



QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: GBNG-19QBLM609

Date
Jul 26, 2019

Qualification of MTAI as an additional assembly site for selected products of the 90nm TSMC wafer technology available in 48L TQFP (7x7x1mm) package using gold (Au) bond wire. This is a Q100 grade 0 qualification.



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose Qualification of MTAI as an additional assembly site for selected products of the 90nm TSMC wafer technology available in 48L TQFP (7x7x1mm) package using gold (Au) bond wire. This is a Q100 grade 0 qualification.

CCB No.	3773
CN	ES290472
QUAL ID	Q19050 Rev. A
MP CODE	WACH14Y8XAXF
Part No.	DSPIC33CH512MP505-E/PT
Bonding No.	BDM-002101 Rev. A
<u>Package</u>	
Type	48L TQFP
Package size	7x7x1.0 mm
Die thickness	11 mils
Die size	133.8 x 174.9 mils
<u>Lead Frame</u>	
Paddle size	200 x 200 mils
Material	C7025
Surface	Bare copper
Process	Stamp
Lead Lock	No
Part Number	10104805
Treatment	Roughened
<u>Material</u>	
Epoxy	3280
Wire	Au wire
Mold Compound	G700HA
Plating Composition	Matte Tin



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Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MTAI195103256.000	TC14919333443.600	19121HY
MTAI195103296.000	TC14919333443.600	1912ERK
MTAI195103297.000	TC14919333443.600	1912ERM

Result

Pass Fail _____

48L TQFP 7x7 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
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-020E)	IPC/JEDEC J-STD-020E	135	0/135	Pass	

Precondition Prior Perform Reliability Tests (At MSL Level 1)	Electrical Test :+25°C, 85°C,125°C and 150°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 System: Vitronics Soltec MR1243			693		
	Electrical Test :+25°C, 85°C,125°C and 150°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: -55°C to +150°C, 1000 Cycles System : TABAI ESPEC TSA-70H Electrical Test: +85°C,125°C and 150°C System: J750	JESD22-A104		231		Parts had been pre-conditioned at 260°C
	Stress Condition: -55°C to +150°C, 2000 Cycles System : TABAI ESPEC TSA-70H Electrical Test: +85°C,125°C and 150°C System: J750		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)		15 (0)	0/15	Pass	
			15 (0)	0/15	Pass	
UNBIASED-HAST	Stress Condition: +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: +25°C System: J750	JESD22-A118		231		Parts had been pre-conditioned at 260°C
			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 Electrical Test : +25°C, 85°C,125°C and 150°C System: J750	JESD22-A110		231		Parts had been pre-conditioned at 260°C
			231(0)	0/231	Pass	77 units / lot

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Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	Stress Condition: Bake 175°C, 1000 hrs System: SHEL LAB	JESD22-A103		45		45 units
	Electrical Test :+25°C, 85°C,125°C and 150°C System: J750		45(0)	0/45	Pass	
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)	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	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 (> 2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	