Product Change Notification / LIAL-08MJVK142

Date:

13-Jul-2021

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4063.002 Final Notice: Qualification of MMT as an additional assembly site for selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package.

Affected CPNs:

LIAL-08MJVK142_Affected_CPN_07132021.pdf
LIAL-08MJVK142_Affected_CPN_07132021.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 MMT as an additional assembly site for selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	UTAC Thai Limited (NSEB)	UTAC Thai Limited (NSEB)	Microchip Technology Thailand (Branch) (MMT)

Wire material	Au	Au	Au
Die attach material	8600	8600	3280
Molding compound material	G700LTD	G700LTD	G700LTD
Lead frame material	*C194	*C194	*A194
DAP Surface Prep	Bare Cu	Bare Cu	Bare Cu
Lead frame plating finish	Matte tin	Matte tin	Matte tin
Lead frame lead-lock	No	No	Yes
	See Pre and Post Change attachment for lead frame 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 MMT as an additional assembly site.

Change Implementation Status: In Progress.

Estimated First Ship Date: July 30, 2021 (date code: 2131)

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

Time Table Summary:

	July 2021				
Workweek	27	28	29	30	31
Qual Report Availability			X		
Final PCN Issue Date			X		
Estimated Implementation					X

Date						

Method to Identify Change: Traceability code.

Qualification Report: Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

Revision History:July 13, 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-08MJVK142_Qual Report 1 of 2.pdf
PCN_LIAL-08MJVK142_Qual Report 2 of 2.pdf
PCN_LIAL-08MJVK142_Pre and Post Change Summary.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.

LIAL-08MJVK142 - CCB 4063.002 Final Notice: Qualification of MMT as an additional assembly site for selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package.

Affected Catalog Part Numbers(CPN)

PIC16F15213-E/MF
PIC16F15214-E/MF
PIC16F15213-I/MF
PIC16F15214-I/MF
PIC16F15213T-I/MF
PIC16F15214T-I/MF

QUALIFICATION REPORT SUMMAY

RELIABILITY LABORATORY

PCN #: LIAL-08MJVK142

Date
February 04, 2021

Qualification of MMT as an additional assembly site for selected MTCH112, MTCH810 and PIC12xxxx device families available in 8L DFN (3x3x0.9mm) package. The selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package will qualified by similarity (QBS).

Purpose:	Qualification of MMT as an additional assembly site for selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package. The selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package will qualified by similarity (QBS).
CN	ES349377
QUAL ID	R2000923 Rev A
Part No.	PIC12F1822-E/MF
Bonding No.	BDM-002698 Rev. A
CCB#	4063.002 and 4440
Package	
Type	8L DFN
Package size	3 x 3 x 0.9 mm
Lead Frame	
Paddle size	102 x 71 mils
Material	C194
Surface	Bear Cu
Process	BOT
Lead Lock	Yes
Part Number	10100851
Material	
Epoxy	3280
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Sn

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-213201463.000	TMPE221064499.400	204562M
MMT-213301391.000	TMPE221064499.400	2046GUK
MMT-213202606.000	TMPE221064499.400	2045GUJ

Result [X] Pass [ ] Fail [ ] _____

8L DFN (3x3x0.9 mm) assembled by MMT 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-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 1)	**Electrical Test:** +25°C, 85°C and 125°C System: J750	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C, 85°C and 125°C System: J750			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	JESD22A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 85°C and 125°C System: J750		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: +85°C and 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	
UNBIASEDHAST	**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: J750		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: J750		231(0)	0/231	Pass	
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.0 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: + 25°C ,85°C and 125°C System: J750		231(0)	0/231	Pass	77 units / lot
	Stress Condition: +130°C/85%RH,192hrs. **Bias Volt:** 5.0 Volts System: HAST 6000X			231		
	Electrical Test: + 25°C ,85°C and 125°C System: J750		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, 85°C and 125°C System: J750	JESD22A103	 45(0)	45 0/45	 Pass	45 units
Wire sweep	Wire sweep Inspection 15 Wires / lot	-	45(0) Wires	0/45	Pass	
Bond Strength Data Assembly	Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)	Mil.Std. 883-2011 CDF-AECQ100-001	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN #: LIAL-08MJVK142

Date
May 11, 2020

Qualification of MMT as an additional assembly site for selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package. This is a qualification by similarity (QBS) and a Q100 grade 1 qualification.

Purpose: Qualification of MMT as an additional assembly site for selected PIC16F15213 and PIC16F15214 device families available in 8L DFN (3x3x0.9mm) package. This is a qualification by similarity (QBS) and a Q100 grade 1 qualification.

Misc.	Assembly site	MMT
	BD Number	BDM-002316 rev.A
	MP Code (MPC)	59B17YU3BVA1
	Part Number (CPN)	ATTINY3217-MZT-VAO
	Qual ID and rev	QTP 4039 Rev A
	CCB	4063 and 4063.002
Lead-Frame	Paddle size	114 x 114 mils
	Material	C194
	DAP Surface Prep	Ag selective plated
	Treatment	Yes
	Process	Etched
	Lead-lock	No
	Part Number	10102401
	Lead Plating	Matte Tin
	Strip Size	70 x 250 mm
	Strip Density	700 units/strip
Bond Wire	Material	Au
Die Attach	Part Number	3280
	Conductive	Yes
MC	Part Number	G700LTD
PKG	PKG Type	VQFN Wettable flank
	Pin/Ball Count	24
	PKG width/size	4x4x0.9 mm

Manufacturing Information:

Assembly Lot No.	QTY In	QTY Out
MMT-203501986.000	800	800
MMT-203601711.000	800	800
MMT-203601712.000	800	800

Result [X] Pass [ ] Fail [ ] _____

59B17 in 24L VQFN-WFS 4x4 at MMT Passed Moisture/ Reflow Sensitivity Classification Level 1 per IPC/JEDEC J-STD-020E standard and QUALIFIED AEC Q006 Grade 1. No delamination were observed on all the units.

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Precondition Prior Perform Reliability Tests **MSL-1**	**Electrical Test :** 25°C, 85°C, 125°C	JESD22A113, JIP/ IPC/JEDEC J-STD-020E	693(0)			Good Devices
	External Visual Inspection System: Luxo Lamp		693(0)	0/693	Pass	
	Bake 150°C, 24 hrs System: HERAEUS		693(0)			
	Moisture Soak 85°C/85%RH Moisture Soak 168hrs. 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, 85°C, 125°C		693(0)	0/693		
Temp Cycle	**Stress Condition:** (Standard) -65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2	JESD22A104	231(0)			Parts had been preconditioned at 260°C
	Electrical Test: +85°C , +125°C		231(0)	0/231	Pass	
	Bond Strength: Wire Pull		15(0)	0/15	Pass	
	Bond Shear		3(0)	0/3	Pass	
UNBIASEDHAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22A118	231(0)			Parts had been preconditioned at 260°C
	Electrical Test: +25°C		231(0)	0/231	Pass	
BIASEDHAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	231(0)	0/231		Parts had been preconditioned at 260°C
			231(0)			
	Electrical Test: 25°C, 85°C, 125°C				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, 500 hrs System: HERAEUS **Electrical Test :** 25°C, 85°C, 125°C	JESD22A103	2310) 231(0)	 0/231	 Pass	
Solderability **Temp 245°C**	**Bake:** Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C	J-STD-002	22 (0)	0/22	Pass	Performed at MPHIL
Physical Dimensions	Physical Dimension, 10 units from 3 lot	JESD22-B100/B108	30(0)		Pass	
Bond Strength Data Assembly	Wire Pull	M2011.8 MIL-STD-883	30(0) Wires	0/30	Pass	
Bond Strength Data Assembly	Bond Shear	M2011.8 MIL-STD-883	30(0) bonds	0/30	Pass	

CCB 4063.002
Pre and Post Change Summary
PCN#: LIAL-08MJVK142

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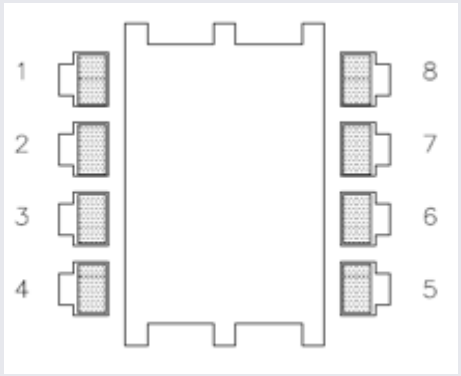
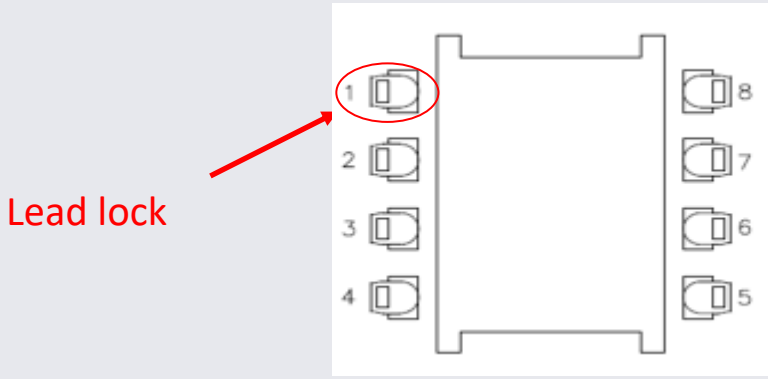
Lead frame comparison

Pre Change	Post change
NSEB	**MMT**



Lead frame material	C194
Lead frame DAP surface prep	Bare Cu
Lead frame lead-lock	No



Lead frame material	A194
Lead frame DAP surface prep	Bare Cu
Lead frame lead-lock	Yes

NOTE: **Mold compound material fills the lead lock hole, which provides improved protection against moisture penetration along the edge of the leads (pins) of the package.**

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