



MICROCHIP

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: CAAN-07WTTK189

Date:

September 15, 2020

Qualification of MTAI as an additional assembly site for selected PIC32MM0016GPL036, PIC32MM0032GPL036, PIC32MM0064GPL036, PIC32MM0064GPM036, PIC32MM0128GPM036 and PIC32MM0256GPM036 device families available in 36L SQFN (6x6x1.0mm) package. This is qualification by similarity (QBS).



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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an additional assembly site for selected PIC32MM0016GPL036, PIC32MM0032GPL036, PIC32MM0064GPL036, PIC32MM0064GPM036, PIC32MM0128GPM036 and PIC32MM0256GPM036 device families available in 36L SQFN (6x6x1.0mm) package. This is qualification by similarity (QBS).
CN	ES342633
QUAL ID	R2000362 Rev. A
MP CODE	SAAA1TR4XCXF
Part No.	PIC24FJ256GA606T-I/MR
Bonding No.	BDM-002360 Rev. A
CCB No.	4225 and 8200
<u>Package</u>	
Type	64L QFN
Package size	9x9x0.9 mm
<u>Lead Frame</u>	
Paddle size	264 x 264 mils
Material	C194
Surface	Bare Cu DAP
Process	Etched
Lead Lock	Yes
Part Number	10106409
<u>Material</u>	
Epoxy	3280
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Tin



MICROCHIP **PACKAGE QUALIFICATION REPORT**

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI210400602.000	SCB1920022025.110	2017B1J
MTAI210400988.000	SCB1920022025.110	2017BT6
MTAI210400989.000	SCB1920022025.110	2017BT7

Result

☒ 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-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	JESD22-A104		231		Parts had been pre-conditioned at 260°C 77 units / lot
	Electrical Test: +85°C and 125°C System: J750		231(0)	0/231	Pass	
	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) Bond Shear (>15.00 grams)		15 (0) 15 (0)	0/15 0/15	Pass 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 77 units / lot
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	
	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: 2.5 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C 77 units / lot
	Electrical Test: +25°C, 85°C and 125°C System: J750		231(0)	0/231	Pass	
	Stress Condition: +130°C/85%RH, 192 hrs. Bias Volt: 2.5 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	JESD22- A103		45		45 units
	Electrical Test: +25°C, 85°C and 125°C System: J750		45(0)	0/45	Pass	
Bond Strength Data Assembly	Wire Pull (> 2.5 grams)	M2011	30 (0) Wires	0/30		
	Bond Shear (>15.00 grams)	JESD22- B116	30 (0) bonds	0/30		



MICROCHIP

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: CAAN-07WTTK189

Date:
March 28, 2022

Qualification of MTAI as an additional assembly site for selected USB251xx and USX206xx device families available in 36L SQFN (6x6x1.0mm) package. The selected PIC32MM0016GPL036, PIC32MM0032GPL036, PIC32MM0064GPL036, PIC32MM0064GPM036, PIC32MM0128GPM036 and PIC32MM0256GPM036 device families available in 36L SQFN (6x6x1.0mm) package will qualify by similarity (QBS).



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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MTAI as an additional assembly site for selected USB251xx and USX206xx device families available in 36L SQFN (6x6x1.0mm) package. The selected PIC32MM0016GPL036, PIC32MM0032GPL036, PIC32MM0064GPL036, PIC32MM0064GPM036, PIC32MM0128GPM036 and PIC32MM0256GPM036 device families available in 36L SQFN (6x6x1.0mm) package will qualify by similarity (QBS).
CN	E000083413
QUAL ID	R2200096 Rev. A
MP CODE	XG3717UDXD0C
Part No.	USB2514B-I/M2
Bonding No.	BD-000257 Rev. 01
CCB No.	5010 and 8200
<u>Package</u>	
Type	36L SQFN
Package size	6 x 6 x 1.0 mm
<u>Lead Frame</u>	
Paddle size	169 x 169 mils
Material	A194
Surface	Ag Ring plating
Process	Etched
Lead Lock	Yes
Part Number	10103603
<u>Material</u>	
Epoxy	3280
Wire	CuPdAu
Mold Compound	G700LTD
Plating Composition	Matte Sn



MICROCHIP **PACKAGE QUALIFICATION REPORT**

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI223802928.000	GF07922239121.100	215001V
MTAI223802959.000	GF07922239121.100	215028H
MTAI223802960.000	GF07922239121.100	215028J

Result

☒ Pass ☐ Fail ☐ _____

36L SQFN (6x6x1.0 mm) assembled by MTAI pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 3 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
<u>Precondition</u> <u>Prior Perform</u> <u>Reliability Tests</u> (At MSL Level 3)	Electrical Test: +25°C and 85°C System: LTX_D10	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/IPC/JEDEC		693		
	30°C/60%RH Moisture Soak 192 hrs. System: TABAI ESPEC Model PR-3SPH	J-STD-020E		693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C and 85°C System: LTX_D10			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 Electrical Test: +85°C System: LTX_D10 Bond Strength: Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)	JESD22-A104	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
UNBIASED-HAST	Stress Condition: +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: +25°C System: LTX_D10	JESD22-A118	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
HAST	Stress Condition: +130°C/85%RH, 96 hrs. Bias Volt: 3.6 Volts System: HAST 6000X Electrical Test: +25°C and 85°C System: LTX_D10	JESD22-A110	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 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, 504 hrs System: SHEL LAB Electrical Test: +25°C and 85°C System: LTX_D10	JESD22-A103	135(0)	135 0/135	Pass	45 units / lot
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)	22 22 0/22	Pass	
Physical Dimensions	Physical Dimension, 10 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>3.00 grams) Bond Shear (>10.00 grams)	Mil. Std. 883-2011 CDF-AEC-Q100-001	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	