Product Change Notification / JAON-18KOPA638

Date:

14-Apr-2023

Product Category:

Broadband Gateway

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5014.005 and 6258 Final 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 MTAI assembly site.

Affected CPNs:

JAON-18KOPA638_Affected_CPN_04142023.pdf
JAON-18KOPA638_Affected_CPN_04142023.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 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 MTAI assembly site.

Pre and Post Change Summary:

<table>
<tr><td colspan="2"></td><td colspan="2">Pre Change</td><td colspan="2">Post Change</td></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

(HQ) (MTAI)</td><td colspan="2">Microchip Technology Thailand

(HQ) (MTAI)</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 First Ship Date: May 6, 2023 (date code: 2318)

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

Time Table Summary:

<table>
<tr><td></td><td colspan="5">May 2022</td><td>></td><td colspan="4">April 2023</td><td colspan="5">May 2023</td></tr>
<tr><td>Workweek</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td></td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td></tr>
</table>

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: May 24, 2022: Issued initial notification.

April 14, 2023: Issued final notification. Attached the qualification report and included the estimated first ship date on May 6, 2023.

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-18KOPA638 Pre_and_Post_Change_Summary.pdf
PCN_JAON-18KOPA638_Qual Report.pdf

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

Terms and Conditions:

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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# JAON-18KOPA638

Date:
March 31, 2023

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 MTAI assembly site.

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PACKAGE QUALIFICATION REPORT

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 MTAI assembly site.
CN	E000125295
QUAL ID	R2201158 Rev A
MP CODE	3413G7M2CA01
Part No.	LE9643AQC
Bonding No.	BD-000491 Rev.02
CCB#	5014.005 and 6258
Package	
Type	36LD VQFN
Package size	4 x 6 x 1 mm
Lead Frame	
Paddle size	118 x 197 mils
Material	A194
Surface	Selective Ag Plating
Process	Etched
Lead Lock	Yes
Part Number	10103602
Material	
Epoxy	3280
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Sn

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot#	Date Code
MTAI231702455.000	GF07923119810.110	2230867

Result [X] Pass [ ] Fail [ ] ____________________

36LD VQFN (4x6x1 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

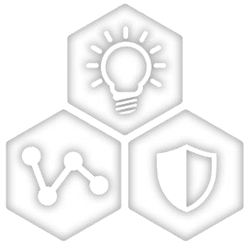
Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Electrical Test:** +25°C System: Chroma3650	JESD22-A113	154(0)	0/154		Good Devices
	Bake 150°C, 24 hrs. System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		0/154		
	30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH			0/154		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			0/154		
	Electrical Test: +25°C System: Chroma3650		154(0)	0/154	Pass	

PACKAGE QUALIFICATION REPORT

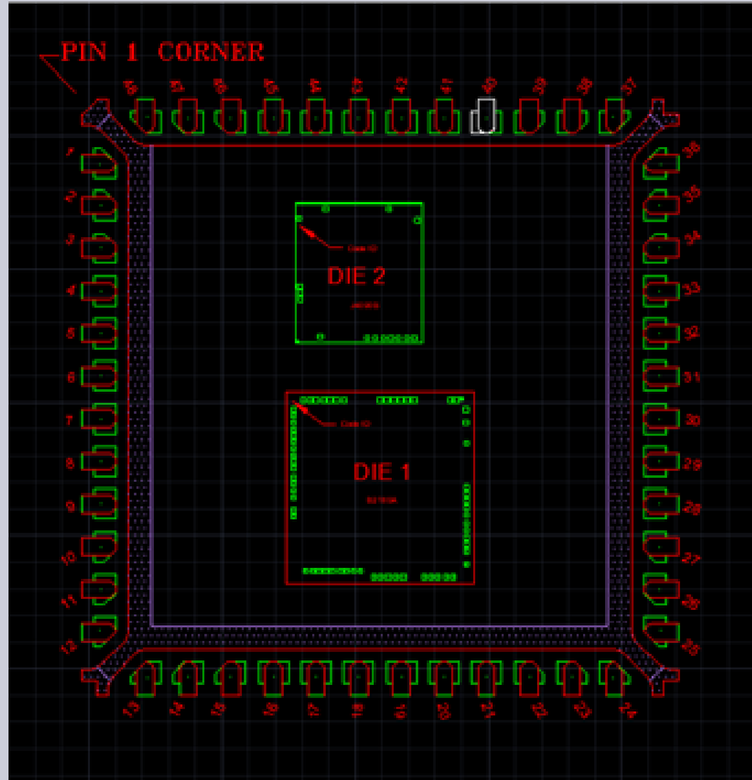
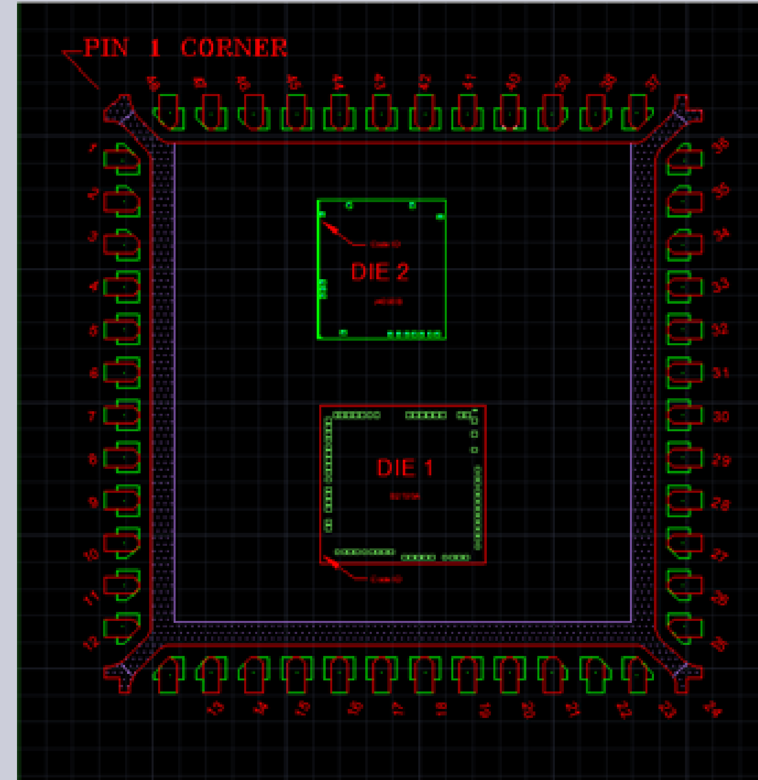
Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		0/77		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: Chroma3650		77(0)	0/77	Pass	77 units
	Stress Condition: +130°C/85%RH, 192 hrs. System: HAST 6000X			0/77		
	Electrical Test: +25°C System: Chroma3650		77(0)	0/77	Pass	
Wire sweep	Wire sweep Inspection 20 Wires	-	20(0) Wires	0/20	Pass	

CCB 5014.005 and 6258
Pre and Post Change Summary
PCN#: JAON-18KOPA638

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



Pre and post change comparison

Pre change	Post Change
	

Note: Not-to-scale

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	Electrical Test: +25°C System: Chroma3650		77(0)	0/77	Pass	77 units
	Stress Condition: +130°C/85%RH, 192 hrs. System: HAST 6000X			0/77		
	Electrical Test: +25°C System: Chroma3650		77(0)	0/77	Pass	
Wire sweep	Wire sweep Inspection 20 Wires	-	20(0) Wires	0/20	Pass	