Product Change Notification / ALAN-04KTCS710

Date:

26-Oct-2022

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4764 Final Notice: Qualification of OSE as an additional assembly site for selected ATXMEGA128xx, ATXMEGA64xx, ATXMEGA32xx and ATXMEGA16xx device families available in 49L VFBGA (5x5x1.0mm) package.

Affected CPNs:

ALAN-04KTCS710_Affected_CPN_10262022.pdf
ALAN-04KTCS710_Affected_CPN_10262022.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 OSE as an additional assembly site for selected ATXMEGA128xx, ATXMEGA64xx, ATXMEGA32xx and ATXMEGA16xx device families available in 49L VFBGA (5x5x1.0mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change

Assembly Site		ASE Inc. (ASE)	ASE Inc. (ASE)	Orient Semiconductor Electronics, Ltd (OSE)
Substrate	**Core Material**	CCL-HL832NX (A-HS)	CCL-HL832NX (A-HS)	HL832NXA
	Process	Normal	Normal	Tenting
	L1/L2 Thickness	Min 12um	Min 12um	Copper 18+/-6 um, Ni 3um (min) Au 0.2um(min) OSP 0.3+/-0.15um"
	SM Material	AUS 308	AUS 308	AUS 320
Bond wire		CuPd	CuPd	CuPdAu
Die attach film (DAF)		ATB125	ATB125	EM-310WJ1-P-25
Mold compound		KE-G1250LKDS	KE-G1250LKDS	G760LB

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve manufacturability by qualifying OSE as an additional assembly site.

Change Implementation Status: In Progress

Estimated First Ship Date: November 30, 2022 (date code: 2249)

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

Time Table Summary:

	October 2021					->	**October 2022**				**November 2022**				
Workweek	40	41	42	43	44		41	42	43	44	45	46	47	48	49
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:
October 7, 2021: Issued initial notification.

November 3, 2021: Re-issuance of initial notification. Updated die attach film post change from HR-5104 to EM-310WJ1-P-25.
October 26, 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_ALAN-04KTCS710_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.

QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: ALAN-04KTCS710

Date
October 10, 2022

Qualification of OSE as an additional assembly site for selected ATXMEGA128xx, ATXMEGA64xx, ATXMEGA32xx and ATXMEGA16xx device families available in 49L VFBGA (5x5x1.0mm) package.

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Package Qualification Report

Purpose: Qualification of OSE as an additional assembly site for selected ATXMEGA128xx, ATXMEGA64xx, ATXMEGA32xx and ATXMEGA16xx device families available in 49L VFBGA (5x5x1.0mm) package.

Misc.	**BD Number**	BD-000234-02_49_VFBGA_C7B_OSE (OSE BD) BDPCAA4951-0011(A)
	MP Code (MPC)	359627C7BC04
	Part Number (CPN)	ATXMEGA128A4U-CU
	MSL information	MSL 3, 260C
	Assembly Shipping Media (T/R, Tube/Tray)	TRAY EAM050501A
	Base Quantity Multiple BQM)	490
	CCB No	4764
	Qual ID	REQ2101611 Rev. A
Substrate	**Core Material**	HL832NXA
	Core Thickness	100+/-30 um
	L1/L2 Thickness	Copper 18+/-6 um, Ni 3um (min) Au 0.2um(min) OSP 0.3+/-0.15um"
	SM Material	AUS 320
	Process	Tenting
	SM Thickness	25 +/-10 um
	Part Number	PC-AA-049-51001-HN(A)
	Paddle Size	4328x4348um
	Drill Size	250/100um
	Line/Space Specs	50/50um
	Substrate Thickness	0.19 +/- 0.03 mm
Bond Wire	**Material**	CuPdAu
Die Attach	**Part Number**	DAF EM-310WJ1-P-25
	Conductive	No
MC	**Part Number**	G760LB
PKG	**PKG Type**	VFBGA
	Pin/Ball Count	49 Balls
	PKG width/size	5x5x1mm
	Ball Pitch/Size	0.65mm
	Solder Ball diameter	0.35mm
	Solder Ball Material	98.25SN/1.2AG/0.5CU/0.05NI

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Package Qualification Report

Manufacturing Information

Assembly Lot Number	MPC	Package
OSE-223500002.000	359627C7BC04	49L VFBGA
OSE-223500001.000	359627C7BC04	49L VFBGA
OSE-223400001.000	359627C7BC04	49L VFBGA

[X] **Pass** [ ] **Fail** [ ] _____

2nd source Assembly for package 49L VFBGA 5x5x1.0mm at OSE is qualified at Moisture/ Reflow Sensitivity Classification Level 3 at 260°C reflow temperature per IPC/JEDEC J-STD-020E standard. No delamination observed. All units are passing electrical testing on all stresses including HAST, UHAST, Temperature Cycling and HTSL.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests **MSL-3 @ 260C**	**Electrical Test :** +25°C	JESD22-A113,	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp	JIP/ IPC/JEDEC J-STD-020E	693(0)	0/693	Pass	
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 30°C/60%RH Moisture Soak 192hrs. System: Climats Excal 5423-HE		693(0)			
	Reflow 3x Convection-Reflow 260°C max System: Mancorp CR.5000F		693(0)	0/693		
	Electrical Test: +25°C		693(0)	0/693	Pass	
Temp Cycle	**Stress Condition:** (Standard) -55°C to +125°C, 1000 Cycles System: VOTSCH VT7012 S2	JESD22-A104	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +85°C		231(0)	0/231	Pass	
	Bond Strength: Wire Pull Bond Shear		15(0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** (Standard) +110°C/85%RH, 264H System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C		231(0)	0/231	Pass	
BIASED-HAST	**Stress Condition:** (Standard) +110°C/85%RH, 264H System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	231(0)			Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, +85°C		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, 1000 hrs System: HERAEUS Taken from 1 lot with 45 units **Electrical Test:** +25°C +85°C	JESD22-A103	45 (0) 45 (0)	0/45	Pass	
Solderability **Temp 245°C**	**Bake:** Temp 155°C,4Hrs System: Oven Solder Bath: Temp.245°C Taken from 1 lot with min 22 units	J-STD-002	22 (0)	0/22	Pass	Performed at MPHIL
Bond Strength **Data Assembly**	Wire Pull 3 lots, 35 wires per lot from 5 units min	M2011.8 MIL-STD-883	35(0) Wires	0/30	Pass	
Bond Strength **Data Assembly**	Bond Shear 3 lots, 35 bonds per lot from 5 units min	M2011.8 MIL-STD-883	35(0) bonds	0/30	Pass	

ALAN-04KTCS710 - CCB 4[illegible] ATXMEGA[illegible] ATXMEGA32xx and ATXMEGA16xx device families available in 49L VI[illegible]

Affected Catalog Part Numbers(CPN)

ATXMEGA128A4U-CU
ATXMEGA128D4-CU
ATXMEGA128A4U-CUR
ATXMEGA128D4-CUR
ATXMEGA64D4-CUR
ATXMEGA16C4-CU
ATXMEGA32C4-CU
ATXMEGA16D4-CU
ATXMEGA32D4-CU
ATXMEGA16C4-CUR
ATXMEGA32C4-CUR
ATXMEGA32D4-CUR
ATXMEGA16D4-CUR