Product Change Notification / ALAN-21DIWQ740

Date:

28-Sep-2021

Product Category:

8-bit Microcontrollers, Capacitive Touch Sensors

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4852 Final Notice: Qualification of MMT as an additional assembly site for selected Atmel products AT42QTxx, AT89LPxx and ATMEGAxx device families available in 44L VQFN (7x7x1mm) package.

Affected CPNs:

ALAN-21DIWQ740_Affected_CPN_09282021.pdf
ALAN-21DIWQ740_Affected_CPN_09282021.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 MMT as an additional assembly site for selected Atmel products AT42QTxx, AT89LPxx and ATMEGAxx device families available in 44L VQFN (7x7x1mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change

<table>
<tr><th colspan="2">Assembly Location</th><th colspan="2">ASE Group Chung-Li (ASCL)</th><th colspan="2">Lingsen Precision Industries, LTD. (LPI)</th><th colspan="2">ASE Group Chung-Li (ASCL)</th><th colspan="2">Lingsen Precision Industries, LTD. (LPI)</th><th>Microchip Technology Thailand (MMT)</th></tr>
<tr><td colspan="2">MSL</td><td>MSL-1</td><td>MSL-3</td><td>MSL-1</td><td>MSL-3</td><td>MSL-1</td><td>MSL-3</td><td>MSL-1</td><td>MSL-3</td><td>MSL-1</td></tr>
<tr><td colspan="2" rowspan="3">Bond Wire Material</td><td>Au</td><td>AuPd</td><td rowspan="3">Au</td><td rowspan="3">CuPdAu</td><td>Au</td><td>AuPd</td><td rowspan="3">Au</td><td rowspan="3">CuPdAu</td><td rowspan="3">Au</td></tr>
<tr><td>CuPdAu</td><td>Cu</td><td>CuPdAu</td><td>Cu</td></tr>
<tr><td>PdCu</td><td></td><td>PdCu</td><td></td></tr>
<tr><td colspan="2">Die Attach material</td><td colspan="2">EN-4900G</td><td>EN-4900G</td><td>CRM-1076 WA</td><td colspan="2">EN-4900G</td><td>EN-4900G</td><td>CRM-1076 WA</td><td>3280</td></tr>
<tr><td colspan="2">Mold compound material</td><td>G700LA</td><td>CEL-9240</td><td colspan="2">G770H</td><td>G700LA</td><td>CEL-9240</td><td colspan="2">G770H</td><td>G700LTD</td></tr>
<tr><td rowspan="5">Lead Frame</td><td>Material</td><td colspan="2">C194</td><td colspan="2">C194</td><td colspan="2">C194</td><td colspan="2">C194</td><td>C194</td></tr>
<tr><td>DAP surface prep</td><td colspan="2">Ag-Ring Plated</td><td colspan="2">Ag-Ring Plated</td><td colspan="2">Ag-Ring Plated</td><td colspan="2">Ag-Ring Plated</td><td>Bare Cu</td></tr>
<tr><td>Paddle size</td><td colspan="2">213x213 mils</td><td>209x209 mils</td><td>213x213 mils</td><td colspan="2">213x213 mils</td><td>209x209 mils</td><td>213x213 mils</td><td>213x213 mils</td></tr>
<tr><td rowspan="2">Lead-lock</td><td colspan="2">Yes</td><td colspan="2">No</td><td colspan="2">Yes</td><td colspan="2">No</td><td>Yes</td></tr>
<tr><td colspan="9">See pre and post change comparison</td></tr>
</table>

Impacts to Data Sheet: None

Change Impact: None

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

Change Implementation Status: In Progress

Estimated First Ship Date: October 20, 2021 (date code: 2143)

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

Time Table Summary:

	September 2021					October 2021				
Workweek	36	37	38	39	40	41	42	43	44	45
Qual Report Availability					X					
Final PCN Issue Date					X					

Sample Availability								X		
Earliest date Microchip may implement upon approval*								X		

*Upon customer approval

Method to Identify Change: Traceability code

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

Revision History:September 28, 2021: 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_ALAN-21DIWQ740_Pre and Post Change_Summary.pdf
PCN_ALAN-21DIWQ740_Qual Report 1 of 2.pdf
PCN_ALAN-21DIWQ740_Qual Report 2 of 2.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)

ATMEGA1284P-MU
ATMEGA1284-MU
ATMEGA1284P-MUR
ATMEGA1284-MUR
ATMEGA324PA-MU
ATMEGA324A-MU
ATMEGA324PA-MN
ATMEGA324PA-MNR
AT42QT5480-MUR
AT42QT18C15-MUR
ATMEGA324PA-MUR
ATMEGA324A-MUR
ATMEGA324PA-MURA2
ATMEGA16L-8MU
ATMEGA16-16MU
ATMEGA16A-MU
ATMEGA16A-MUR
ATMEGA16L-8MUR
ATMEGA16-16MUR
ATMEGA32-16MU
ATMEGA32A-MN
ATMEGA32A-MNR
ATMEGA32-16MUR
ATMEGA164A-MU
ATMEGA164PA-MU
ATMEGA164PA-MN
ATMEGA164PA-MNR
ATMEGA164A-MUR
ATMEGA164PA-MUR
ATMEGA644PA-MU
ATMEGA644A-MU
ATMEGA644PA-MN
ATMEGA644PA-MNR
ATMEGA644PA-MUR
ATMEGA644A-MUR
ATMEGA16L-8MUA6
ATMEGA16-16MQ
ATMEGA8515L-8MU
ATMEGA8515-16MU
ATMEGA8515L-8MUR
ATMEGA8515-16MUR
ATMEGA8535L-8MU
ATMEGA8535-16MU
ATMEGA8535L-8MUR
ATMEGA8535-16MUR
ATMEGA162-16MU

ATMEGA162V-8MU

ATMEGA162-16MUR

ATMEGA162V-8MUR

ATMEGA644-20MU

ATMEGA644V-10MU

ATMEGA644-20MUR

ATMEGA644V-10MUR

ATMEGA164PV-10MU

ATMEGA164P-20MU

ATMEGA164P-20MQ

ATMEGA164PV-10MUR

ATMEGA164P-20MUR

ATMEGA324PV-10MUA1

ATMEGA324P-20MU

ATMEGA324PV-10MU

ATMEGA324P-20MQ

ATMEGA324P-20MQR

ATMEGA324PV-10MUR

ATMEGA324P-20MUR

ATMEGA644PV-10MU

ATMEGA644PV-10MQ

ATMEGA644P-20MQ

ATMEGA644P-20MQR

ATMEGA644PV-10MQR

ATMEGA644PV-10MUR

ATMEGA164PV-10MUA0

AT89LP52-20MU

AT89LP51-20MU

AT89LP51ED2-20MU

AT89LP51ID2-20MU

AT89LP51RD2-20MU

AT89LP51RB2-20MU

AT89LP51RC2-20MU

AT89LP51IC2-20MU

AT89LP6440-20MU

AT89LP3240-20MU

ATMEGA32A-MU

ATMEGA32L-8MU

ATMEGA16L-8MURA5

ATMEGA32A-MUR

ATMEGA32L-8MUA3

ATMEGA32L-8MUR

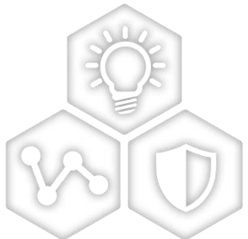
ATMEGA32L-8MURA2

ATMEGA644P-20MU

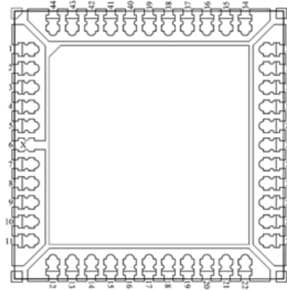
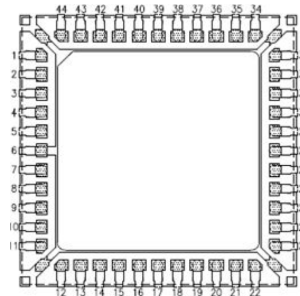
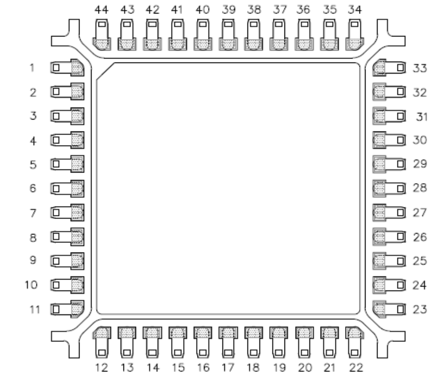
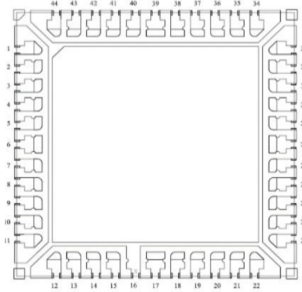
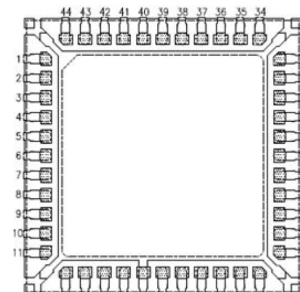
ATMEGA644P-20MUR

CCB 4852
Pre and Post Change Summary
PCN# ALAN-21DIWQ740

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions



Pre and Post Change Summary

ASE Group Chung-Li (ASCL)	Lingsen Precision Industries, LTD. (LPI)	Microchip Technology Thailand (MMT)
 ASCL LF Fused Lead#6	 LPI LF Fused Lead#6	 MMT LF Non-Fused Lead
 ASCL LF Fused Lead#16	 LPI LF Fused Lead#16	

ASCL

Material	C194
DAP surface prep	Ag-Ring Plated
Lead-lock	Yes
Paddle size	213x213 mils

LPI

Material	C194	
DAP surface prep	Ag-Ring Plated	
Lead-lock	No	
Paddle size	209x209 mils	213x213 mils

MMT

Material	C194
DAP surface prep	Bare Cu
Lead-lock	Yes
Paddle size	213x213 mils

MICROCHIP

QUALIFICATION REPORT SUMMARY

PCN#: ALAN-21DIWQ740

Date:
June 14, 2019

Qualification of MMT as an additional assembly site for selected products available in 64L QFN (9x9x0.9mm) package.
Qualification of MMT as an additional assembly site for selected Atmel products AT42QTxx, AT89LPxx and ATMEGAxx device families available in 44L VQFN (7x7x1mm) package will qualify by similarity (QBS).

MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MMT as an additional assembly site for selected products available in 64L QFN (9x9x0.9mm) package. Qualification of MMT as an additional assembly site for selected Atmel products AT42QTxx, AT89LPxx and ATMEGAxx device families available in 44L VQFN (7x7x1mm) package will qualify by similarity (QBS).
CN	ES272665
QUAL ID	Q19032 rev. A
MP CODE	WACD14R4XAXF
Part No.	PIC32MA0512EFE064-E/MR
Bonding No.	BDM-001701 Rev. A
CCB No.	3222 and 4852
<u>Package</u>	
Type	64L QFN
Package size	9x9x0.9 mm
<u>Lead Frame</u>	
Paddle size	311x311 mils
Material	C194
Surface	Bare Cu
Process	Etched
Lead Lock	No
Part Number	10106408
Treatment	BOT
<u>Material</u>	
Epoxy	3280
Wire	Au wire
Mold Compound	G700LTD
Plating Composition	Matte Tin

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-194601862.000	TC14919364365.210	1907Q23
MMT-194701574.000	TC14919364365.210	1908Q22
MMT-194701591.00	TC14919364365.210	19082T4

Result [X] Pass [ ] Fail [ ] ____________________

64L QFN 9x9x0.9 mm assembled by MMT pass reliability test per QCI-39000.This package was qualified the 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
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85°C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020E)	IPC/JEDEC J-STD-020E	135	0/135	Pass	
Precondition Prior Perform Reliability Tests (At MSL Level 1)	**Electrical Test :**+25°C,125°C and -40°C System: J750 Bake 150°C, 24 hrsSystem: CHINEE 85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 **Electrical Test :**+25°C and 125°C	JESD22-A113	693(0)	693 693 693 693 0/693	Pass	Good Devices
Temp Cycle	**Stress Condition:** -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H **Electrical Test:** +125°CSystem: J750 **Bond Strength:** Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)	JESD22-A104	231(0) 15 (0) 15 (0)	231 0/231 0/15 0/15	Pass Pass Pass	Parts had been pre-conditioned at 260°C 77 units / lot
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X **Electrical Test:** +25°C and 125°CSystem: J750	JESD22-A118	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 3.6 Volts System: HAST 6000X **Electrical Test:**+25°C and 125°C System: J750	JESD22-A110	231(0)	231 0/231	Pass	Parts had been pre-conditioned at 260°C 77 units / lot
High Temperature Storage Life	**Stress Condition:** Bake 175°C, 504 hrs System: SHEL LAB **Electrical Test :**+25°C and 125°CSystem: J750	JESD22-A103	45(0)	45 0/45	Pass	45 units
Solderability Temp 215°C	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping: Solder Temp.215°C Solder material: SnPb Sn63,Pb37 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
Solderability Temp 245°C	**Steam Aging:** Temp 93°C,8Hrs System: SAS-3000 Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 System: ERSA RA 2200D Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22 22 0/22	Pass	
Physical Dimensions	Physical Dimension,10 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (> 2.5 grams)	M2011	30 (0)	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	

QUALIFICATION REPORT SUMMARY

PCN#: ALAN-21DIWQ740

Date:
November 11, 2019

Qualification of MMT as an additional assembly site for selected products available in 32L VQFN (5x5x0.9) package. Qualification of MMT as an additional assembly site for selected Atmel products AT42QTxx, AT89LPxx and ATMEGAxx device families available in 44L VQFN (7x7x1mm) package will qualify by similarity (QBS).

MICROCHIP

PACKAGE QUALIFICATION REPORT

Purpose: **Qualification of MMT as an additional assembly site for selected products available in 32L VQFN (5x5x0.9) package. Qualification of MMT as an additional assembly site for selected Atmel products AT42QTxx, AT89LPxx and ATMEGAxx device families available in 44L VQFN (7x7x1mm) package will qualify by similarity (QBS).**

Misc.	CN	ES197884-26089
	Assembly site	MMT
	BD Number	BDM-001739 rev. A
	MP Code (MPC)	35473YRXBC01
	Part Number (CPN)	ATMEGA328P-MNR
	CCB No.	3368 and 4852
Lead-Frame	Paddle size	150x150 mils
	Material	C194
	Surface	Bare Cu on paddle
	Treatment	BOT
	Process	Etched
	Lead-lock	Yes
	Part Number	10103202
	Lead Plating	Matte Tin
Bond Wire	Material	Au
	Wire Diameter	0.8 mil
Die Attach	Part Number	3280
	Conductive	Yes
MC	Part Number	G700LTD
PKG	PKG Type	VQFN
	Pin/Ball Count	32
	PKG width/size	5x5x0.9mm

MICROCHIP PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-190800274.000	MCS O519061142.000	1821PH7
MMT-190800275.000	MCS O519061142.000	1821PH8
MMT-190800276.000	MCS O519061142.000	1821PH9

Result [x] Pass [ ] Fail [ ] ____________________

Q100 Grade1 qual for 32L VQFN 5x5x0.9mm (RXB) on Atmel products at MMT assembly using 0.8 mil Au wire is qualified the Moisture/ Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020D standard. No delamination were observed on all the units.

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, 130°C 0hr CSAM Bake 150°C, 24 hrs System: HERAEUS 85°C/85%RH Moisture Soak 168 hrs. System: Climats Excal 5423-HE 3x Convection-Reflow 265°C max System: Mancorp CR.5000F Post CSAM **Electrical Test:** +25°C, +130°C	JESD22-A113 IPC/JEDEC J-STD-020D	876(0)	0/876 135 876 876 876 135 0/876	Passed Passed Passed	Good Devices
Temp Cycle	**Stress Condition:** (Standard)65°C to +150°C, 500 Cycles System: VOTSCH VT 7012 S2 **Electrical Test:** +130°C, System: MAGNUM05 (Handtest) **Bond Strength:** Wire Pull (> 2.50 grams) Bond Shear (>15.00 grams)	JESD22-A104	243(0) 243(0) 15(0)	0/243 0/15	Passed Passed	Parts had been pre-conditioned at 260°C
UNBIASED-HAST	**Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. System: HIRAYAMA HASTEST PC-422R8	JESD22-A118	245(0) 245(0)	0/245	Passed	Parts had been pre-conditioned at 260°C
HAST	**Electrical Test:** +25°C, 130°C System: MT9510 Handler:2580 **Stress Condition:** (Standard) +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HIRAYAMA HASTEST PC-422R8	JESD22-A110	237(0)	0/237	Passed	Parts had been pre-conditioned at 260°C

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, 504 hrs System: HERAEUS **Electrical Test:** +25°C, 130°C	JESD22-A103	78(0) 78(0)	0/78	Passed	78 units
Solderability Temp 245°C	**Bake:** Temp 155°C,4Hrs System: Oven Solder Bath: Temp.245℃ Solder material: SnPb Visual Inspection: External Visual Inspection	JESD22B-102E	15 (0)	0/15	Passed	Performed at MPHIL
Physical Dimensions	Physical Dimension, 30 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Passed	
Bond Strength Data Assembly	Wire Pull (> 2.50 grams)	M2011.8 MIL-STD-883	30(0) Wires	0/30	Passed	
Bond Strength Data Assembly	Bond Shear (>15.00 grams)	M2011.8 MIL-STD-883	30(0) bonds	0/30	Passed	