Product Change Notification / LIAL-08IMMO486

Date:

15-Feb-2021

Product Category:

8-bit Microcontrollers, Capacitive Touch Sensors

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4508 Initial Notice: Qualification of NSEB as a new assembly site for selected ATTINY20, ATTINY40, AT42QT2120, AT42QT1070, AT42QT1050 device families available in 20L VQFN (3x3x0.85mm) package.

Affected CPNs:

LIAL-08IMMO486_Affected_CPN_02152021.pdf
LIAL-08IMMO486_Affected_CPN_02152021.csv

Notification Text:

PCN Status: Initial notification

PCN Type: Manufacturing Change.

Microchip Parts Affected: Please open one of the icons found in the Affected CPNs section above.

NOTE: For your convenience Microchip includes identical files in two formats (.pdf and .xls).

Description of Change: Qualification of NSEB as a new assembly site for selected ATTINY20, ATTINY40, AT42QT2120, AT42QT1070, AT42QT1050 Atmel device families available in 20L VQFN (3x3x0.85mm) package.

Pre Change:
Assembled at ASKR using gold (Au) bond wire or palladium coated copper wire (PdCu) bond wire, EN-4900GC die attach material, C7025 lead frame material, NiPdAu lead frame lead plating, Spot plating lead frame DAP surface prep and without lead lock lead frame.

Post Change:
Assembled at NSEB using palladium coated copper with gold flash (CuPdAu) bond wire, 8600 die attach material, C194 lead

frame material, Matte Sn lead frame lead plating, Ag on lead only lead frame DAP surface prep and with lead lock lead frame.

Pre and Post Change Summary:

	Pre Change		**Post Change**
Assembly Site	ASE Korea Inc (ASKR)		UTAC Thai Limited (UTL-1) LTD and (UTL-3) (NSEB)
Wire material	Au	PdCu	CuPdAu
Die attach material	EN-4900GC		8600
Molding compound material	G700		G700
Lead frame material	C7025		C194
Lead frame lead plating	NiPdAu		Matte Sn
Lead Frame DAP Surface Prep	Spot plating		Ag on lead only
Lead Frame Lead Lock	No		Yes
	See Pre and Post Change attachment for lead frame comparison		

Impacts to Data Sheet: None

Change Impact: None

Reason for Change: To improve on-time delivery performance by qualifying NSEB as a new assembly site.

Change Implementation Status: In Progress

Estimated Qualification Completion Date: September 2021

Note: Please be advised the qualification completion times may be extended because of unforeseen business conditions however implementation will not occur until after qualification has completed and a final PCN has been issued. The final PCN will include the qualification report and estimated first ship date. Also note that after the estimated first ship date guided in the final PCN customers may receive pre and post change parts.

Time Table Summary:

	February 2021					-->	**September 2021**				
Workweek	06	07	08	09	10		36	37	38	39	40
Initial PCN Issue Date			X								
Qual Report Availability									X		
Final PCN Issue Date									X		

Method to Identify Change: Traceability code

Qualification Plan Please open the attachments included with this PCN labeled as PCN_#_Qual_Plan.

Revision History:February 15, 2021: Issued initial 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_LIAL-08IMMO486_Qual Plan.pdf
PCN_LIAL-08IMMO486_Pre and Post Change Summary.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)

ATTINY20-MMH
AT42QT1050-MMH
AT42QT1070-MMHR
ATTINY20-MMHR
AT42QT1050-MMHR
ATTINY20-MMHRA0
AT42QT2120-MMH
ATTINY40-MMH
AT42QT2120-MMHR
ATTINY40-MMHR
ATTINY40-MMHRA0

QUALIFICATION PLAN SUMMARY

PCN #: LIAL-08IMMO486

Date
January 07, 2021

Qualification of NSEB as a new assembly site for selected ATTINY20, ATTINY40, AT42QT2120, AT42QT1070, AT42QT1050 Atmel device families available in 20L VQFN (3x3x0.85mm) package.

Purpose: Qualification of NSEB as a new assembly site for selected ATTINY20, ATTINY40, AT42QT2120, AT42QT1070, AT42QT1050 Atmel device families available in 20L VQFN (3x3x0.85mm) package.

		Qual Vehicle
Misc.	Assembly site	UTAC
	BD Number	D-023268
	MP Code (MPC)	354A1TRCBC04
	Part Number (CPN)	ATTINY40-MMHR
	MSL information	1
	Assembly Shipping Media (T/R, Tube/Tray)	Tray 1N7-0303-D13
	Base Quantity Multiple (BQM)	490/6000
	Reliability Site	MPHIL
	CCB #	4508
Lead-Frame	Paddle size	75x75
	Material	C194
	DAP Surface Prep	Ag on lead only
	Treatment	None
	Process	Etched
	Lead-lock	Yes
	Part Number	FR1652
	Lead Plating	Matte Sn
	Strip Size	70x250 mm
	Strip Density	1170 units/strip
Bond Wire	Material	CuPdAu
Die Attach	Part Number	8600
	Conductive	Yes
Mold Compound	Part Number	G700
PKG	PKG Type	VQFN
	Pin/Ball Count	20L
	PKG width/size	3X3X0.80mm

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	ATE Test Site	REL Test Site	Pkg. Type	Special Instructions
Standard Pb-free Solderability	J-STD-002D ; 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	ASEKR	MPHIL	20LVQFN	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.
Wire Bond Pull - WBP	Mil. Std. 883-2011	5	0	1	5	0 fails after TC	5	ASEKR	MPHIL	20LVQFN	30 bonds from a min. 5 devices.
Wire Bond Shear - WBS	CDF-AEC-Q100-001	5	0	1	5	0	5	ASEKR	MPHIL	20LVQFN	30 bonds from a min. 5 devices.
Wire Sweep								ASEKR	MPHIL	20LVQFN	Required for any reduction in wire bond thickness.
Physical Dimensions	Measure per JESD22 B100 and B108	10	0	3	30	0	5	ASEKR	MPHIL	20LVQFN	
External Visual	Mil. Std. 883-2009/2010	All devices prior to submission for qualification testing	0	3	ALL	0	5	ASEKR	MPHIL	20LVQFN	

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	ATE Test Site	REL Test Site	Pkg. Type	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 hot temp (85°C). MSL1 / 260c	231	15	3	738	0	15	ASEKR	MPHIL	20LVQFN	Spares should be properly identified. 77 parts from each lot to be used for HAST, uHAST, Temp Cycle test.
HAST	+130°C/85% RH for 96 hours or 110°C/85%RH for 264 hours. Electrical test pre and post stress at hot temp (85°C). Perform 2X extended reliability testing	77	5	3	246	0	10	ASEKR	MPHIL	20LVQFN	Spares should be properly identified. Use the parts which have gone through Pre-conditioning
UHAST	+130°C/85% RH for 96 hrs or +110°C/85% RH for 264 hrs. Electrical test pre and post stress at hot temp (85°C). Perform 2X extended reliability testing	77	5	3	246	0	10	ASEKR	MPHIL	20LVQFN	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 (85°C). 3 gram force WBP, on 5 devices from 1 lot, test following Temp Cycle stress. Perform 2X extended reliability testing	77	5	3	246	0	15	ASEKR	MPHIL	20LVQFN	Spares should be properly identified. Use the parts which have gone through Pre-conditioning.

CCB 4508
Pre and Post Change Summary
Lead Frame Comparison
PCN#: LIAL-08IMMO486

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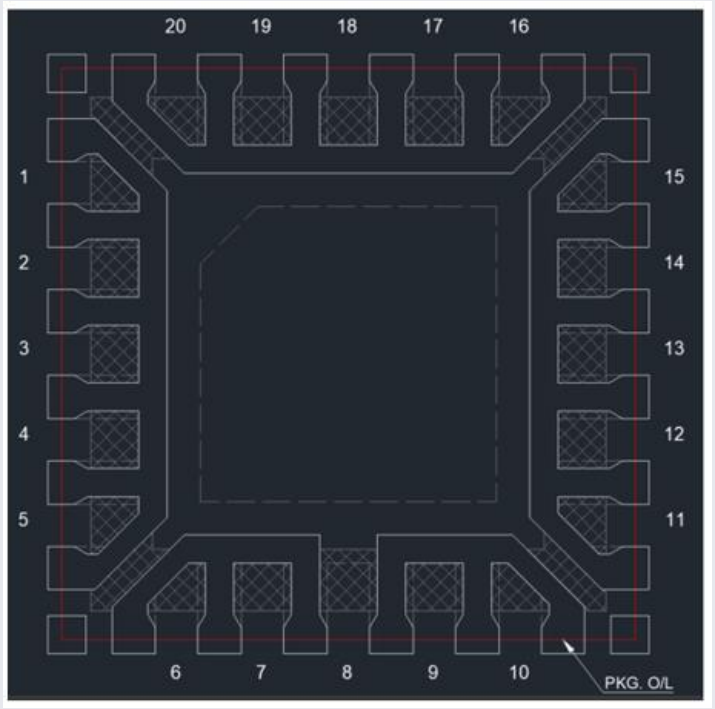
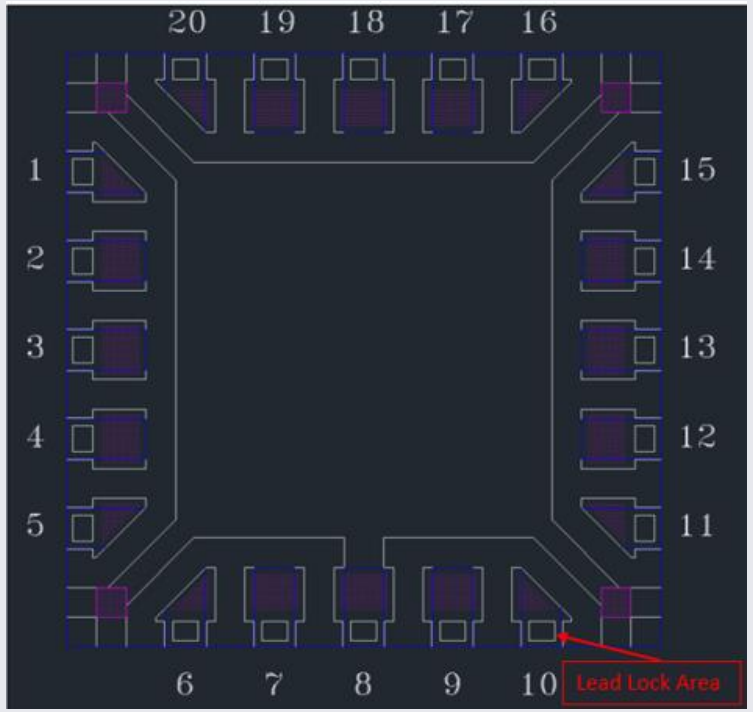
Lead frame comparison

Pre change	Post Change
ASKR	**NSEB**
	
Lead frame lead-lock No	**Lead frame lead-lock** Yes