Product Change Notification - LIAL-04VDPN323

Date:
21 Feb 2019
Product Category:
Ethernet Switches
Affected CPNs:

Notification subject:
CCB 3412 Final Notice: Qualification of ASE as a new assembly site for selected Micrel products available in 128L PQFP (14x20x2.72mm) package.
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 128L PQFP (14x20x2.72mm) package.

Pre Change:
Assembled at TICP using EN4900 die attach material and CEL 9200HF mold compound material

Post Change:
Assembled at ASE using CRM-1076WA die attach material and EME-G631H mold compound material

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	TAIWAN IC PACKING CORP (TICP)	ASE Inc. (ASE)
Wire material	Au	Au
Die attach material	EN4900	CRM-1076WA
Molding compound material	CEL 9200HF	EME-G631H
Lead frame material	C7025	C7025

Impacts to Data Sheet:
None

Change Impact:
None

Reason for Change:
To improve productivity by qualifying ASE as a new assembly site.

Change Implementation Status:
In Progress

Estimated First Ship Date:
March 21, 2019 (date code: 1912)

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

Time Table Summary:

	June 2018					->	February 2019					March 2019			
Workweek	22	23	24	25	26		05	06	07	08	09	10	11	12	13
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 7, 2018: Issued initial notification.
February 21, 2019: Issued final notification. Attached the qualification report. Provided estimated first ship date to be on March 21, 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_LIAL-04VDPN323_QUAL_REPORT.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)

KSZ8995FQ
KSZ8995FQI
KSZ8995MA
KSZ8995MAI
KSZ8995XA
SPNY801039
SPNY801067
SPNY801068
SPNZ801068
SPNZ801069

QUALIFICATION REPORT SUMMARY

PCN #: LIAL-04VDPN323

Date
February 7, 2019

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

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

CCB No.: **3412**

Document Control #: ML022019001I

Rev: **A**

		New
Miscellaneous	Assembly site	ASE
	BD Number	AAH@K-I-0128-70A636-0
	MP Code (MPC)	TKCC17C2AA02
	Part Number (CPN)	KSZ8995MAI B4
Lead-Frame	Paddle size	236x236
	Material	C7025
	Inner Plating	Ag
	Process	Stamped
	Part Number	1100566141
Bond Wire	Material	Au
Die Attach	Part Number	CRM-1076WA
	Conductive	Y
Mold Cmpound	Part Number	EME-G631H
PKG	PKG Type	PQFP
	Pin/Ball Count	128
	PKG width/size	14x20x2.72mm
	PKG LD Finish	100% Sn
	PKG MSL	3
Die	Die Thickness	15 mils
	Die Size	3759 um x 4800 um
	Fab Process (site)	Dongbu / 0.18 um

Qualification Material:

Test Lot	Lot 1	Lot 2	Lot 3
DEVICE	KSZ8995MAI (TKCC17C2AA02)	KSZ8995MAI (TKCC17C2AA02)	KSZ8995MAI (TKCC17C2AA02)
MASK, REV	TKCC1/B4	TKCC1/B4	TKCC1/B4
WAFER FAB	Dongbu	Dongbu	Dongbu
WAFER PROCESS	0.18um	0.18um	0.18um
WAFER LOT	DU01919075819.100/ 8103710	DU01919075819.100/ 8103710	DU01919075819.100/ 8103710
ASSEMBLY LOT	ASE191900368.000	ASE191900378.000	ASE192000002.000
PACKAGE	128L-PQFP 14x20x2.7mm	128L-PQFP 14x20x2.7mm	128L-PQFP 14x20x2.7mm
ASSEMBLY SITE	ASE, Taiwan	ASE, Taiwan	ASE, Taiwan
FINAL TEST LOCATION	OSE, Taiwan	OSE, Taiwan	OSE, Taiwan
Project#	38128-1	38128-2	38128-3
QUAL TESTS	PRECOND, HTSL, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC	PRECOND, HAST, UHAST, TC

Conclusion:

Based on the results, TKCC1 (KSZ8995MAI) in PQFP-128L package complies with the reliability guidelines implemented in the qualification plan. Therefore, this package can be released to production.

Qualification Data:

Test Number Reference	Test Method/Condition	Lot #	Qty. (Acc.)	Def/SS	Results
Package Preconditioning	JEDEC J-STD-020D and JESD22-A113F, MSL Level 3 soak and 260°C peak Reflow Temperature	Lot 1	260	0/260	Pass
		Lot 2	260	0/260	Pass
		Lot 3	260	0/260	Pass

Test Number Reference	Test Method/Condition	Lot #	Qty. (Acc.)	Def/SS	Results
HAST (Highly Accelerated Temperature and Humidity Stress Test)	JESD22-A110, Vin = +3.3V, Ta = +130°C/85%RH, 96 HRS Min SS = 77 units (only 50 positions for HAST board)	Lot 1	50	0/50	Pass
		Lot 2	50	0/50	Pass
		Lot 3	50	0/50	Pass

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

Test Number Reference	Test Method/Condition	Lot #	Qty. (Acc.)	Def/SS	Results
UNBIASED HAST	JESD22-A118, Ta = +130°C/85%RH, 96HRS Min SS = 77 units	Lot 1	82	0/82	Pass
		Lot 2	82	0/82	Pass
		Lot 3	82	0/82	Pass

Post testing was conducted at +25°C

Test Number Reference	Test Method/Condition	Lot #	Qty. (Acc.)	Def/SS	Results
Temperature Cycling	JESD22-A104, Ta = -65°C/+150 °C, 500 CYC Min SS = 77 units	Lot 1	80	1 fail*/80 @ 500 cycles: * (die related failure) WBP after TCY: 0 fail/5	Pass
		Lot 2	82	0/82	Pass
		Lot 3	82	0/82	Pass

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

*Note: The failure was discounted by the failure analysis department because it is not a package related failure.

Test Number Reference	Test Method/Condition	Lot #	Qty. (Acc.)	Def/SS	Results
High Temperature Storage Life	JESD22-A103, Ta = +150 ºC, 1008 HRS Min SS = 45 units	Lot 1	50	0/50	Pass

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

Wire Pull/Ball Shear:

Lot #1:

Test Item	Sample Size/ Unit	Defect	Criteria/Unit	Comment
Wire Pull	200 wires	0	2.000/G	Pass
Ball Shear	100 balls	0	8.000/G	Pass
Solderabilty	11	0		Pass

Lot #2:

Test Item	Sample Size/ Unit	Defect	Criteria/Unit	Comment
Wire Pull	200 wires	0	2.000/G	Pass
Ball Shear	100 balls	0	8.000/G	Pass
Solderabilty	11	0		Pass

Lot #3:

Test Item	Sample Size/ Unit	Defect	Criteria/Unit	Comment
Wire Pull	200 wires	0	2.000/G	Pass
Ball Shear	100 balls	0	8.000/G	Pass
Solderabilty	11	0		Pass

Test Number Reference	Test Method/Condition	Qty. (Acc.)	Def/SS	Results
Physical Dimensions	Physical Dimension, 10 units from 3 lot	30	0/30	Pass