QUALIFICATION REPORT SUMMARY

PCN #: LIAL-20XGVC787

Date

May 20, 2019

Qualification of ASE as a new assembly site for selected Micrel products available in 64L VQFN (8x8x.09mm) package.

Purpose: Qualification of ASE as a new assembly site for selected Micrel products available in 64L VQFN (8x8x.09mm) package.

I. Summary:

The purpose of this report is to qualify SADA1 (KSZ8794CNXIC) in VQFP 8x8x 0.9 mm, 64 LD package at ASE per CCB# 3429, and guidelines established in Microchip specification QCI-39000, “Worldwide Quality Conformance Requirements”.

II. Conclusion:

Based on the results, SADA1 products in VQFN 8x8x0.9 mm, 64 LD package at ASE package complies with the reliability guidelines implemented in the qualification plan. Therefore, the VQFP 8x8x0.9 mm, 64L CuPdAu package from ASE qualified for SADA1 products.

III. Device Description:

Device	KSZ8794CNXIC
MPC	SADA17Q6AA01
Document Control Number	ML062019000U
Document Revision	A
CCB No	3429

IV. Qualification Material:

Test Lot	Lot 1	Lot 2	Lot 3
ASSEMBLY LOT	ASE191600352.000	ASE191600353.000	ASE191600354.000
PACKAGE	64L VQFN88	64L VQFN88	64L VQFN88
QUAL TESTS	PRECOND, HTSL, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC

V. Bill of Materials:

Misc.	**Assembly site**	ASE
	BD Number	ENG_KSZ8794CNXIC-AI-2
	MP Code (MPC)	SADA17Q6AA01
	Part Number (CPN)	KSZ8794CNXIC
Lead-Frame	**Paddle size**	4.60 mm X 4.60 mm
	Exposed Pad Size	4.20 mm x 4.20 mm
	Material	C 194
	Surface	Double Ring Ag Plating
	Process	Etch
	Lead-lock	N/A
	Part Number	A24662-0
	Lead Plating	Matte Tin
Bond Wire	**Material**	CuPdAu

	Wire Diameter	0.8 mils
Die Attach	**Part Number**	EN4900
	Conductive	Yes
Mold Compound	**Part Number**	G631
PKG	**PKG Type**	VQFN
	MSL	3
	Lead Plating	Sn
	Pin/Ball Count	48
	PKG width/size	8 X 8 X 0.9 mm
Die	**Die Thickness**	11 mils
	Die Size	2.57 mm X 2.26 mm
	Fab Process (site)	65 nm LP; SMIC

VI. Qualification Data:

Package Preconditioning

Test Method/Condition	JEDEC J-STD-020D and JESD22-A113F, MSL Level 3 soak and 260oC 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 = +130oC/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 (HAST 96hrs)

Pre and Post testing was conducted at +25◦C (HAST 192hrs)

UNBIASED HAST

Test Method/Condition	JESD22-A118, Ta = +130oC/85%RH, 96HRS & 192 HRS Min SS = 77 units
Lot #	0/82 @ 96 hrs 0/82 @ 192 hrs
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

Temperature Cycling

Test Method/Condition	JESD22-A104, Ta = -65°C/+150 oC, 500 CYC and 1000 CYC Min SS = 77 units
Lot #	Results (Fail/Pass)
Lot 1	0/82 @ 500 cycles 0/77*@ 1000 cycles *5 units Pass WBP
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 +85◦C (TC 500CYC)
Pre and Post testing was conducted at +25◦C (TC 1000CYC)

High Temperature Storage Life

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

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

Wire Pull/Ball Shear

Lot #1:

Test Item	Sample Size/ Unit	Comment
Wire Pull	200 wires	Pass
Ball Shear	100 balls	Pass
Solderabilty	22	Pass

Lot #2

Test Item	Sample Size/ Unit	Comment
Wire Pull	200 wires	Pass
Ball Shear	100 balls	Pass
Solderabilty	22	Pass

Lot #3

Test Item	Sample Size/ Unit	Comment
Wire Pull	200 wires	Pass
Ball Shear	100 balls	Pass
Solderabilty	22	Pass

VII. Physical Dimension:

Test Method/Condition	JESD22 -B100 and B108, Min SS = 10 units/lot
Lot #	Results (Fail/Pass)
Lot 1	0/10 PASS
Lot 2	0/10 PASS
Lot 3	0/10 PASS