QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: RMES-23QFSR050

Date:
June 17,2019

Qualification of ASSH as a new assembly site for selected Micrel products available in 128L PQFP (14x20x2.72mm) package.

Purpose: Qualification of ASSH as a new assembly site for selected Micrel products available in 128L PQFP (14x20x2.72mm) package.

I. Summary:

The purpose of this report is to qualify TAKD1 (KSZ8997) in 128L PQFP 14x20 mm package at ASEH , Shanghai per CCB# 3816 and following guidelines established in Microchip specification QCI-39000, "Worldwide Quality Conformance Requirements".

II. Conclusion:

Based on the results, the TAKD1 (KSZ8997) in 128L PQFP 14x20 mm package complies with the reliability guidelines implemented in the qualification plan. Therefore, this part/package can be released to production.

III. Device Description:

Device	KSZ8997
Document Control Number	ML062019004K
Document Revision	A

IV. Qualification Material:

Test Lot	Lot 1	Lot 2	Lot 3
DEVICE	KSZ8997 TAKD11C2AA01	KSZ8997 TAKD11C2AA01	KSZ8997 TAKD11C2AA01
WAFER LOT	TC03919011641.100/ DAY338.00	TC03919011641.100/ DAY338.00	TC03919011641.100/ DAY338.00
ASSEMBLY LOT	ASSH192100126.000	ASSH192100127.000	ASSH192200001.000
PACKAGE	128L-PQFP 14x20x2.7 mm	128L-PQFP 14x20x2.7 mm	128L-PQFP 14x20x2.7 mm
QUAL TESTS	PRECOND, HTSL, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC

V. Bill of Materials:

Misc.	Assembly site	ASSH (ASE Shanghai)
	BD Number	B-MCLE0001T-01-00
	MP Code (MPC)	TAKD11C2AA01
	Part Number (CPN)	KSZ8997
	CCB Number	3816
Lead-Frame	Paddle size	315x315 mil
	Material	C7025
	DAP Surface Prep (Spot/Ring/Double ring)	Double Ring Plating
	Treatment (roughened/ brown oxide (BOT) /micro-etched/ none)	Non-roughened
	Process (stamped/Etched)	Stamped
	Lead-lock (Y/N)	N
	Part Number	LF11147
	Lead Plating	Matte Sn
	Strip Size	67.9x223.5 mils
	Strip Density	2x8
Bond Wire	Material	Au
	Wire Diameter	0.8 mil
Die Attach	Part Number	CRM-1076WA
	Conductive	Yes
MC	Part Number	CEL-9240HF10AK
Heat Spreader	Part number	1-HS-01-0000014
	Material	Aluminum
PKG	PKG Type	PQFP
	Pin/Ball Count	128L
	PKG width/size	14x20x2.72mm
Die	Die Thickness	15
	Die Size	273.75x211.16mils
	Fab Process (site)	0.18um TSMC

VI. Qualification Data:

Package Preconditioning

Test Method/Condition	JEDEC J-STD-020D and JESD22-A113F, MSL Level 3 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 , Ta = +130°C/85%RH, 96 HRS Min SS = 77 units
Lot #	Results (Fail/Pass)
Lot 1	0/82
Lot 2	0/82
Lot 3	0/82

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

UNBIASED HAST

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

Pre and 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	0/82, WPS after TCY: 0 fail/5
Lot 2	0/82
Lot 3	0/82

Pre and Post testing was conducted at +85◦C

High Temperature Storage Life

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

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	35 wires	Pass
Ball Shear	35 balls	Pass
Solderabilty	22	Pass

Lot #2

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

Lot #3

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

VIII. Physical Dimension:

Test Method/Condition	Measure per 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