Product Change Notification / JAON-18YDKI646

Date:

24-May-2022

Product Category:

Broadband Gateway

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5014.002 Initial Notice: Qualification of a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9641PQC, LE9651PQC, LE9641PQCT, and LE9651PQCT catalog part numbers (CPN) available in 48L VQFN (7x7x1.0mm) package assembled at MTAI assembly site.

Affected CPNs:

JAON-18YDKI646_Affected_CPN_05242022.pdf
JAON-18YDKI646_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 LE9641PQC, LE9651PQC, LE9641PQCT, and LE9651PQCT catalog part numbers (CPN) available in 48L VQFN (7x7x1.0mm) package assembled at MTAI assembly site.

Pre and Post Change Summary:

		Pre Change		Post Change	
Fabrication Location	Die # 1	Global Foundries, Singapore - Fab 7 (GF07)		Global Foundries, Singapore - Fab 7 (GF07)	
	Die # 2	Global Foundries, Singapore - Fab 2 (GF02)	Microchip Technology Colorado – Fab 5 (MCSO)	Global Foundries, Singapore - Fab 2 (GF02)	Microchip Technology Colorado – Fab 5 (MCSO)
Die Size	Die # 1	2.204 x 2.258 mm		1.932x1.860mm	
		Please see attached pre and post change comparison for Die # 1 Location			
	Die # 2	1.57 x 1.72 mm		1.57 x 1.72 mm	
Assembly Site		Microchip Technology Thailand (HQ) (MTAI)		Microchip Technology Thailand (HQ) (MTAI)	
Wire Material		CuPdAu		CuPdAu	
Die Attach Material		3280		3280	
Molding Compound Material		G700LTD		G700LTD	
Lead Frame Material		A194		A194	

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-18YDKI646_Pre and Post Change_Summary.pdf
PCN_JAON-18YDKI646_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-18YDKI646

Date:
April 20, 2022

Qualification of a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9641PQC, LE9651PQC, LE9641PQCT, and LE9651PQCT catalog part numbers (CPN) available in 48L VQFN (7x7x1.0mm) package assembled at MTAI assembly site.

Purpose: Qualification of a new die size (1.932x1.860mm) for Die #1 of selected Microsemi LE9641PQC, LE9651PQC, LE9641PQCT, and LE9651PQCT catalog part numbers (CPN) available in 48L VQFN (7x7x1.0mm) package assembled at MTAI assembly site.

CCB No.: 5014.002

Misc.	Assembly site	MTAI
	BD Number	BD-000490-01
	MP Code (MPC)	3410X to 3413J 3411Y to 3413K
	Part Number (CPN)	Le9641
	MSL information	MSL3
	Assembly Shipping Media (T/R, Tube/Tray)	Tray and T/R
	Base Quantity Multiple (BQM)	1300
	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	10104808
	Lead Plating	Matte Tin
	Strip Size	250x70mm
	Strip Density	240 units/strip
Bond Wire	Material	CuPdAu
Die Attach	Part Number	3280
	Conductive	yes
MC	Part Number	G700LTD
PKG	PKG Type	VQFN
	Pin/Ball Count	48
	PKG width/size	7x7
	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-18YDKI646

Date:
April 2, 2021

Qualification of MTAI as an additional assembly site for selected MSCC products available in 48L VQFN (7x7x1mm) package.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an additional assembly site for selected MSCC products available in 48L VQFN (7x7x1mm) package.
CN	ES351324
QUAL ID	R2100011 rev. C
MP CODE	3411H7M9CA01
Part No.	LE9652PQC
Bonding No.	BDM-002786 Rev. A
CCB No.	4514
Package	
Type	48L VQFN
Package size	7x7x1.0 mm
Lead Frame	
Paddle size	232 x 232 mils
Material	A194
Surface	Ag selective Plated
Process	Etched
Lead Lock	Yes
Part Number	10104808
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
MTAI213802513.000	GF07921225657.200	2051C75
MTAI213802989.000	GF07921225657.200	2051DQ0
MTAI213802998.000	GF07921225657.200	2051DW 3

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
Precondition Prior Perform Reliability Tests (At MSL Level 3)	**Electrical Test:** +25°C System: CHROMA3650	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		693		
	30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C System: CHROMA3650			0/693	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		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: CHROMA3650		231(0)	0/231	Pass	77 units / lot
	Stress Condition: -65°C to +150°C, 1000 Cycles System: TABAI ESPEC TSA-70H			231		
	Electrical Test: +25°C System: CHROMA3650		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	
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: CHROMA3650		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH, 192 hrs. System: HAST 6000X			231		
	Electrical Test: +25°C System: CHROMA3650		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 175°C, 504 hrs System: SHEL LAB **Electrical Test:** +25°C System: CHROMA3650	JESD22-A103	 45(0)	45 0/45	 Pass	45 units
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	
Bond Strength **Data Assembly**	Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)	Mil.Std. 883-2011 CDF-AEC-Q100-001	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	

CCB 5014.002
Pre and Post Change Summary
PCN#: JAON-18YDKI646

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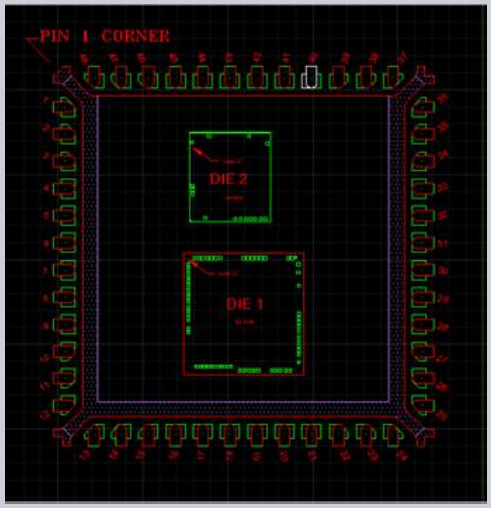
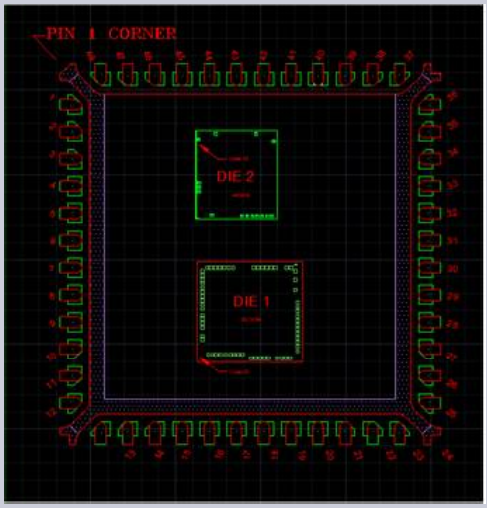
SMART | CONNECTED | SECURE

Pre and post change comparison

Pre change	Post Change
	

Note: Not-to-scale

JAON-18YDKI646 - C LE9651PQ LE9641PQ and LE9651PQCT catalog part numbers (CPN) available in 48L VQFN

Affected Catalog Part Numbers(CPN)

LE9641PQC
LE9651PQC
LE9641PQCT
LE9651PQCT