QUALIFICATION REPORT

RELIABILITY LABORATORY

PCN #: JAON-17QXCZ072

Date
December 08, 2015

Qualification of 64L QFN (9x9x0.9mm) package with 264x264 Lead-Frame Paddle size and 40L QFN (6x6x0.9mm) package with 193x193 Lead-Frame Paddle size for selected products at MTAI assembly site.

Distribution

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MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of 64L QFN (9x9x0.9mm) package with 264x264 Lead-Frame Paddle size and 40L QFN (6x6x0.9mm) package with 193x193 Lead-Frame Paddle size for selected products at MTAI assembly site.
CN	BC152169
QUAL ID	Q15163
MP CODE	TRAE17R4XBD4
Part No.	PIC32MX450F128H-I/MR
Bonding No.	BDM00852 Rev. A
CCB No.	1643
<u>Package</u>	
Type	64L QFN
Package size	9x9x0.9 mm
Die thickness	11 mils
Die size	197.30 x 132.10 mils
<u>Lead Frame</u>	
Paddle size	264 x 264 mils
Material	C194
Surface	Bare copper on paddle
Process	Etched
Lead Lock	Yes
Part Number	10106409
Treatment	Brown Oxide Treatment (BOT)
<u>Die attach material</u>	
Epoxy	3280
Wire	Au wire
Mold Compound	G700LTD
Plating Composition	Matte Tin 100%

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Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI162604040.000	TC11916127524.110	1540SRJ
MTAI162604041.000	TC11916127524.120	1539SRK
MTAI162604407.000	TC11916127524.120	1540TMP

Result [X] Pass [ ] Fail [ ] ____________________

64L QFN (9x9x0.9 mm) assembled by MTAI 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: Thinnapol **Date:** December 08, 2015 **(Sr.Reliability Engineer)**

(Mr.Thinnapol Nakkasun)

Approved By: ____________ **Date:** December 08, 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 and 85°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	

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: + 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
	Electrical Test :+25°C and 85°C System: J750		45(0)	0/45	Pass	

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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	
Physical Dimensions	Physical Dimension, 30 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	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	