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.

MICROCHIP

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	