QUALIFICATION REPORT SUMMARY
RELIABILITY LABORATORY

PCN #: DSNO-19JBXI931

Date:
May 19, 2024

Qualification of MTAI as an additional assembly site for selected ATSAMC20E1x, ATSAMC21E1x, ATSAMD20E1x, ATSAMD21E1x, ATSAMD21E15x, ATSAMDA1E1x, ATSAML10E1x, ATSAML11E1x, PIC32CM1216JH0xx, PIC32CM1216LExx, PIC32CM1216LSxx, PIC32CM1216MCxx, PIC32CM1602GVxx, PIC32CM3204GVxx, PIC32CM3204JHxx, PIC32CM6408JHxx, PIC32CM6408MCxx device families available in 32L VQFN (5x5x1mm) wettable flank package. This will qualify by similarity (QBS).

MICROCHIP
Package Qualification Report

Purpose: **Qualification of MTAI as an additional assembly site for selected ATSAMC20E1x, ATSAMC21E1x, ATSAMD20E1x, ATSAMD21E1x, ATSAMD21E15x, ATSAMDA1E1x, ATSAML10E1x, ATSAML11E1x, PIC32CM1216JH0xx, PIC32CM1216LExx, PIC32CM1216LSxx, PIC32CM1216MCxx, PIC32CM1602GVxx, PIC32CM3204GVxx, PIC32CM3204JHxx, PIC32CM6408JHxx, PIC32CM6408MCxx device families available in 32L VQFN (5x5x1mm) wettable flank package. This will qualify by similarity (QBS).**

CCB No.: 4601 (Qual Date: May 07, 2024) and 7972.001

Misc.	Assembly site	MTAI
	BD Number	BDE006697-01
	MP Code (MPC)	66P0145LXYXY
	Part Number (CPN)	PIC32CM5164JH01064-E/5LX
	MSL information	MSL1
	Assembly Shipping Media (T/R, Tube/Tray)	T/R - TUBE - TRAY
	Base Quantity Multiple (BQM)	3300 - 40 - 260
	Reliability Site	MPHIL
Lead-Frame	Paddle size	264x264
	Material	C194
	DAP Surface Prep	Cu
	Treatment	BOT on Paddle
	Process	Etched
	Lead-lock	No
	Part Number	10106409
	Lead Plating	Matte Tin
	Strip Size	250x70mm
	Strip Density	120
Bond Wire	Material	CuPdAu
Die Attach	Part Number	3280
	Conductive	Yes
MC	Part Number	G700LTD
PKG	Package Type	VQFN
	Pin/Ball Count	64
	PKG width/size	9 x 9 mm

MICROCHIP

Package Qualification Report

Manufacturing Information

Assembly Lot No.
MTAI242201781.000
MTAI242202179.000
MTAI242202518.000

Result ☑ Pass ☐ Fail ☐ ____________________

66P01 in VQFN 64 9x9 WF (5LX) package, Standard 125°c using CuPdAu/2N wire, MSL1 assembled in MTAI pass reliability test per QCI-39000 which was conducted at MPHL rel lab. This package is qualified 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** M1_SV_1024	JESD22-A113, JIP/ IPC/JEDEC J-STD-020E	231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	Good Devices
	Bake 150°C, 24 hrs System: HERAEUS		231 per lot			
	Moisture Soak 168h(85°C/85%RH) System: VOTSCH VC4034		231 per lot			
	Reflow 3x Convection-Reflow 265°C max System: Mancorp CR.5000F		231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass Pass	
	Electrical Test : 25°C M1_SV_1024		231 per lot	Lot 1 0/231 Lot 2 0/231 Lot 3 0/231	Pass Pass 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, 500 hrs System: HERAEUS **Electrical Test:** 25°C /130°C System: M1_SV_1024	JESD22-A103	45 units 1 lot	Lot 1 0/45	Pass	
HAST	**Stress Condition:** (Standard) 110°C, 85%RH, 264 hrs. VOLTS=5.5V System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** 25°C /130ºC System: M1_SV_1024	JESD22-A110	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	Parts had been pre-conditioned at 260°C
UNBIASED HAST	**Stress Condition:** (Standard) + 110°C, 85%RH, 264 hrs. System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** 25°C System: M1_SV_1024	JESD22-A118	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	Parts had been pre-conditioned at 260°C

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard / Method	Qty. (Acc.)	Def/SS	Result	Remarks
Temp Cycle	**Stress Condition:** (Standard) - 65°C/150°C, 500 Cycles System : Votsch VTS^{2}7012 **Electrical Test:** 25°C/130ºC System: M1_SV_1024	JESD22-A104	77 units per lot	Lot 1 0/77 Lot 2 0/77 Lot 3 0/77	Pass Pass Pass	Parts had been pre-conditioned at 260°C
	Wire Bond Pull WBP	Mil. Std. 883-2011	5 units, 30 bonds 1 lot	Lot 1 0/30	Pass	
Wire Bond Pull WBP , 0 Hour		Mil. Std. 883-2011	5 units, 30 bonds 1 lot	Lot 1 0/30	Pass	
Wire Bond Shear WBS, 0Hour		CDF-AEC-Q100-001	5 units, 30 bonds 1 lot	Lot 1 0/30	Pass	
Standard Pb-free Solderability	>95% lead coveragef	J-STD-002E	22 units 1 lot	0/22	Pass	