Product Change Notification / GBNG-15STBN649

Date:

21-Mar-2023

Product Category:

8-bit Microcontrollers

PCN Type:

Manufacturing Change

Notification Subject:

CCB 6193 Final Notice: Qualification of MTAI as an additional assembly site for selected ATTINY13A device family available in 8L SOIC (.150in) package with MSL 1 classification.

Affected CPNs:

GBNG-15STBN649_Affected_CPN_03212023.pdf
GBNG-15STBN649_Affected_CPN_03212023.csv

Notification Text:

PCN Status: Final Notification

PCN Type: Manufacturing Change

Microchip Parts Affected: Please open one of the files found in the Affected CPNs section.
Note: For your convenience Microchip includes identical files in two formats (.pdf and .xls)

Description of Change: Qualification of MTAI as an additional assembly site for selected ATTINY13A device family available in 8L SOIC (.150in) package with MSL 1 classification.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	Amkor Technology	Amkor Technology	Microchip

	Philippine (P1/P2), INC. (ANAP)	Philippine (P1/P2), INC. (ANAP)	Technology Thailand (HQ) (MTAI)
Wire Material	Au	Au	Au
Die Attach Material	8290	8290	8390A
Molding Compound Material	G600	G600	G600
Lead-Frame Material	C194	C194	C194
Lead-Frame Paddle Size	90 x 130 mils	90 x 130 mils	90 x 90 mils
DAP Surface Prep	NiPdAu	NiPdAu	Bare Cu
Lead Plating	NiPdAu	NiPdAu	Matte Tin
Lead-lock	No	No	Yes
Lead-Frame Design	See attached Pre and Post change comparison.		
Moisture Sensitivity Level (MSL)	MSL 2	MSL 2	MSL 1

Impacts to Data Sheet: None

Change Impact None

Reason for Change: To improve on-time delivery performance by qualifying MTAI as an additional assembly site.

Change Implementation Status: In Progress

Estimated First Ship Date: April 2, 2023 (date code: 2314)

Note: Please be advised that after the estimated first ship date customers may receive pre and post change parts.

Time Table Summary:

	March 2023					**April 2023**				
Workweek	09	10	11	12	13	14	15	16	17	18
Final PCN Issue Date				x						
Qual Report Availability				x						
Estimated Implementation Date						x				

Method to Identify Change: Traceability code

Qualification Report: Please open the attachments included with this PCN labeled as PCN_#_Qual_Report.

Revision History: March 21, 2023: Issued final notification.

The change described in this PCN does not alter Microchip's current regulatory compliance regarding the material content of the applicable products.

Attachments:

PCN_GBNG-15STBN649_Pre_and_Post_Change_Summary.pdf
PCN_GBNG-15STBN649_QUAL REPORT.pdf

Please contact your local Microchip sales office with questions or concerns regarding this notification.

Terms and Conditions:

If you wish to receive Microchip PCNs via email please register for our PCN email service at our PCN home page select register then fill in the required fields. You will find instructions about registering for Microchips PCN email service in the PCN FAQ section.

If you wish to change your PCN profile, including opt out, please go to the PCN home page select login and sign into your myMicrochip account. Select a profile option from the left navigation bar and make the applicable selections.

Affected Catalog Part Numbers (CPN)

ATTINY13A-SSH
ATTINY13A-SS7
ATTINY13A-SS7R
ATTINY13A-SSHR

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: GBNG-15STBN649

Date
September 19,2018

Qualification of MTAI as an additional assembly site for selected ATTINYxxx device family available in 8L SOIJ package. The selected ATTINY13A device family available in 8L SOIC (.150in) package with MSL 1 classification is a qualification by similarity (QBS).

Package Qualification Report

Purpose: **Qualification of MTAI as an additional assembly site for selected ATTINYxxx device family available in 8L SOIJ package. The selected ATTINY13A device family available in 8L SOIC (.150in) package with MSL 1 classification is a qualification by similarity (QBS).**

CCB No.: 3257 and 6193

Quad ID: QTP3390

Revision: A

Miscellaneous	**Assembly site**	MTAI
	BD Number	BDM-001676 rev. A
	MP Code (MPC)	355C4YC3XC01
	Part Number (CPN)	ATTiny45-15SZ
Lead-Frame	**Paddle size**	140x160 mils
	Material	C194
	Surface	Bare Cu paddle
	Treatment	Roughening
	Process	Stamped
	Lead-lock	No
	Part Number	10100840
	Lead Plating	Matte Tin
Bond Wire	**Material**	Au
Die Attach	**Part Number**	8390A
	Conductive	Yes
Mold Compound	**Part Number**	G600
PKG	**PKG Type**	SOIJ
	Pin/Ball Count	8
	PKG width/size	208 mils
MSL		MSL1/260

Package Qualification Report

Manufacturing Information

Assembly Lot No.	Wafer lot No.	Date Code
MTAI184804030.000	MCSO518466665.110	1808A68
MTAI184802538.000	MCSO518466665.110	180827Y
MTAI184804035.000	MCSO518466665.110	1808BC6

Result: [X] Pass [ ] Fail [ ] _____

Atmel 355C4 using 0.9 mil Au wire for 8L SOIJ at MTAI is qualified at Moisture/ Reflow Sensitivity Classification Level 1 per IPC/JEDEC J-STD-020E standard. Red Spot observed on 1 unit at die attach paddle and inner lead but unit is electrically Passing.

PACKAGE QUALIFICATION REPORT						
Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/S S	Result	Remarks
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test:** +25°C, +130°C Bake 150°C, 24 hrs System: HERAEUS 85°C/85%RH Moisture Soak 168 hrs. System: Climats Excal 5423-HE 3x Convection-Reflow 260°C max System: Mancorp CR.5000F **Electrical Test:** +25°C, +130°C	JESD22-A113 IPC/JEDEC J-STD-020D	810(0) 810 810 810 0/810	0/810 Passed		Good Devices
Temp Cycle	**Stress Condition:** (Standard) 65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2 **Electrical Test:** +25°C, + 130°C	JESD22-A104	252 252(0)	0/252	Passed	Parts had been preconditioned at 260°C
	Bond Strength: Wire Pull (> 6.00 grams) Bond Shear (>22.00 grams)		15(0)	0/15	Passed	
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** +25°C, + 130°C	JESD22-A118	255 255(0)	0/255	Passed	Parts had been pre-conditioned at 260°C
HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HIRAYAMA HASTEST PC-422R8 **Electrical Test:** +25°C, + 130°C	JESD22-A110	255 255(0)	0/255	Passed	Parts had been pre-conditioned at 260°C
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs System: HERAEUS **Electrical Test** :+25°C ,+130°C	JESD22-A103	60 60(0)	0/60	Passed	60 units

Solderability Temp 245°C	**Bake:** Temp 155°C,4Hrs System:Oven Solder Bath: Temp.245°C Solder material: SnPb Visual Inspection: External Visual Inspection	J-STD-002	15 (0)	0/15	Passed	Performed at MPHIL
Physical Dimensions	Physical Dimension, 10 units from 3 lot	JESD22-B100/B108	32(0) Units	0/32	Passed	
Bond Strength Data Assembly	Wire Pull (> 6.00 grams)	M2011.8 MIL-STD-883	30(0) Wires	4.94	Passed	
Bond Strength Data Assembly	Bond Shear (>22.00 grams)	M2011.8 MIL-STD-883	30(0) bonds	2.04	Passed	

CCB 6193
Pre and Post Change Summary
PCN #: GBNG-15STBN649

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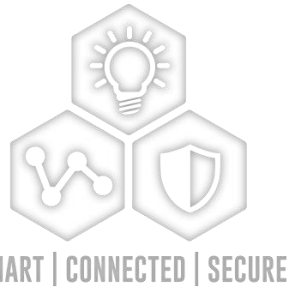
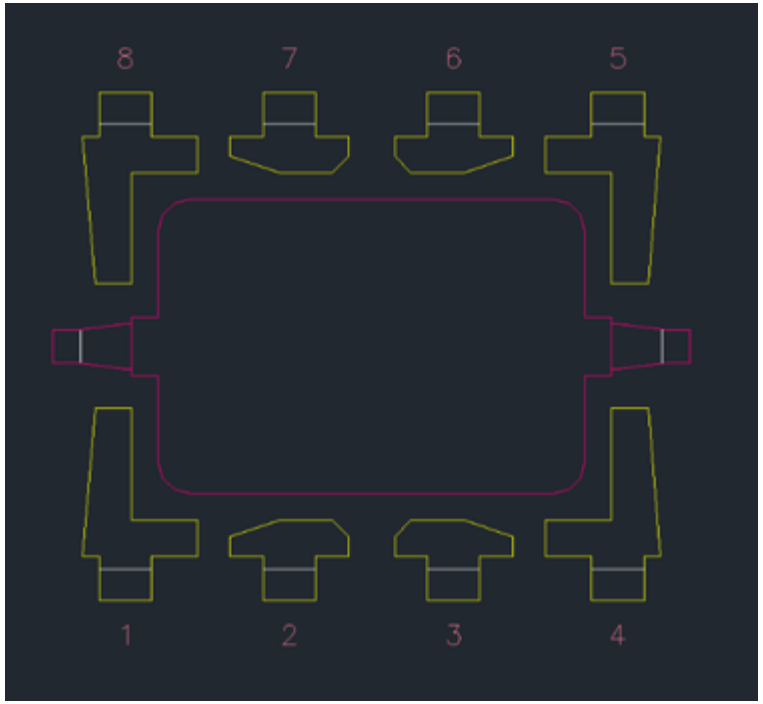
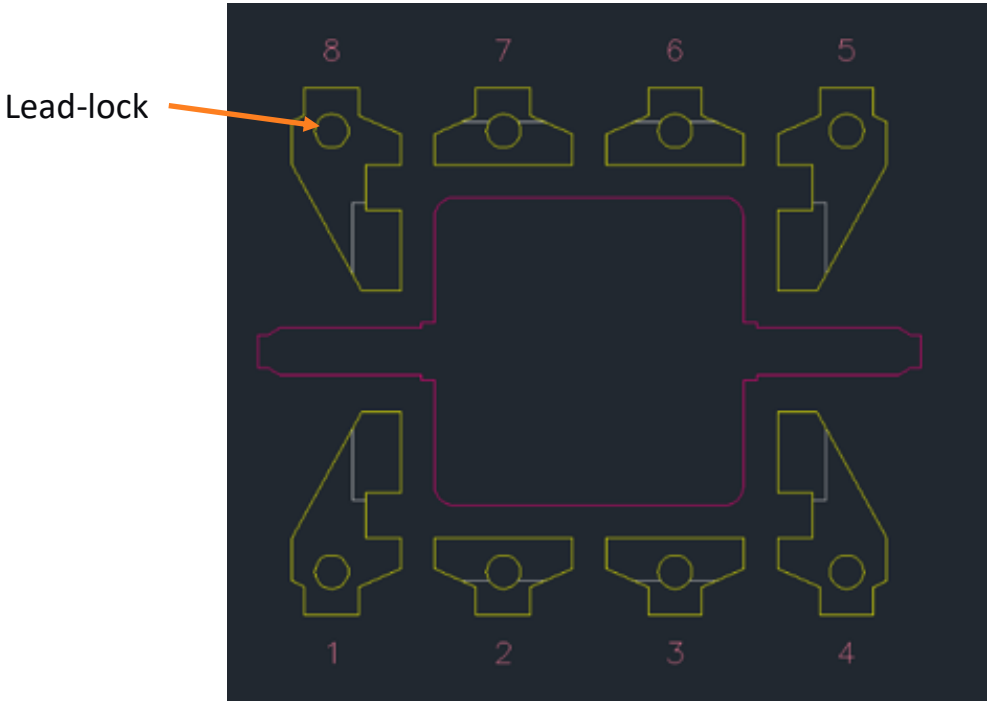


Lead Frame Comparison

ANAP	MTAI
	

Note: The lead lock hole fills with mold compound during the assembly process and provides improved protection against moisture penetration around the interface edges between pins and mold compound.

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