

QUALIFICATION PLAN SUMMARY

PCN #: GBNG-19BQVY469

Date:
July 13, 2019

Qualification of an additional fabrication site (Microchip – Fab 5) for selected Microsemi LE9643xx device family.

Purpose: Qualification of an additional fabrication site (Microchip – Fab 5) for selected Microsemi LE9643xx device family.

CCB No: 3893

Die Qualification Plan

Test / Evaluation	Test Conditions / Parameters
HTOL	• 3 lots x 77 units
CDM-ESD	• Electrostatic Discharge, Charged Device Model: Meet or exceed Global Foundries
HBM-ESD	• Electrostatic Discharge, Human Body Model: Meet or exceed Global Foundries
LU	• Latch-Up: Meet or exceed Global Foundries
Electromigration	• 3 lots - Meet or exceed Global Foundries
HTOL	• High Temp Operating Life • 1000 hours

Package Qualification Plan

Misc.	Assembly site	MMT
	BD Number	BDM-002184/A
	MP Code (MPC)	TBD
	Part Number (CPN)	ZL88601LDG1
	MSL information	MSL-1/260
	Assembly Shipping Media (T/R, Tube/Tray)	Tray
	Base Quantity Multiple (BQM)	1300
	Reliability Site	MTAI
	CCB No.	3887
Lead-Frame	Paddle size	311x311 mils
	Material	A194
	DAP Surface Prep	Ag Ring Plated
	Treatment	BOT
	Process	Etched
	Lead-lock	Yes
	Part Number	TBD
	Lead Plating	Matte Tin
	Strip Size	70x250mm
	Strip Density	120 units//strip
Bond Wire	Material	CuPdAu
Die Attach	Part Number	3280
	Conductive	Yes
MC	Part Number	G700LTD
PKG	PKG Type	VQFN
	Pin/Ball Count	64
	PKG width/size	9x9x1.0mm
Die	Die Thickness	11 mils
	Die Size	Die 1:156.0x95.0 mils Die 2: 119.7x75.9 mils
	Fab Process (site)	0.13um GF HV/VHV FAB5

Test Name	Conditions	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Test Site	Special Instructions
Standard Pb-free Solderability	J-STD-002; Perform 8 hour 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.	22	5	1	27	> 95% lead coverage	5	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-002 ;Perform 8 hours steam aging for Matte tin finish and 1 hour 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	
Wire Bond Pull - WBP	Mil. Std. 883-2011	5	0	3	15	0 fails after TC	5	MMT/MTAI	30 bonds from a minimum of 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001	5	0	3	15	0	5	MMT/MTAI	30 bonds from a minimum of 5 devices.
Wire Sweep		5	0	3	15	0		MMT	Required for any reduction in wire bond thickness.
Physical Dimensions	Measure per JESD22 B100 and B108	10	0	3	30	0	5	MMT	
External Visual	Mil. Std. 883-2009/2010	All devices prior to submission for qualification testing	0	3	ALL	0	5	MMT/ MTAI	

Test Name	Conditions	Sample Size	Min. Qty of Spares per Lot (should be properly marked)	Qty of Lots	Total Units	Fail Accept Qty	Est. Dur. Days	Test Site	Special Instructions
Preconditioning - Required for surface mount devices	+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; Electrical test pre and post stress at +25°C MSL1/MSL3 @ 260°C	231	15	3	738	0	15	MTAI Post test: ASEM	Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.
Unbiased HAST	+130°C/85% RH for 96 hrs. Electrical test pre and post stress at +25°C.	77	5	3	246	0	10	MTAI Post test: ASEM	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
Temp Cycle	-65°C to +150°C for 500 cycles. Electrical test pre and post stress at hot temp; 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress.	77	5	3	246	0	15	MTAI Post test: ASEM	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.