Product Change Notification / LIAL-26MAKG265

Date:

01-Sep-2021

Product Category:

USB Hubs

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4186.001 Final Notice: Qualification of MTAI as an additional assembly site for selected USB5734 device family available in 64L QFN (9x9x0.9mm)package.

Affected CPNs:

LIAL-26MAKG265_Affected_CPN_09012021.pdf
LIAL-26MAKG265_Affected_CPN_09012021.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 USB5734 device family available in 64L QFN 9x9x0.9mm package.

Pre and Post Change Summary:

	Pre Change		Post Change		
Assembly Site	ASE Inc. (ASE)	Amkor Assembly & Test (Shanghai) Co., LTD (ANAC)	ASE Inc. (ASE)	Amkor Assembly & Test (Shanghai) Co., LTD (ANAC)	Microchip Technology Thailand (HQ) (MTAI)

Wire material	CuPdAu	CuPdAu	CuPdAu	CuPdAu	CuPdAu
Die attach material	EN-4900F	CRM1085A	EN-4900F	CRM1085A	3280
Molding compound material	G631H	G631BQF	G631H	G631BQF	G700LTD
Lead frame material	C194*	C194*	C194*	C194*	A194*
Lead frame paddle size	287x287mils	244x244mils	287x287mils	244x244mils	244x244mils
Lead frame comparison	See attachment for pre and post change comparison				

***Note:** * C194, A194 or CDA194 Lead frame material are the same, it is just a MCHP internal labelling difference.

Impacts to Data Sheet: None

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: September 19, 2021 (date code: 2139)

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

Time Table Summary:

	September 2021				
Workweek	36	37	38	39	40
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:September 1, 2021: 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_LIAL-26MAKG265_Qual_Report 1of2.pdf
PCN_LIAL-26MAKG265_Qual Report 2of2.pdf

PCN_LIAL-26MAKG265 Pre and Post Change Summary.pdf

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

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CCB 4186.001
Pre and Post Change Summary
PCN#: LIAL-26MAKG265

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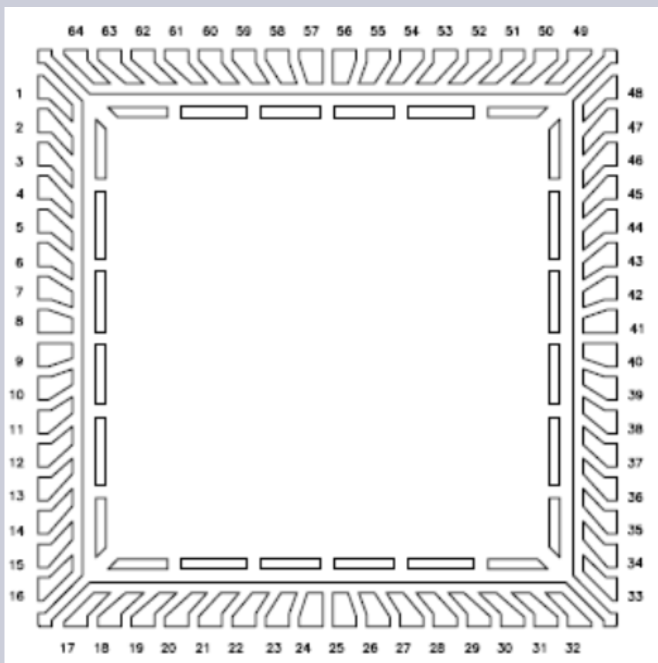
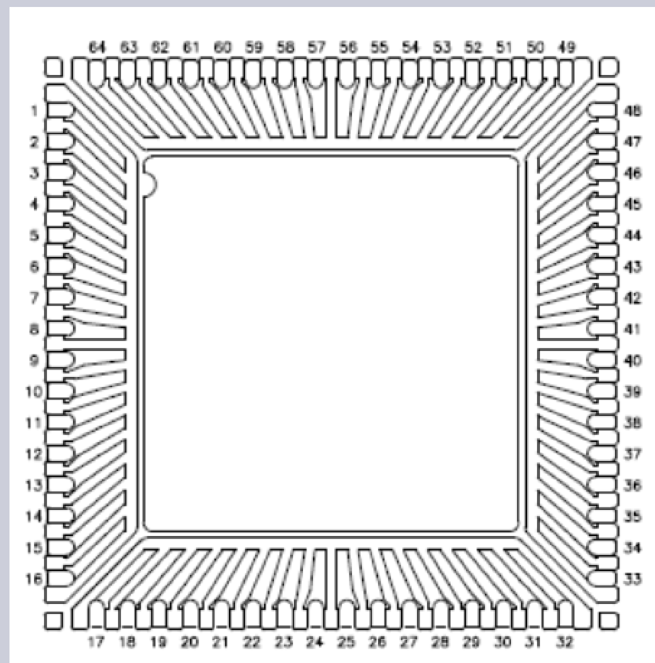
Lead frame comparison

ASE



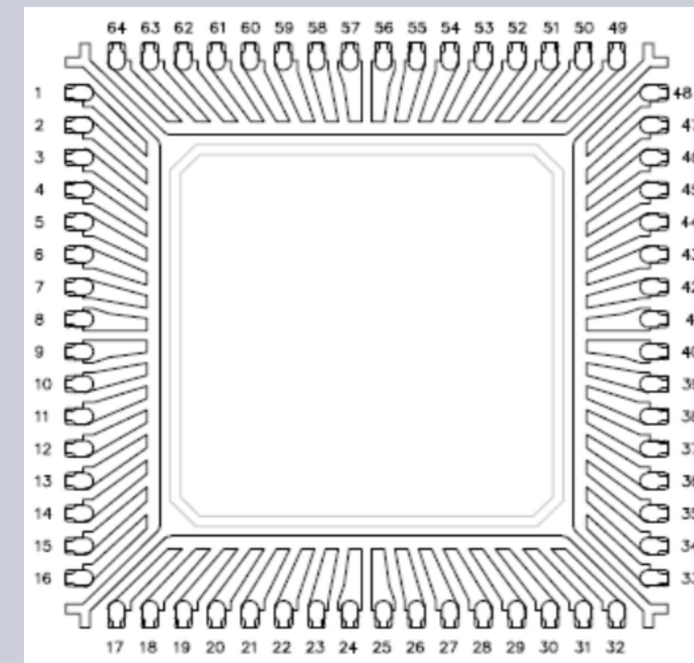
Lead frame material	C194*
Lead frame paddle size	287x287mils

ANAC



Lead frame material	C194*
Lead frame paddle size	244x244mils

MTAI



Lead frame material	A194*
Lead frame paddle size	244x244mils

*__Note:__ C194, A194 or CDA194 Lead frame material are the same, it is just a MCHP internal labelling difference.

MICROCHIP

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: LIAL-26MAKG265

Date
November 07, 2016

Qualification of CuPdAu bond wire in selected products available in 64L QFN (9x9x0.9mm) package at MTAI assembly site. The qualification of MTAI as an additional assembly site for selected USB5734 device family available in 64L QFN (9x9x0.9mm) package will qualify by similarity (QBS).

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PACKAGE QUALIFICATION REPORT

Purpose Qualification of CuPdAu bond wire in selected products available in 64L QFN (9x9x0.9mm) package at MTAI assembly site. The qualification of MTAI as an additional assembly site for selected USB5734 device family available in 64L QFN (9x9x0.9mm) package will qualify by similarity (QBS).

CN BC161141

QUAL ID Q16140 Rev A

MP CODE YGAY14R4XAXF

Part No. PIC24FJ64GA106-E/MR

Bonding No. BDM-001100 Rev. A

CCB No. 2699 and 4186.001

Package

Type 64L QFN

Package size 9x9x0.9 mm

Lead Frame

Paddle size 291 x 291 mils

Material A194

Surface Bare Cu DAP

Process Etched

Lead Lock Yes

Part Number 1016410

Treatment Brown Oxide Treatment

Die attach material

Epoxy 3280

Wire CuPdAu

Mold Compound G700LTD

Plating Composition Matte Tin

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI171702393.000	TC03917152946.210	1629GT8
MTAI171702394.000	TC03917152946.220	1629GT9
MTAI171702395.000	TC03917152946.200	1629GTA

Result [X] Pass [ ] Fail [ ] ____________________

64L QFN (9x9x0.9) assembled by MTAI 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-020D 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-020D)	IPC/JEDEC J-STD-020D	135	0/135	Pass	
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test :**+25°C and 125°C System: J750 Bake 150°C, 24 hrs System: CHINEE 85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 **Electrical Test :**+25°C and 125°C System: J750	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:** (Standard) 65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H	JESD22-A104		231		Parts had been pre-conditioned at 260°C 77 units / lot
	Electrical Test: + 125°C System: J750		231(0)	0/231	Pass	
	Bond Strength:					
	Wire Pull (> 2.5 grams)		15 (0)	0/15	Pass	
	Bond Shear (>15.00 grams)		15 (0)	0/15	Pass	
	Stress Condition: (Extended) -65°C to +150°C, 1000 Cycles System : TABAI ESPEC TSA-70H			231		
	Electrical Test: +125°C System: J750		231(0)	0/231	Pass	
UNBIASEDHAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		231		Parts had been pre-conditioned at 260°C 77 units / lot
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	
	Stress Condition: (Extended) +130°C/85%RH, 192, hrs. System: HAST 6000X			231		
	Electrical Test: + 25°C System: J750		231(0)	0/231	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** (Standard) +130°C/85%RH,96 hrs. **Bias Volt:** 2.5 Volts System: HAST 6000X **Electrical Test:** +25°C and 125°C System: J750	JESD22-A118	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
	Stress Condition: (Extended) +130°C/85%RH,192hrs. **Bias Volt:**2.5 Volts System: HAST 6000X **Electrical Test:** + 25°C and 125°C System: J750		231(0)	231 0/231	Pass	
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs System: SHEL LAB **Electrical Test :**+25°C and 125°C System: J750	JESD22-A103	45(0)	45 0/45	Pass	45 units
Bond Strength Data Assembly	Wire Pull (>2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: LIAL-26MAKG265

Date:
July 21, 2021

Qualification of MTAI as an additional assembly site for USB58xx, USB59xx and USB70xx device families available in 100L VQFN (12X12X0.9mm) package. The selected USB5734 device family available in 64L QFN 9x9x0.9mm package will qualify by similarity (QBS). This is Q006 grade 3 qualification.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an additional assembly site for USB58xx, USB59xx and USB70xx device families available in 100L VQFN (12X12X0.9mm) package. The selected USB5734 device family available in 64L QFN 9x9x0.9mm package will qualify by similarity (QBS). This is Q006 grade 3 qualification
CN	ES355189
QUAL ID	R2100462 Rev. A
MP CODE	STB07SKDXCH3
Part No.	USB5807CT/KDH01
Bonding No.	BDM-002868 Rev. A
CCB No.	4186 and 4186.001
Package	
Type	100L VQFN
Package size	12x12x0.9 mm
Lead Frame	
Paddle size	323 x 323 mils
Material	EFTEC 64T
Surface	Roughening
Process	Etched
Lead Lock	No
Part Number	10110011
Material	
Epoxy	3280
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Sn

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer No.	Date Code
MTAI215204532.000	TC14921371923.100	2113CSV
MTAI215204616.000	TC14921371923.100	2114Q48
MTAI215204617.000	TC14921371923.100	2114Q7E

Result [X] Pass [ ] Fail [ ] ____________________

100L VQFN (12x12x0.9 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	JESD22-A113	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	JESD22-A104		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 (>2.5 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 (>2.5 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:** 3.3 Volts, 1.2 Volts System: HAST 6000X	JESD22-A110		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 (>2.5 grams) Bond Shear (>10.00 grams)		45 (0)	0/45	Pass	
	Stress Condition: +130°C/85%RH, 192 hrs. **Bias Volt:** 3.3 Volts, 1.2 Volts System: HAST 6000X			231		
	Electrical Test: +25°C and 85°C System: LTX_D1X		231(0)	0/231	Pass	
	Bond Strength: Wire Pull (>2.5 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	JESD22-A118		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: SHEL LAB	JESD22-A103		135		45 units / lot
	Electrical Test: +25°C and 85°C System: LTX_D1X		135(0)	0/135	Pass	
	Stress Condition: Bake 150°C, 1000 hrs System: SHEL LAB			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 from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (> 2.5 grams)	Mil. Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (> 10.00 grams)	CDF-AEC-Q100-001	30 (0) bonds	0/30	Pass	

Affected Catalog Part Numbers (CPN)

USB5734/MR
USB5734/MRD01
USB5734/MRD02
USB5734/MRTB
USB5734-I/MR
USB5734T/MR
USB5734T/MRD01
USB5734T/MRD02
USB5734T-I/MR