QUALIFICATION REPORT

RELIABILITY LABORATORY

PCN #: JAON-04YDYB109

Date
June 25, 2015

Qualification of C194 lead-frame for 64L QFN (9x9x0.9mm) package at NSEB. The 16L QFN (4x4x0.9mm), 16L QFN (3x3x0.9mm), 20L QFN (4x4x0.9mm), 28L QFN (6x6x0.9mm), 28L UQFN (4x4x0.5mm) and 48L UQFN (6x6x0.5mm) packages will qualify by similarity.

Distribution

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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of C194 lead-frame for 64L QFN (9x9x0.9mm) package at NSEB. The 16L QFN (4x4x0.9mm), 16L QFN (3x3x0.9mm), 20L QFN (4x4x0.9mm), 28L QFN (6x6x0.9mm), 28L UQFN (4x4x0.5mm) and 48L UQFN (6x6x0.5mm) packages will qualify by similarity.
CN	BC150690
QUAL ID	Q15033
MP CODE	WAAA17R4XEEL
Part No.	PIC32MZ2048ECH064-I/MR
Bonding No.	BDM-000710 Rev. A
CCB No.	1475
Package	
Type	64L QFN
Package size	9x9x0.9 mm
Die thickness	11 mils
Die size	217.7 x 228.9 mils
Lead Frame	
Paddle size	311 x 311 mils
Material	C194
Surface	Copper (Ag ring)
Process	Etched
Lead Lock	Yes
Part Number	FR0991
Treatment	Rougheness
Die attach material	
Epoxy	8600
Wire	Au wire
Mold Compound	G700LTD
Plating Composition	Matte Tin

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Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
NSEB154700626.000	TC14915399790.110	1508JMM
NSEB154700627.000	TC14915399790.110	1508JMT
NSEB154700628.000	TC14915399790.110	1508JMU

Result [X] Pass [ ] Fail [ ] ____________________

64L QFN (9x9x0.9mm) assembled by UTL (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-020D standard.

Prepared By:__________________ **Date:** June 25, 2015 **(Sr.Reliability Engineer)**

(Mr.Udom Suksansakul)

Approved By:__________________ **Date:** June 25, 2015 **(Reliability Manager)**

(Mr. Somnuek Thongprasert)

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020D)	IPC/JEDEC J-STD-020D	135	0/135	Pass	

Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test :**+25°C,85°C and -40°C System: J750	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max			693		
	System: Vitronics Soltec MR1243					
	Electrical Test :+25°C and 85°C System: J750			0/693	Pass	

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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: + 85°C System: J750		231(0)	0/231	Pass	77 units / lot
	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: 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		231		Parts had been pre-conditioned at 260°C
	Electrical Test:+25°C and 85°C System: J750		231(0)	0/231	Pass	77 units / lot
High Temperature Storage Life	Stress Condition: Bake 175°C, 504 hrs System: SHEL LAB	JESD22-A103		45		45 units Verify by FA
	Electrical Test :+25°C and 85°C System: J750		45(0)	0/45	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
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	JESD22B-102E	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	JESD22B-102E	22 (0)	22 22 0/22	Pass	
Bond Strength **Data Assembly**	Wire Pull (> 2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (15.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	