Product Change Notification / GBNG-07DFNQ951

Date:

03-Feb-2022

Product Category:

Ethernet PHYs

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4572.002 Final Notice: Qualification of MTAI as an additional assembly site for selected Micrel KSZ9031 device family available in 48L VQFN (7x7x0.9mm) package.

Affected CPNs:

GBNG-07DFNQ951_Affected_CPN_02032022.pdf
GBNG-07DFNQ951_Affected_CPN_02032022.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 MTAI as an additional assembly site for selected Micrel KSZ9031 device family available in 48L VQFN

(7x7x0.9mm) package.

Pre and Post Change Summary:

	Pre Change		Post Change		
Assembly Site	Amkor Assembly & Test (Shanghai) Co., LTD / (ANAC)	ASE Group Chung-Li (ASCL)	Amkor Assembly & Test (Shanghai) Co., LTD / (ANAC)	ASE Group Chung-Li (ASCL)	Microchip Technology Thailand – (HQ) (MTAI)
Wire material	CuPdAu	CuPdAu / Cu	CuPdAu	CuPdAu / Cu	CuPdAu
Die attach material	CRM1085A	EN-4900G	CRM1085A	EN-4900G	3280
Molding compound material	G631BQ	G700LA / CEL-9240	G631BQ	G700LA / CEL-9240	G700LTD
Lead frame material	C194	C194	C194	C194	C194
Lead frame paddle size	211 x 211 mils	224 x 224 mils	211 x 211 mils	224 x 224 mils	224 x 224 mils
Lead frame design	Please see attached Pre and Post Change comparison.				

Impacts to Data Sheet:

Update to POD (Package Outline Drawing) and applicable Datasheet.

		Pre Change			Post Change		
Feature	**Dimension**	**MIN**	**NOM**	**MAX**	**MIN**	**NOM**	**MAX**
Number of Pins	n		48			48	
Pitch	e		0.50 BSC			0.50 BSC	
Overall Height	A	0.80	0.85	0.90	0.80	0.90	1.00
Standoff	A1	0.00	0.035	0.05	0.00		0.05
Terminal Thickness	A3		0.20 REF		0.195	0.203	0.211
Overall Width	D		7.00 BSC		6.90	7.00	7.10
Exposed Pad Width	D2	4.95	5.05	5.15	4.95	5.05	5.15
Overall Length	E		7.00 BSC		6.90	7.00	7.10
Exposed Pad Length	E2	4.95	5.05	5.15	4.95	5.05	5.15
Terminal Width	b	0.20	0.25	0.30	0.20	0.25	0.30
Terminal Length	L	0.35	0.40	0.45	0.35	0.40	0.45
Terminal-to-Exposed Pad	K	0.20	-	-	0.575 REF		
Step Cut Height	A4	0.10	0.125	0.19	0.10	-	0.19
Step Cut Length	L2	-	-	0.085	0.035	0.065	0.085

Change Impact:

None

Reason for Change: To improve on-time delivery performance by qualifying MTAI as an additional assembly site.

Change Implementation Status:
In Progress

Estimated First Ship Date:
July 01, 2021 (date code: 2127)

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

Time Table Summary:

	June 2021				July 2021				
Workweek	23	24	25	26	27	28	29	30	31
Qual Report Availability		X							
Final PCN Issue Date		X							
Estimated First Ship 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 10, 2021: Issued final notification. Attached the qualification report. Provided estimated first ship date to be on July 01, 2021.
February 03, 2022: Re-issuance of the final notification to update the affected parts list due to change in scope. This is to exclude catalog part numbers (CPN) KSZ9131RNXC, KSZ9131RNXI, KSZ9131RNXC-TR and KSZ9131RNXI-TR from the scope. Updated the notification subject, description of change, Qual report title and purpose to exclude KSZ9131 device family due to the change in scope.

Attachments:

PCN_GBNG-07DFNQ951_Pre and Post Change_Summary.pdf
PCN_GBNG-07DFNQ951_Qual Report.pdf

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

Terms and Conditions:

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for

Microchips PCN email service in the PCN FAQ section.

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.

GBNG-07DFNQ951 - CCB 4572.002 Final Notice: Qualification of MTAI as an additional assembly site for

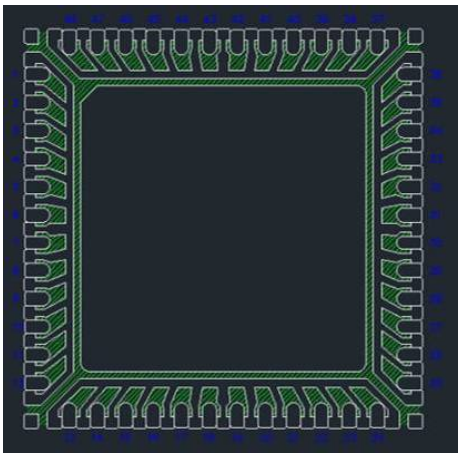
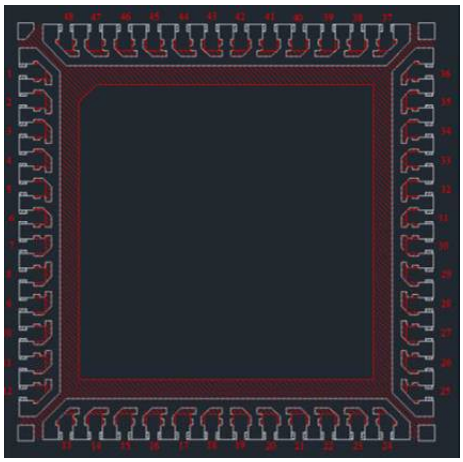
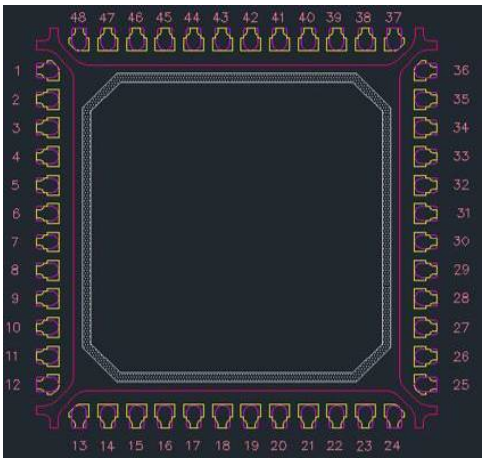
Affected Catalog Part Numbers(CPN)

KSZ9031RNXCC
KSZ9031RNXIC
KSZ9031RNXCC-TR
KSZ9031RNXIC-TR

CCB 4572.002
Pre and Post Change Summary
PCN #: GBNG-07DFNQ951

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

LEAD FRAME COMPARISON

ANAC	ASCL	MTAI
		
Lead frame paddle size: 211 x 211 mils	**Lead frame paddle size: 244 x 244 mils**	**Lead frame paddle size: 244 x 244 mils**

MICROCHIP

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: GBNG-07DFNQ951

Date
May 20, 2021

Qualification of MTAI as an additional assembly site for selected LAN7800 device family available in 48L VQFN (7x7x1.0mm) package. The selected Micrel KSZ9031 device family available in 48L VQFN (7x7x0.9mm) package will qualify by similarity (QBS). This is Q006 grade 2 qualification.

MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose:	Qualification of MTAI as an additional assembly site for selected LAN7800 device family available in 48L VQFN (7x7x1.0mm) package. The selected Micrel KSZ9031 device family available in 48L VQFN (7x7x0.9mm) package will qualify by similarity (QBS). This is Q006 grade 2 qualification.
CN	ES353881
QUAL ID	R2100291
MP CODE	STB037Y9XAB1
Part No.	LAN7800-I/Y9X
Bonding No.	BDM-002844 Rev. A
Qual ID	R2100291 (Rev. A)
CCB No.	4572 and 4572.002
Package	
Type	48L VQFN
Package size	7 x 7 x 1.0 mm
Lead Frame	
Paddle size	224 x 224 mils
Material	C194
Surface	Ag ring plated on DAP
Process	Etched
Lead Lock	No
Part Number	10104817
Material	
Epoxy	3280
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Sn

MICROCHIP

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI215003167.000	TC14920515342.110	2111GM4
MTAI215003169.000	TC14920515342.110	2111GUQ
MTAI215003170.000	TC14920515342.110	2111GUR

Result [X] Pass [ ] Fail [ ] _____

48L VQFN (7x7x1.0 mm) assembled by MTAI 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
Moisture/Reflow Sensitivity Classification Test (At MSL Level 3)	30°C/ 60%RH Moisture Soak 192 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	
Precondition Prior Perform Reliability Tests **(At MSL Level 3)**	**Electrical Test:** +25°C and 85°C System: LTX_D1X Bake 150°C, 24 hrs System: CHINEE 30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 **Electrical Test:** +25°C and 85°C System: LTX_D1X	JESD22A113	693(0)	693 693 693 693 0/693	Pass	Good Devices

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	**Stress Condition:** -55°C to +125°C, 1000 Cycles System: TABAI ESPEC TSA-70H	JESD22A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +85°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)		45 (0)	0/45	Pass	
	Stress Condition: -55°C to +125°C, 2000 Cycles System: TABAI ESPEC TSA-70H			231		
	Electrical Test: +85°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)		45 (0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 1.2 Volts, 2.5 Volts, 3.3 Volts System: HAST 6000X	JESD22A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C and 85°C System: LTX_D1X		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)		45 (0)	0/45	Pass	
	Stress Condition: +130°C/85%RH, 192 hrs. **Bias Volt:** 1.2 Volts, 2.5 Volts, 3.3 Volts System: HAST 6000X			231		
	Electrical Test: +25°C and 85°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)		45 (0)	0/45	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	JESD22A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: LTX_D1X		231(0)	0/231	Pass	77 units / lot
High Temperature Storage Life	**Stress Condition:** Bake 150°C, 500 hrs System: TPS DC-166-F-ST350	JESD22A103		135		
	Electrical Test: +25°C and 85°C System: LTX_D1X		135(0)	0/135	Pass	45 units / lot
	Stress Condition: Bake 150°C, 1000 hrs System: TPS DC-166-F-ST350			135		
	Electrical Test: +25°C and 85°C System: LTX_D1X		135(0)	0/135	Pass	
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 / lot from 3 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>3.00 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>10.00 grams)	JESD22B116	30 (0) bonds	0/30	Pass	