



MICROCHIP

QUALIFICATION PLAN SUMMARY

PCN #: RMES-22QFBJ654

**Date:
July 10, 2019**

Qualification of MTAI as an additional assembly site for selected products of the 0.18um TSMC wafer technology available in 28L SSOP (.209 in) package.

Purpose: Qualification of MTAI as an additional assembly site for selected products of the 0.18um TSMC wafer technology available in 28L SSOP (.209 in) package.

CCB Number: 3839

<u>Misc.</u>	Assembly site	MTAI
	BD Number	BDM-001885 rev.D
	MP Code (MPC)	TLAC14N2XVL1
	Part Number (CPN)	DSPIC33EP64GP502-E/SSVAO
<u>Lead-Frame</u>	Paddle size	153 x 200 mils
	Material	CDA194
	DAP Surface Prep	Ag ring plate
	Treatment	Yes
	Process	Stamped
	Lead-lock	No
	Lead Plating	Matte Tin
	Strip Size	50 x 182.46 mm
	Strip Density	48 units/strip
<u>Bond Wire</u>	Material	Au
<u>Die Attach</u>	Part Number	3280
	Conductive	Yes
<u>MC</u>	Part Number	G600
<u>PKG</u>	PKG Type	SSOP
	Pin/Ball Count	28
	PKG width/size	.209in
<u>Die</u>	Die Thickness	15 mils
	Die Size	128.5 x 120.8
	Fab Process (site)	0.18um TSMC

Test Name	Conditions	Reliability Stress Read Point	Pre & Post Reliability Stress Test Temperature	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	ATE Test Site	REL Test Site	Special Instructions
Standard Pb-free Solderability	J-STD-002D ; Perform 8 hours of steam aging for Matte tin finish and 1 hour steam aging for NiPdAu finish prior to testing. Standard Pb-free: Matte tin/ NiPdAu finish, SAC solder, wetting temp 245°C for both SMD & through hole packages.	Grade 0: -40°C to +150°C (MCHP H Temp)	Grade 0: -40°C to +150°C (MCHP H Temp)	22	5	1	27	>95% lead coverage	5	MTAI	MTAI	Standard Pb-free solderability is the requirement. SnPb solderability (backward solderability- SMD reflow soldering) is required for any plating related changes and highly recommended for other package BOM changes.
Backward Solderability	J-STD-002D ; Perform 8 hour steam aging for Matte tin finish and 1 hr steam aging for NiPdAu finish prior to testing. Backward: Matte tin/ NiPdAu finish, SnPb solder, wetting temp 215°C for SMD.			22	5	1	27	>95% lead coverage	5	MTAI	MTAI	
Wire Bond Pull - WBP	Mil. Std. 883-2011			5	0	1	5	0 fails after TC	5	MTAI	MTAI	30 bonds from a min. 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001			5	0	1	5	0	5	MTAI	MTAI	30 bonds from a min. 5 devices.
Physical Dimensions	Measure per JESD22 B100 and B108			10	0	3	30	0	5	MTAI	MTAI	

Test Name	Conditions	Reliability Stress Read Point	Pre & Post Reliability Stress Test Temperature	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	ATE Test Site	REL Test Site	Special Instructions
External Visual	Mil. Std. 883-2009/2010	Grade 0: -40°C to +150°C (MCHP H Temp)	Grade 0: -40°C to +150°C (MCHP H Temp)	All devices prior to submission for qualification testing	0	3	ALL	0	5	MTAI	MTAI	
HTSL (High Temp Storage Life)	JESD22-A103 +175°C	Grade 0: 1000 hrs (+175°C)	Grade 0: +25°C, +85°C, +125°C +150°C	45	5	1	50	0	21 - 83	MTAI	MTAI	Spares should be properly identified.
Preconditioning - Required for surface mount devices	J-STD-020JESD22-A113+150°C Bake for 24 hours, moisture loading requirements per MSL level + 3X reflow at peak reflow temperature per Jedec-STD-020E for package type. (MSL1/260)		Grade 0: +25°C	231	15	3	738	0	15	MTAI	MTAI	Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.
HAST	JESD22-A101 or A110 +130°C/85% RH for 96 hrs or	Grade 0: 96 hrs (+130°C/85% RH)	Grade 0: +25°C, +85°C, +125°C +150°C	77	5	3	246	0	10 - 14	MTAI	MTAI	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
UHASt	JESD22-A102, A118, or A101 +130°C/85% RH for 96 hrs	Grade 0: 96 hrs (+130°C/85% RH)	Grade 0: +25°C	77	5	3	246	0	10	MTAI	MTAI	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.

Test Name	Conditions	Reliability Stress Read Point	Pre & Post Reliability Stress Test Temperature	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	ATE Test Site	REL Test Site	Special Instructions
Temp Cycle	JESD22-A104 and Appendix 3 -65°C to +150°C	Grade 0: 1 st read point: 500 cycles 2 nd read point: 2,000 cycles (-65°C to 150°C)	Grade 0: +85°C, +125°C +150°C °C	77	5	3	246	0	15 - 60	MTAI	MTAI	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.