in 32L VQFN (5X5X0.9mm) package using palladium coated copper wire with gold flash (CuPdAu) bond wire. The selected Micrel products available in 24L VQFN (4X4X0.9mm) package will qualify by similarity (QBS).**



**Purpose: Qualification of ASE as a new assembly site for selected Micrel KSZ8091xx, KSZ8081xx and SPNZ8011xx device families available in 32L VQFN (5X5X0.9mm) package using palladium coated copper wire with gold flash (CuPdAu) bond wire. The selected Micrel products available in 24L VQFN (4X4X0.9mm) package will qualify by similarity (QBS).**

**I. Summary:**

The purpose of this report is to qualify Mask #XKAA1(KS8081MNXCA) in 32L VQFN 5x5x 0.9 mm with Cu wire package at ASE, per CCB# 2672-002, following guidelines established in Microchip specification QCI-39000, "Worldwide Quality Conformance Requirements".

**II. Conclusion:**

Based on the test results, Mask #XKAA1(KS8081MNXCA) in 32LVQFN 5X5 with Cu wire package at ASE pass the reliability tests required for release to production.

**III. Device Description:**

Device	KSZ8081MNXCA
Document Control Number	ML032020003E
Document Revision	A
CCB No	2672.002 and 2672.003

**IV. Qualification Material:**

Test Lot	Lot 1	Lot 2	Lot 3
WAFER LOT	DU02919033410.110	DU02919033410.110	DU02919033410.110
ASSEMBLY LOT	ASE194200496.000	ASE194200497.000	ASE194300001.000
PACKAGE	32L-VQFN 5x5x0.9 mm	32L-VQFN 5x5x0.9 mm	32L-VQFN 5x5x0.9 mm
QUAL TESTS	PRECOND, HTSL, HAST, UHAST, TC	PRECOND, HTSL, HAST, UHAST, TC	PRECOND, HTSL, HAST, UHAST, TC



**V. Bill of Materials:**

<u>Misc.</u>	Assembly site	ASE
	BD Number	BDM-001781e
	MP Code (MPC)	XKAA1SPFAB02
	Part Number (CPN)	KSZ8081MNXCA-TR
<u>Lead-Frame</u>	Paddle size	137.8x137.8mils 3.5x3.5mm
	Material	C194
	Surface	Non-roughed
	Treatment	Non-roughed
	Process	Etched
	Lead-lock	No
	Part Number	A22626-0
	Lead Plating	Ag Plating
<u>Bond Wire</u>	Material	CuPdAu
<u>Die Attach</u>	Part Number	EN4900F
	Conductive	Yes
<u>MC</u>	Part Number	G631H
<u>PKG</u>	PKG Type	VQFN
	Pin/Ball Count	32
	PKG width/size	5x5x0.9
MSL	MSL	2

**VI. Qualification Data:****Package Preconditioning**

Test Method/Condition	JEDEC J-STD-020D and JESD22-A113F, MSL Level 2 soak and 260°C peak Reflow Temperature
Lot #	Results (Fail/Pass)
Lot 1	0/255
Lot 2	0/255
Lot 3	0/255

Pre and Post testing was conducted at +25°C

**HAST (Highly Accelerated Temperature and Humidity Stress Test)**

Test Method/Condition	JESD22-A110, Vin = +3.3V, Ta = +130°C/85%RH, 96 HRS & 192HRS Min SS = 77 units @ 96 hrs and 72 units @ 192 hrs
Lot #	Results (Fail/Pass)
Lot 1	0/82 @ 96hrs 0/75 @ 192hrs
Lot 2	0/82 @ 96hrs 0/75 @ 192hrs
Lot 3	0/82 @ 96hrs 0/75 @ 192hrs

Pre and Post testing was conducted at +25°C, +85°C

**UNBIASED HAST**

Test Method/Condition	JESD22-A118, Ta = +130°C/85%RH, 96HRS & 192 HRS Min SS = 77 units @ 96 and 192 hrs
Lot #	Results (Fail/Pass)
Lot 1	0/82 @ 96 hrs 0/82 @ 192 hrs
Lot 2	0/82 @ 96 hrs 0/82 @ 192 hrs
Lot 3	0/82 @ 96 hrs 0/82 @ 192 hrs

Post testing was conducted at +25°C

**Temperature Cycling**

Test Method/Condition	JESD22-A104, Ta = -65°C/+150 °C, 500 CYC & 1000 CYC Min SS = 77 units @ 500cyc and 72 units @ 1000 cyc
Lot #	Results (Fail/Pass)
Lot 1	0/82 @ 500 cycles 0/75 @ 1000 cycles
Lot 2	0/82 @ 500 cycles 0/75 @ 1000 cycles
Lot 3	0/82 @ 500 cycles 0/75 @ 1000 cycles

Pre and Post testing was conducted at +85°C

### High Temperature Storage Life

Test Method/Condition	JESD22-A103, Ta = +150 °C, 500 HRS and 1000 HRS Min SS = 45 units
Lot #	Results (Fail/Pass)
Lot 1	0/50 @ 500 hrs & 0/49 @ 1000 hrs
Lot 2	0/50 @ 500 hrs & 0/49 @ 1000 hrs
Lot 3	0/50 @ 500 hrs & 0/49 @ 1000 hrs

Pre and Post testing was conducted at +25°C, +85°C

### VII. Wire Pull/Ball Shear

#### Lot #1:

Test Item	Sample Size/ Unit	Comment
Wire Pull	30 wires	Pass
Ball Shear	35 balls	Pass
Solderability	22 units	Pass

#### Lot #2

Test Item	Sample Size/ Unit	Comment
Wire Pull	30 wires	Pass
Ball Shear	35 balls	Pass
Solderability	22 units	Pass

#### Lot #3

Test Item	Sample Size/ Unit	Comment
Wire Pull	30 wires	Pass
Ball Shear	35 balls	Pass
Solderability	22 units	Pass