Product Change Notification / CADA-13DJIO298

Date:

31-May-2023

Product Category:

16-Bit - Microcontrollers and Digital Signal Controllers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5156 Final Notice: Qualification of C194 as an additional lead frame material for selected PIC24F16Kxx, PIC24F32Kxx, PIC24FV16Kxx and PIC24FV32Kxx device families available in 48L UQFN (6x6x0.5mm) package.

Affected CPNs:

CADA-13DJIO298_Affected_CPN_05312023.pdf
CADA-13DJIO298_Affected_CPN_05312023.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 C194 as an additional lead frame material for selected PIC24F16Kxx, PIC24F32Kxx, PIC24FV16Kxx and PIC24FV32Kxx device families available in 48L UQFN (6x6x0.5mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change

Assembly Site	UTAC Thai Limited (UTL-1) LTD. (NSEB)	UTAC Thai Limited (UTL-1) LTD. (NSEB)	UTAC Thai Limited (UTL-1) LTD. (NSEB)
Wire Material	Au	Au	Au
Die Attach Material	8600	8600	8600
Molding Compound Material	G700LTD	G700LTD	G700LTD
Lead-Frame Material	EFTEC64T	EFTEC64T	C194

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve manufacturability and productivity by qualifying C194 as an additional lead frame material.

Change Implementation Status: In Progress

Estimated First Ship Date: June 30, 2023 (date code: 2326)

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

Time Table Summary:

	June 2022					**>**	**May 2023**					**June 2023**			
Workweek	23	24	25	26	27		18	19	20	21	22	23	24	25	26
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: June 15, 2022: Issued initial notification.
February 9, 2023: Re-issued initial notification. Update the qual vehicle device in the Qualification Plan. Update the Estimated Qualification Completion Date from November 2022 to April 2023.
May 31, 2023: Issued final notification. Added the estimated first ship date on June 30, 2023 and attached qualification report.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachments:

PCN_CADA-13DJIO298_Qual Report.pdf
PCN_CADA-13DJIO298_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.

QUALIFICATION REPORT
RELIABILITY LABORATORY

PCN# CADA-13DJIO298

Date:
May 17, 2023

Qualification of C194 as an additional lead frame material for selected PIC24F16Kxx, PIC24F32Kxx, PIC24FV16Kxx and PIC24FV32Kxx device families available in 48L UQFN (6x6x0.5mm) package.

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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of C194 as an additional lead frame material for selected PIC24F16Kxx, PIC24F32Kxx, PIC24FV16Kxx and PIC24FV32Kxx device families available in 48L UQFN (6x6x0.5mm) package.
CN	E000159265
QUAL ID	R2300341 (Rev. A)
MP CODE	LEBE24R7XALF
Part No.	PIC24F32KA304-E/MV
Bonding No.	BD-001262 Rev. 01
Package	
Type	48L UQFN
Package size	6 x 6 x 0.5 mm
Lead Frame	
Paddle size	193 x 193 mils
Material	C194
Surface	Ag on lead only
Process	Etched
Lead Lock	Dimple
Part Number	FU0295
Material	
Epoxy	8600
Wire	Au wire
Mold Compound	G700LTD
Plating Composition	Matte Sn

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PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
NSEB234400525.000	GRSM423271398.200	2305D6G
NSEB234400526.000	GRSM423271398.200	2305D6H
NSEB234400527.000	GRSM423271398.200	2305D6J

Result Pass [X] Fail [ ] [ ] _____

48L UQFN (6x6x0.5 mm) assembled by NSEB 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)	0/693		Good Devices
	Bake 150°C, 24 hrs. System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		0/693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			0/693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			0/693		
	Electrical Test: +25°C, 85°C and 125°C System: J750		693(0)	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		0/231		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
	Bond Strength: Wire Pull (>3.00 grams)		15(0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		0/231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 3.6 Volts System: HAST 6000X	JESD22-A110		0/231		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

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: SHEL LAB **Electrical Test:** +25°C, 85°C and 125°C System: J750	JESD22-A103	 45(0)	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)	0/22 0/22 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)	0/22 0/22 0/22	 Pass	
Physical **Dimensions**	Physical Dimension, 10 units / 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength **Data Assembly**	Wire Pull (>3.00 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	

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Affected Catalog Part Numbers (CPN)

PIC24FV32KA304-I/MV
PIC24FV16KA304-I/MV
PIC24FV32KA304T-I/MV
PIC24F32KA304-E/MV
PIC24F32KA304-I/MV
PIC24F16KA304-I/MV
PIC24F32KA304T-I/MV
PIC24FV16KM204-I/MV
PIC24F16KM204-E/MV
PIC24F16KM204-I/MV

CCB 5156
Pre and Post Change Summary
PCN #: CADA-13DJIO298

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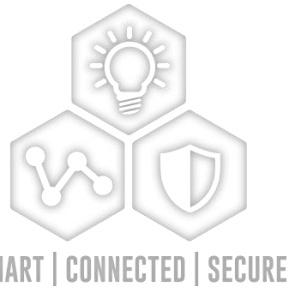
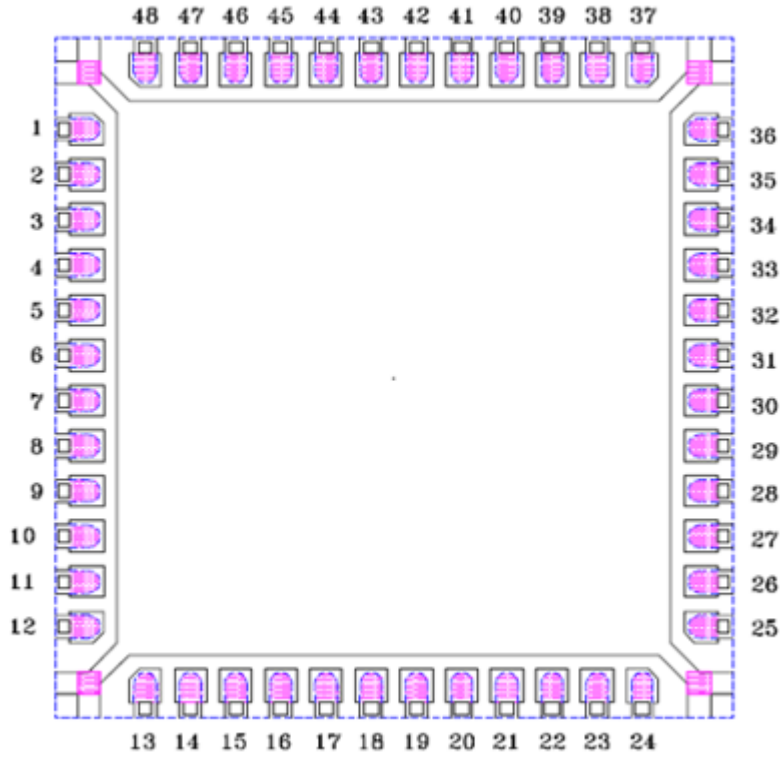


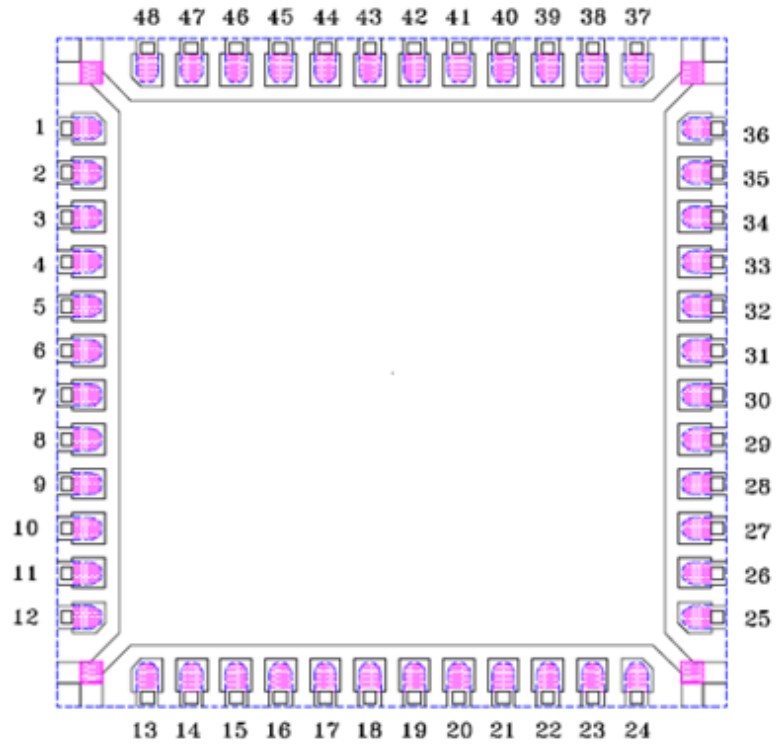
LEAD FRAME COMPARISON

EFTEC64T



Lead frame Paddle Size	193x193 mil

C194



Lead frame Paddle Size	193x193 mil

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