Product Change Notification / JAON-18QNOS381

Date:

24-May-2022

Product Category:

Broadband Gateway

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5014.004 Initial Notice: Qualification of a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9653AQC, LE9653AQCT, LE9621AQC, LE9643AQC, LE9621AQCT, and LE9643AQCT catalog part numbers (CPN) available in 36L VQFN (4x6x1mm) package assembled at MMT assembly site.

Affected CPNs:

JAON-18QNOS381_Affected_CPN_05242022.pdf
JAON-18QNOS381_Affected_CPN_05242022.csv

Notification Text:

PCN Status: Initial 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 a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9653AQC, LE9653AQCT, LE9621AQC, LE9643AQC, LE9621AQCT, and LE9643AQCT catalog part numbers (CPN) available in 36L VQFN (4x6x1mm) package assembled at MMT assembly site.

Pre and Post Change Summary:

<table>
<tr><th colspan="2"></th><th colspan="2">Pre Change</th><th colspan="2">Post Change</th></tr>
<tr><td rowspan="2">Fabrication Location</td><td>Die # 1</td><td colspan="2">Global Foundries, Singapore - Fab 7 (GF07)</td><td colspan="2">Global Foundries, Singapore - Fab 7 (GF07)</td></tr>
<tr><td>Die # 2</td><td>Global Foundries, Singapore - Fab 2 (GF02)</td><td>Microchip Technology Colorado – Fab 5 (MCSO)</td><td>Global Foundries, Singapore - Fab 2 (GF02)</td><td>Microchip Technology Colorado – Fab 5 (MCSO)</td></tr>
<tr><td rowspan="3">Die Size</td><td rowspan="2">Die # 1</td><td colspan="2">2.204 x 2.258 mm</td><td colspan="2">1.932x1.860mm</td></tr>
<tr><td colspan="4">Please see attached pre and post change comparison for Die # 1 Location</td></tr>
<tr><td>Die # 2</td><td colspan="2">1.57 x 1.72 mm</td><td colspan="2">1.57 x 1.72 mm</td></tr>
<tr><td colspan="2">Assembly Site</td><td colspan="2">Microchip Technology Thailand (Branch) (MMT)</td><td colspan="2">Microchip Technology Thailand (Branch) (MMT)</td></tr>
<tr><td colspan="2">Wire Material</td><td colspan="2">CuPdAu</td><td colspan="2">CuPdAu</td></tr>
<tr><td colspan="2">Die Attach Material</td><td colspan="2">3280</td><td colspan="2">3280</td></tr>
<tr><td colspan="2">Molding Compound Material</td><td colspan="2">G700LTD</td><td colspan="2">G700LTD</td></tr>
<tr><td colspan="2">Lead Frame Material</td><td colspan="2">A194</td><td colspan="2">A194</td></tr>
</table>

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve productivity by qualifying a new die size.

Change Implementation Status: In Progress

Estimated Qualification Completion Date: June 2022

Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary:

	May 2022				June 2022				
Workweek	19	20	21	22	23	24	25	26	27
Initial PCN Issue Date				X					
Qual Report Availability							X		
Final PCN Issue Date							X		

Method to Identify Change: Traceability code

Qualification Plan: Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

Revision History: May 24, 2022: Issued initial 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_JAON-18QNOS381_Pre and Post Change_Summary.pdf
PCN_JAON-18QNOS381_Qual_Plan.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 PLAN SUMMARY

PCN #: JAON-18QNOS381

Date:
April 20, 2022

Qualification of a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9653AQC, LE9653AQCT, LE9621AQC, LE9643AQC, LE9621AQCT, and LE9643AQCT catalog part numbers (CPN) available in 36L VQFN (4x6x1mm) package assembled at MMT assembly site.

Purpose: Qualification of a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9653AQC, LE9653AQCT, LE9621AQC, LE9643AQC, LE9621AQCT, and LE9643AQCT catalog part numbers (CPN) available in 36L VQFN (4x6x1mm) package assembled at MMT assembly site.

CCB No.: 5014.004

Misc.	Assembly site	MMT
	BD Number	BD-000489-01
	MP Code (MPC)	3411E to 3412G 3411X to 3413H
	Part Number (CPN)	Le9643
	MSL information	MSL3
	Assembly Shipping Media (T/R, Tube/Tray)	Tray and T/R
	Base Quantity Multiple (BQM)	2450
	Reliability Site	MTAI
Lead-Frame	Paddle size	232 x 232 mils
	Material	A194
	DAP Surface Prep	Selective Ag Plating
	Treatment	BOT
	Process	Etched
	Lead-lock	Yes
	Part Number	10103602
	Lead Plating	Matte Tin
	Strip Size	250x70mm
	Strip Density	450 units/strip
Bond Wire	Material	CuPdAu
Die Attach	Part Number	3280
	Conductive	yes
MC	Part Number	G700LTD
PKG	PKG Type	VQFN
	Pin/Ball Count	36
	PKG width/size	4x6x1
	Die Size	1.932x1.860mm

Test Name	Conditions	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Special Instructions
Wire Sweep	Max limit 15%	77	0	1	77	No shorting		Due to long wires
Preconditioning - Required for surface mount devices	+150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020E for package type; Electrical test pre and post stress at +25°C.	154	15	1	169	0	15	Spares should be properly identified.

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: JAON-18QNOS381

Date:
May 29, 2019

Qualification of MMT as new assembly site for selected Microsemi LCLD products available in 36L VQFN (4x6x1mm) package.

PACKAGE QUALIFICATION REPORT

Purpose:	Qualification of MMT as new assembly site for selected Microsemi LCLD products available in 36L VQFN (4x6x1mm) package.
CCB No.:	3829.001
MP CODE:	3411E7M2CA01 3411E7M2CA03 3411E7M2CA04 3411E7M2CA02 3411E7M2CA03 3410X7M2CA03
Part No.	Le9621AQC, Le9643AQC, Le9653AQC
Bonding No.	BDM-002147A, BDM-002146A, BDM-002148A
Package	
Type	36L VQFN
Package size	4x6x1 mm
Lead Frame	
Paddle size	3x5 mm
Material	C194
Material	
Epoxy	3280
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Tin

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
E191AAG1.1	Le9621	1903
E191AAF1.1	Le9643	1903
E191AAH1.1	Le9653	1903

Result ☒ Pass ☐ Fail ☐ __________________

36L VQFN 4x6x1 mm assembled by MMT pass reliability test per Qual plan. 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: 3x Convection-Reflow 265°C max (IPC/JEDEC J-STD-020E)	IPC/JEDEC J-STD-020E	405	0/405	Pass	

Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Electrical Test :**+25°C and 85°C	JESD22-A113	405	0/405		Good Devices
	Bake 150°C, 24 hrs System:			0/405		
	30°C/60%RH Moisture Soak 192 hrs. System:			0/405		
	3x Convection-Reflow 265°C max			0/405		
	System:					
	Electrical Test :+25°C and 85°C Chroma/CAT			0/405	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		135	Pass	Parts had been pre-conditioned at 260°C
	Electrical Test: + 25°C System:		135	0/135	Pass	
	Stress Condition: -65°C to +150°C, 1000 Cycles System : TABAI ESPEC TSA-70H			135		
	Electrical Test: +85°C and 125°C System:		135	0/135	Pass	
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System:	JESD22-A118		135		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System:		135	0/135	Pass	238 units /3 lot
	Stress Condition: +130°C/85%RH, 192 hrs. System: N/A			135		
	Electrical Test: + 25°C System Name		135	0/135	Pass	
High Temperature Storage Life	**Stress Condition:** Bake 150°C, 500 hrs System: N/A	JESD22-A103		135		Parts had been pre-conditioned at 260°C
	Electrical Test:+ 25°C System:		135	0/135	Pass	
	Stress Condition: 150°C, 1000 hrs System: N/A			135		
	Electrical Test: + 25°C System: N/A		135	0/135	Pass	

CCB 5014.004
Pre and Post Change Summary
PCN#: JAON-18QNOS381

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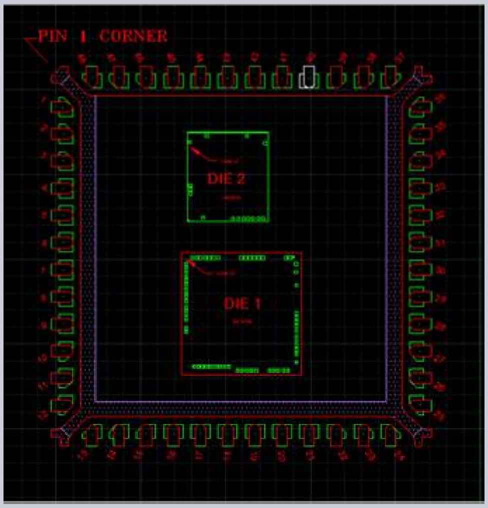
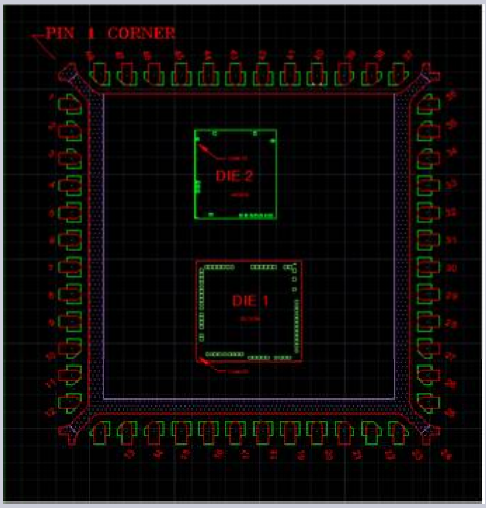
SMART | CONNECTED | SECURE

Pre and post change comparison

Pre change	Post Change
	

Note: Not-to-scale

JAON-18QNOS381 - CCB 5 LE9653AQ LE9621AQ LE9643AQ LE9621AQ and LE9643AQCT catalog part nur

Affected Catalog Part Numbers(CPN)

LE9653AQC
LE9653AQCT
LE9621AQC
LE9643AQC
LE9621AQCT
LE9643AQCT