QUALIFICATION PLAN SUMMARY

PCN #: RMES-20OXQE126

Date:
December 14, 2018

Qualification of MTAI as an additional assembly site for selected Atmel products available in 32L TQFP (7x7x1mm) package

Purpose: **Qualification of MTAI as an additional assembly site for selected Atmel products available in 32L TQFP (7x7x1mm) package**

CCB Number: **3632**

Misc.	**Assembly site**	MTAI
	BD Number	BDM-001592
	MP Code (MPC)	59B20YT5XA01 (59B20YT5XA02)
	Part Number (CPN)	ATMEGA4808-AFR (ATMEGA3208-AFR)
Lead-Frame	**Paddle size**	160x160
	Material	C7025
	Surface	CU
	Treatment	BOT with Bare Cu on Paddle
	Process	Etching
	Lead-lock	YES
	Part Number	10103201
	Lead Plating	Matte Tin
	Strip Size	70x218.43
	Strip Density	70
Bond Wire	**Material**	CuPdAu
Die Attach	**Part Number**	3280
	Conductive	Yes
MC	**Part Number**	G700
PKG	**PKG Type**	TQFP
	Pin/Ball Count	32
	PKG width/size	7 x 7 mm
Die	**Die Thickness**	11 mils
	Die Size	2.614x2.794 mm
	Fab Process (site)	59.91K / Fab4
MSL	**MSL**	1

Test Name	Conditions	Reliability Stress Read Point -40°C to +125°C datasheet operating range (Grade 1/E-Temp)	Pre & Post Reliability Stress Test Temperature -40°C to +125°C datasheet operating range (Grade 1/E-Temp)	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
Package Reliability Tests												
Wire Bond Pull - WBP	Mil. Std. 883-2011			3	0	3	Pull/shear as many as is possible per the number of wires per device to be qualified up to a maximum of 30 wires/balls from the total sample size specified.	0 fails after TC	5			
Wire Bond Shear - WBS	CDF-AEC-Q100-001			3	0	3	Pull/shear as many as is possible per the number of wires per device to be qualified up to a maximum of 30 wires/balls from the total sample size specified.	0 fails after TC	5			
Cross Sectioning	IPC-TM-650, Methods 2.1.1 and 2.1.1.2 Criteria of examination: • Ball bond area o Amount and distribution of intermetallic - an alternative planar analysis method to evaluate ball bond IMC formation is also acceptable o Crack initiation/propagation o Corrosion after 1x • Wedge bond area o Amount of contact o Wire angle to wedge o Crack initiation/propagation o Corrosion after 1x o Intermetallics formed in the bond area			1	0	3	3		5			

Test Name	Conditions	Reliability Stress Read Point -40°C to +125°C datasheet (Grade 0/H-Temp)	Pre & Post Reliability Stress Test Temperature -40°C to +125°C datasheet (Grade 0/H-Temp)	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
Package Reliability Tests												
Lead Integrity	JESD22 B105			5	0	1	5	0 (No lead breakage or cracks)	5			10 leads from each of 5 parts. Not required for SMD, only required for through-hole.
External Visual	Mil. Std. 883-2009/2010			All devices prior to submission for qualification testing	0	3	ALL	0	5			
HTSL (High Temp Storage Life)	JESD22A-103. +175°C, 2x Stress Electrical test pre and post stress at +25°C and hot temp.	500 hrs AECQ100 Read point, 1000 hrs AECQ006 Read Point		77	5	3	246	0	10			Perform per the requirements in AEC-Q100/Q101. Spares should be properly identified.

Test Name	Conditions	Reliability Stress Read Point -40°C to +125°C datasheet (Grade 0/H-Temp)	Pre & Post Reliability Stress Test Temperature -40°C to +125°C datasheet (Grade 0/H-Temp)	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
Package Reliability Tests												
Preconditioning - Required for surface mount devices	+150°C Bake for 24 hours, moisture loading requirements per MSL1 level + 3X reflow at peak reflow temperature per Jedec-STD-020E for package type. Electrical test pre and post stress at +25°C.		+25°C	231	15	**3**	738	0	15			Spares should be properly identified. 77 parts from each lot to be used for HAST, Autoclave, Temp Cycle test.
uHAST	+130°C/85% RH for 96hrs + 192hrs. Electrical test pre and post stress at +25°C	96 hrs AECQ100 Read point + 192 hrs AECQ006	+25°C	77	5	**3**	246	0	15			Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
HAST	+130°C/85% RH for 96hrs + 192hrs. Electrical test pre and post stress at +25°C and hot temp.	96 hrs AECQ100 Read point + 192 hrs AECQ006 Read Point	+25°C,	77	5	**3**	246	0	15			Perform per the requirements in AEC-Q006. Spares should be properly identified. Use the parts which have gone through Pre-conditioning.
Temp Cycle	PC before TC Grade 0: -55°C to +150°C for 1500 cycles (1x stress); 3000 cycles (2x stress). Grade 1: -65°C to +150°C for 500 cycles (1x stress) and 1000 cycles for (2x stress). Grade 3: -65°C to +125°C for 500 cycles (1x stress) and 1000 cycles for (2x stress).	500 cycles (1x stress); Indus Qual Read point 1000 cycles (2x stress). Auto AECQ006 Qual Read Point		77	5	3	246	0	15			Perform per the requirements in AEC-Q006. Spares should be properly identified. Use the parts which have gone through Pre-conditioning.