Product Change Notification / ASER-06OYDX227

Date:

11-Jan-2022

Product Category:

Ethernet PHYs

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4999 Final Notice: Qualification of G700LA as a new mold compound for selected KSZ9031xxx device family available in 48L VQFN (7x7x0.9mm) and 64L VQFN (8x8x0.9mm) packages assembled at ASCL.

Affected CPNs:

ASER-06OYDX227_Affected_CPN_01112022.pdf
ASER-06OYDX227_Affected_CPN_01112022.csv

Notification Text:

PCN Status: Final Notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the files found in the Affected CPNs section.
Note: For your convenience Microchip includes identical files in two formats (.pdf and .xls)

Description of Change: Qualification of G700LA as a new mold compound for selected KSZ9031xxx device family available in 48L VQFN (7x7x0.9mm) and 64L VQFN (8x8x0.9mm) packages assembled at ASCL.

Pre and Post Change Summary:

	Pre Change	Post Change
Assembly Site	ASE Group Chung-Li (ASCL)	ASE Group Chung-Li (ASCL)
Wire Material	Cu/CuPdAu	Cu/CuPdAu
Die Attach Material	EN-4900GC	EN-4900GC
Molding Compound Material	CEL-9240HF10AK	G700LA
Lead-Frame Material	C194	C194

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability by qualifying G700LA as a new mold compound material.

Change Implementation Status: In Progress

Estimated First Ship Date: February 17, 2022 (date code: 2208)

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

Time Table Summary:

	January 2022					February 2022				
Workweek	1	2	3	4	5	6	7	8	9	10
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: January 11, 2022: Issued final notification.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachments:

PCN_ASER-06OYDX227 Qual Report.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

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Affected Catalog Part Numbers (CPN)

KSZ9031RNXCC
KSZ9031MNXCC
KSZ9031RNXIC
KSZ9031MNXIC
KSZ9031RNXCC-TR
KSZ9031MNXCC-TR
KSZ9031RNXIC-TR
KSZ9031MNXIC-TR

QUALIFICATION REPORT SUMMARY

PCN#: ASER-06OYDX227

Date:
December 01, 2020

Qualification of ASCL as an additional assembly site for selected products available in 100L VQFN (12X12X0.9mm) package. The qualification of G700LA as a new mold compound for selected KSZ9031xxx device family available in 48L VQFN (7x7x0.9mm) and 64L VQFN (8x8x0.9mm) packages assembled at ASCL will qualify by similarity (QBS). This is a grade 2 qualification.

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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of ASCL as an additional assembly site for selected products available in 100L VQFN (12X12X0.9mm) package. The qualification of G700LA as a new mold compound for selected KSZ9031xxx device family available in 48L VQFN (7x7x0.9mm) and 64L VQFN (8x8x0.9mm) packages assembled at ASCL will qualify by similarity (QBS). This is a grade 2 qualification.
CCB	4318 & 4999
CN	ES346385
QUAL ID	R2000670 Rev. A
MP CODE	STB07SKDXCH3
Part No.	USB5807CT/KDH01
Bonding No.	BDM-002651 Rev. A
Package	
Type	100L VQFN
Package size	12 x 12 x 0.9 mm
Lead Frame	
Paddle size	323 x 323 mils
Material	C7025
Surface	DOUBLE RING
Process	Etched
Lead Lock	No
Part Number	A0100QN008F01
Material	
Epoxy	EN-4900G
Wire	CuPdAu wire
Mold Compound	G700LA
Plating Composition	Matte Sn

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
ASCL211800001.000	TC14921152766.100	20311SD
ASCL211800002.000	TC14921152766.100	20311T3
ASCL211800003.000	TC14921152766.100	20311TS

Result [X] Pass [ ] Fail [ ] _____

100L VQFN (12x12x0.9 mm) assembled by ASCL pass reliability test per QCI-39000.This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 3)	**Electrical Test:** +25°C and 105°C System: LTX_D1X	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		693		
	30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C and 105°C System: LTX_D1X			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** -65°C to +150°C, 500 Cycles System: TABAI ESPEC TSA-70H	JESD22-A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +105°C System: LTX_D1X		231(0)	0/231	Pass	77 units / lot
	Stress Condition: -65°C to +150°C, 1000 Cycles System: TABAI ESPEC TSA-70H			231		
	Electrical Test: +105°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (> 2.5 grams)		15 (0)	0/15	Pass	
	Bond Shear (> 13.00 grams)		15 (0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C and 105°C System: LTX_D1X		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 1.20 Volts, PS3# 3.3 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 25°C and 105°C System: LTX_D1X		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH,192 hrs. **Bias Volt:** 1.20 Volts, PS3# 3.3 Volts System: HAST 6000X			231		
	Electrical Test: + 25°C and 105°C System: LTX_D1X		231(0)	0/231	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	**Stress Condition:** Bake 150°C, 500 hrs System: SHEL LAB	JESD22-A103		45		45 units
	Electrical Test: +25°C and 105°C System: LTX_D1X		45(0)	0/45	Pass	
	Stress Condition: Bake 150°C, 1000 hrs System: SHEL LAB			45		
	Electrical Test: +25°C and 105°C System: LTX_D1X		45(0)	0/45	Pass	
Solderability **Temp 245°C**	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
Physical Dimensions	Physical Dimension, 10 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (> 3.00 grams)	Mil.Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (> 8.00 grams)	CDF-AEC-Q100-001	30 (0) bonds	0/30	Pass	

QUALIFICATION REPORT SUMMARY

PCN#: ASER-06OYDX227

Date:
October 10, 2019

Qualification of OS81210AFxxx device family available in 64L VQFN package at ASCL. The qualification of G700LA as a new mold compound for selected KSZ9031xxx device family available in 48L VQFN (7x7x0.9mm) and 64L VQFN (8x8x0.9mm) packages assembled at ASCL will qualify by similarity (QBS). This is a grade 1 qualification.

Purpose	Qualification of OS81210AFxxx device family available in 64L VQFN package at ASCL. The qualification of G700LA as a new mold compound for selected KSZ9031xxx device family available in 48L VQFN (7x7x0.9mm) and 64L VQFN (8x8x0.9mm) packages assembled at ASCL will qualify by similarity (QBS). This is a grade 1 qualification.
CCB	3380 & 4999
CN	ES309183 Rev. A
QUAL ID	Q19011
MP CODE	TAV037KJXACC
Part No.	OS81210AF-B1A-ACC
Bonding No.	BDE-005072 Rev. 01
Package	
Type	64L VQFN
Package size	9x9x0.9 mm
Lead Frame	
Paddle size	244 x 244 mils
Material	C194
Surface	Double Ring Plating / Roughened
Process	Etched
Lead Lock	Yes
Part Number	A0064QN059F01
Material	
Epoxy	EN-4900G
Wire	CuPdAu wire
Mold Compound	G700LA
Plating Composition	Matte Tin

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
ASCL194200236.000	TC11919244995.000	1903TM7
ASCL194300003.000	TC11919364181.000	1904TM8
ASCL201200145.000	TC11920106913.000	1925R2G

Result [X] Pass [ ] Fail [ ] _____

64L QFN (9x9x0.9 mm) assembled by ASCL pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020E)	IPC/JEDEC J-STD-020E	135	0/135	Pass	

<u>Precondition Prior Perform Reliability Tests</u> (At MSL Level 1)	**Electrical Test :**+25°C, 130°C and -45°C System: Teradyne Uflex	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test :+25°C and 130°C System: Teradyne Uflex			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H	JESD22-A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 130°C System: ULTRAFLEX_12		231(0)	0/231	Pass	
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		66 (0)	0 /66	Pass	22 units / lot
	Cross section		15 (0)	0/15	Pass	1 Wire/ lot
			45 (0)	0/45	Pass	
	Stress Condition: -65°C to +150°C, 1000 Cycles System : TABAI ESPEC TSA-70H		3(0) Wires	0/3	Pass	
	Electrical Test: + 130°C System: ULTRAFLEX_12			231		
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		231(0)	0/231	Pass	22 units / lot
	Cross section		66 (0)	0 /66	Pass	1 Wire/ lot
			15 (0)	0/15	Pass	
			45 (0)	0/45	Pass	
			3(0) Wires	0/3	Pass	

PACKAGE QUALIFICATION REPORT

Qual Report : Q19011

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** PS1=3.3 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 25°C and 130°C System: ULTRAFLEX_12		231(0)	0/231	Pass	77 units / lot
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		66 (0)	0 /66	Pass	22 units / lot
			15 (0)	0/15	Pass	
	Cross section		45 (0)	0/45	Pass	1Wire/ lot
	Stress Condition: +130°C/85%RH, 192 hrs. **Bias Volt:** PS1=3.3 Volts System: HAST 6000X		3(0) Wires	0/3	Pass	
	Electrical Test: + 25°C and 130°C System: ULTRAFLEX_12			231		
	C-SAM Inspection Focus on die surface, Lead finger, and paddle System: HITACHI (FS200)		231(0)	0/231	Pass	22 units / lot
			66 (0)	0 /66	Pass	after HAST
	Cross section					1 Wire/ lot
			15 (0)	0/15	Pass	
			45 (0)	0/45	Pass	
			3(0) Wires	0/3	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: ULTRAFLEX_12		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. System: HAST 6000X			231		
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs System: SHEL LAB	JESD22-A103		135		45 units / lot
	Electrical Test: + 25°C and 130°C System: ULTRAFLEX_12		135(0)	0/135	Pass	
	Cross section		3(0) Wires	0/3	Pass	1 Wire/ lot
	Stress Condition: Bake 175°C, 1008 hrs System: SHEL LAB			135		
	Electrical Test: + 25°C and 130°C System: ULTRAFLEX_12		135(0)	0/135	Pass	
	Cross section		3(0) Wires	0/3	Pass	1 Wire/ lot
Solderability **Temp 215°C**	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
Solderability **Temp 245°C**	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Physical Dimensions	Physical Dimension, 10 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (> 4.00 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>10.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	