



## Product Change Notification - KSRA-09NUVS538

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**Date:**

29 Jan 2019

**Product Category:**

Others; Ethernet PHYs

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

CCB 2881 Final Notice: Qualification of ASE as a new assembly site for selected Micrel products available in 32L VQFN package using palladium coated copper 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 products available in 32L VQFN package using palladium coated copper with gold flash (CuPdAu) bond wire

**Pre Change:**

Assembled at TICIP using gold (Au) bond wire

**Post Change:**

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

**Pre and Post Change Summary:****Impacts to Data Sheet:**

None

	Pre Change		Post Change
Assembly Site	Taiwan IC Packing Corp (TICIP)		ASE Inc. (ASE)
Wire material	Au	Ag	CuPdAu
Die attach material	EN-4900		EN-4900
Molding compound material	G631		G631
Lead frame material	C194		C194

**Change Impact:**

None.

**Reason for Change:**

To improve productivity by qualifying ASE as new assembly site

**Change Implementation Status:**

In Progress

**Estimated First Ship Date:**

February 28, 2019 (date code: 1909)

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



**Time Table Summary:**

	August 2018						January 2019					February 2019			
Workweek	31	32	33	34	35		01	02	03	04	05	06	07	08	09
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:**

**August 22, 2018:** Issued initial notification.

**January 29, 2019:** Issued final notification. Attached the Qualification Report. Revised the affected parts list. Provided estimated first ship date on February 28, 2019.

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-09NUVS538\\_Qual\\_Report.pdf](#)

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

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## **QUALIFICATION REPORT SUMMARY**

**PCN #: KSRA-09NUVS538**

**Date:  
January 15, 2019**

**Qualification of ASE as a new assembly site for selected  
Micrel products available in 32L VQFN package using  
palladium coated copper with gold flash (CuPdAu) bond wire**

**Purpose: Qualification of ASE as a new assembly site for selected Micrel products available in 32L VQFN package using palladium coated copper with gold flash (CuPdAu) bond wire**

CCB No.: 2881

**Device Description:**

Device	KSZ8041NL
Mask	TKDA1
Process	DONGBU 0.18um
Document Control Number	ML0120190043
Document Revision	A

**Qualification Material:**

Test Lot	Lot 1	Lot 2	Lot 3
DEVICE	KSZ8041NL (TKDA11PFAB01)	KSZ8041NL (TKDA11PFAB01)	KSZ8041NL (TKDA11PFAB01)
MASK, REV	TKDA1/A4	TKDA1/A4	TKDA1/A4
WAFER FAB	Dongbu	Dongbu	Dongbu
WAFER PROCESS	0.18um	0.18um	0.18um
WAFER LOT	DU02917246315.100/167457	TC14918033708.000/ PF6C14.00	TC14918033708.000/ PF6C14.00
ASSEMBLY LOT	ASE190600236.000	ASE190600238.000	ASE190600242.000
PACKAGE	32L-VQFN 5x5x0.9mm	32L-VQFN 5x5x0.9mm	32L-VQFN 5x5x0.9mm
ASSEMBLY SITE	ASE, Taiwan	ASE, Taiwan	ASE, Taiwan
FINAL TEST LOCATION	OSE, Taiwan	OSE, Taiwan	OSE, Taiwan
Project#	38087-1	38087-2	38087-3
QUAL TESTS	PRECOND, HTSL, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC

**Bill of Materials:**

<u>Misc.</u>	Assembly site	ASE
	BD Number	AAH@A226260030-0
	MP Code (MPC)	TKDA1SPFAB02
<u>Lead-Frame</u>	Part Number (CPN)	KSZ8041NL
	Paddle size	3.70 mm x 3.70 mm
	Material	C194
	Surface	Double Ring plating
	Treatment	Non-Rough
	Process	Etch
	Lead-lock	No
	Part Number	A22626-0
	Lead Plating	Sn
	<u>Bond Wire</u>	Material
<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 LD
	PKG width/size	5.5x0.9 mm
	PKG LD Finish	Sn
	PKG MSL	2
<u>Die</u>	Die Thickness	9 mils
	Die Size	1.511 mm x 1.327 mm
	Fab Process (site)	180nm_Dongbu

#### 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	0/260, CSAM pass (SS = 45, attachments 1 & 2)
Lot 2	0/260, CSAM pass (SS = 45, attachments 3 & 4)
Lot 3	0/260, CSAM pass (SS = 45, attachments 5 & 6)

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 & 192 HRS, Min SS = 77 units
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

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
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 Min SS = 77 units
Lot #	Results (Fail/Pass)
Lot 1	0/81 @ 500 cycles 0/81 @ 1000 cycles
Lot 2	0/82 @ 500 cycles 0/82 @ 1000 cycles
Lot 3	0/82 @ 500 cycles 0/82 @ 1000 cycles

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

### High Temperature Storage Life

Test Method/Condition	JESD22-A103, Ta = +150 °C, 1008 HRS & 2016 HRS Min SS = 45 units
Lot #	Results (Fail/Pass)
Lot 1	0/50 @ 1008 hrs    0/50 @ 2016 hrs

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

### Wire Pull/Ball Shear

#### Lot #1:

Test Item	Sample Size/ Unit	Defect	Max	Min	Avg	Std	Cpk	Criteria/Unit	Comment
Wire Pull	200 wires		10.10	8.91	9.55	0.34	5.38	2.000/G	Pass
Ball Shear	100 balls		18.50	16.40	17.35	0.59	4.17	8.000/G	Pass
Solderability	22	0							Pass

#### Lot #2

Test Item	Sample Size/ Unit	Defect	Max	Min	Avg	Std	Cpk	Criteria/Unit	Comment
Wire Pull	200 wires		9.30	8.40	8.86	0.24	6.70	2.000/G	Pass
Ball Shear	100 balls		18.30	16.30	17.28	0.57	4.26	8.000/G	Pass
Solderability	22	0							Pass

#### Lot #3

Test Item	Sample Size/ Unit	Defect	Max	Min	Avg	Std	Cpk	Criteria/Unit	Comment
Wire Pull	200 wires		9.20	8.32	8.77	0.21	7.51	2.000/G	Pass
Ball Shear	100 balls		18.80	17.00	17.94	0.50	5.27	8.000/G	Pass
Solderability	22	0							Pass

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Affected Catalog Part Numbers(CPN)

KSZ8041NL  
KSZ8041NLI  
KSZ8041NLI-TR  
KSZ8041NLJ-TR  
KSZ8041NL-TR  
KSZ8041RNL  
KSZ8041RNLI  
KSZ8041RNLI-TR  
KSZ8041RNL-TR  
SPNY801052-TR  
SPNY801084-TR  
SPNY801165  
SPNY801165-TR  
SPNY801167  
SPNY801167-TR  
SPNZ801034-TR  
SPNZ801035-TR  
SPNZ801050-TR  
SPNZ801052-TR  
SPNZ801059  
SPNZ801059-TR  
SPNZ801084-TR  
SPNZ801111-TR  
SPNZ801114-TR  
SPNZ801115-TR  
SPNZ801165  
SPNZ801165-TR  
SPNZ801166  
SPNZ801166-TR  
SPNZ801167  
SPNZ801167-TR