Product Change Notification / GBNG-27BMFR453

Date:

04-Dec-2020

Product Category:

8-bit Microcontrollers, Capacitive Touch Sensors

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4181.004, 4181.005 and 4181.006 Final Notice: Qualification of MMT as an additional assembly site for selected products available in 16L (3x3x0.5mm), 16L (4x4x0.5mm), 20L (4x4x0.5mm) and 28L (4x4x0.5mm) packages.

Affected CPNs:

GBNG-27BMFR453_Affected_CPN_12042020.pdf
GBNG-27BMFR453_Affected_CPN_12042020.csv

Notification Text:

PCN Status: Final 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 MMT as an additional assembly site for selected products available in 16L (3x3x0.5mm), 16L (4x4x0.5mm), 20L (4x4x0.5mm) and 28L (4x4x0.5mm) packages.

Pre Change:
Assembled at NSEB assembly site using 8200T or 8600 die attach, G770HCD or G700LTD mold compound material and lead frame without lead lock.

Post Change:
Assembled at NSEB assembly site using 8200T or 8600 die attach, G770HCD or G700LTD mold compound material and lead frame without lead lock.Or
Assembled at MMT assembly site using 8600 die attach, G700LTD mold compound material and lead frame with lead lock.

Pre and Post Change Summary:

	Pre Change	Post Change	
Assembly Site	UTAC Thai Limited LTD (NSEB)	UTAC Thai Limited LTD (NSEB)	Microchip Technology Thailand (Branch) / MMT
Wire material	Au	Au	Au
Die attach material	8200T / 8600	8200T / 8600	8600
Molding compound material	G770HCD / G700LTD	G770HCD / G700LTD	G700LTD
Lead frame material	EFTEC 64T	EFTEC 64T	EFTEC 64T
Lead-lock	No	No	Yes

Impacts to Data Sheet:

None

Change Impact:

None

Reason for Change:

To improve on-time delivery performance by qualifying MMT as an additional assembly site.

Change Implementation Status:

In Progress

Estimated First Ship Date:
January 15, 2021 (date code: 2103)

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

Time Table Summary:

	December 2020				January 2021				
Workweek	49	50	51	52	01	02	03	04	05
Qual Report Availability	X								
Final PCN Issue Date	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:

December 04, 2020: Issued final notification. Attached the Qualification Report. Provided estimated first ship date to be on January 15, 2021.

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-27BMFR453_Pre and Post Change Summary.pdf
PCN_GBNG-27BMFR453_Qual_Report.pdf

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

Terms and Conditions:

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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)

PIC16LF1824T-E/JQVAO
PIC16F1825-I/JQVAO
PIC16F1825T-I/JQVAO
PIC16F1825T-E/JQVAO
PIC16F1518T-I/MVVAO
PIC16LF1516-I/MVVAO
PIC16LF1518-I/MVVAO
PIC16LF1516T-I/MVVAO
PIC16LF1518T-I/MVVAO
PIC16F1782-E/MVVAO
PIC16F1782T-E/MVVAO
PIC16F1713T-E/MVVAO
PIC16F1716T-E/MVVAO
PIC16F18324-E/JQVAO
PIC16LF18324-I/JQVAO
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PIC16LF1503-E/MVVAO
PIC16LF1503T-E/MVVAO

Pre and Post Change Summary
PCN #: GBNG-27BMFR453

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

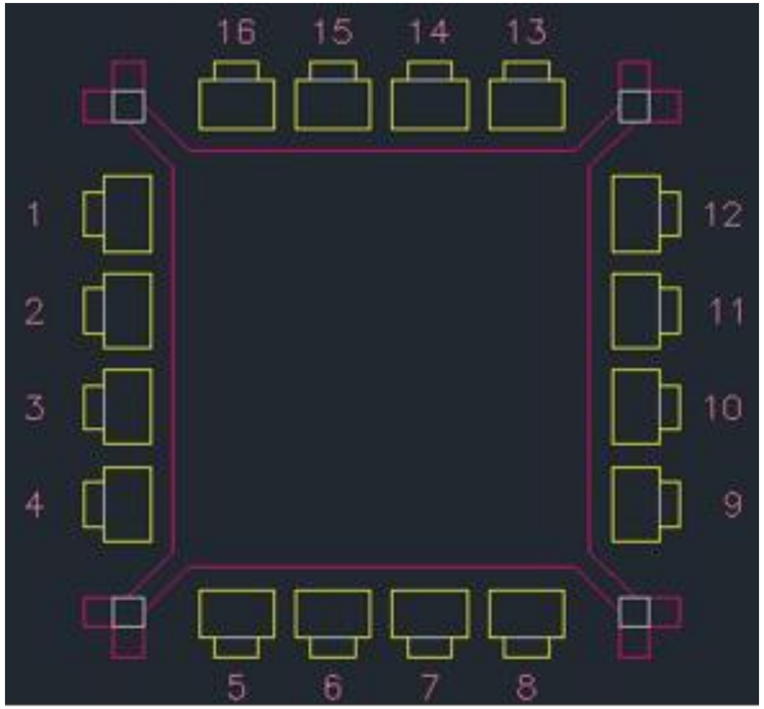
CCB 4181.004, 4181.005 and 4181.006

SMART | CONNECTED | SECURE

Lead frame Comparison

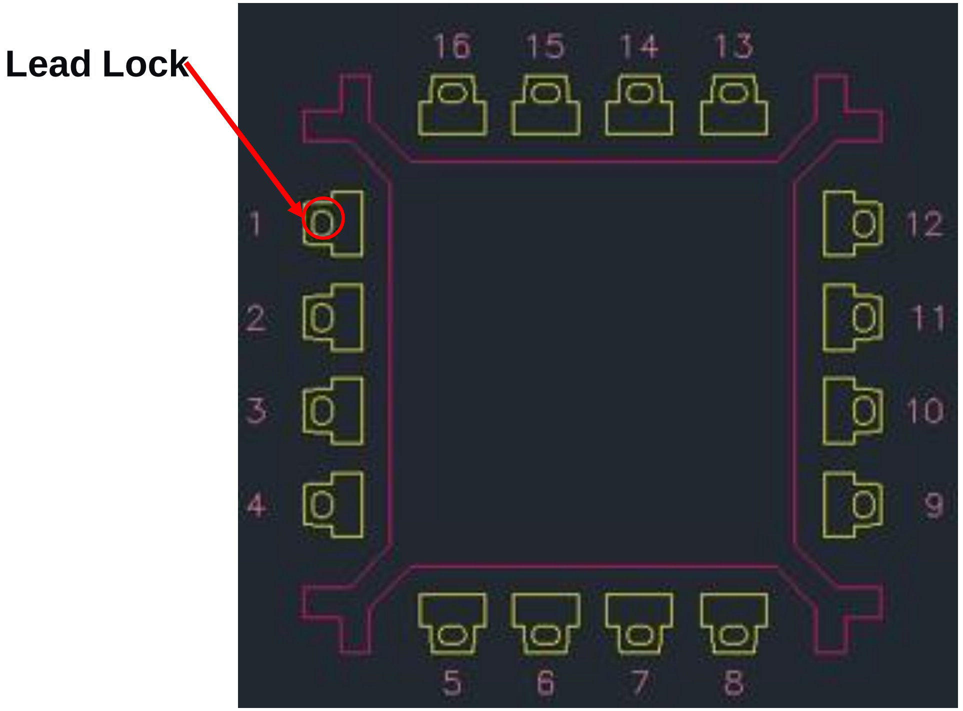
16L UQFN 4x4x0.5mm

NSEB



Lead Lock	No

MMT

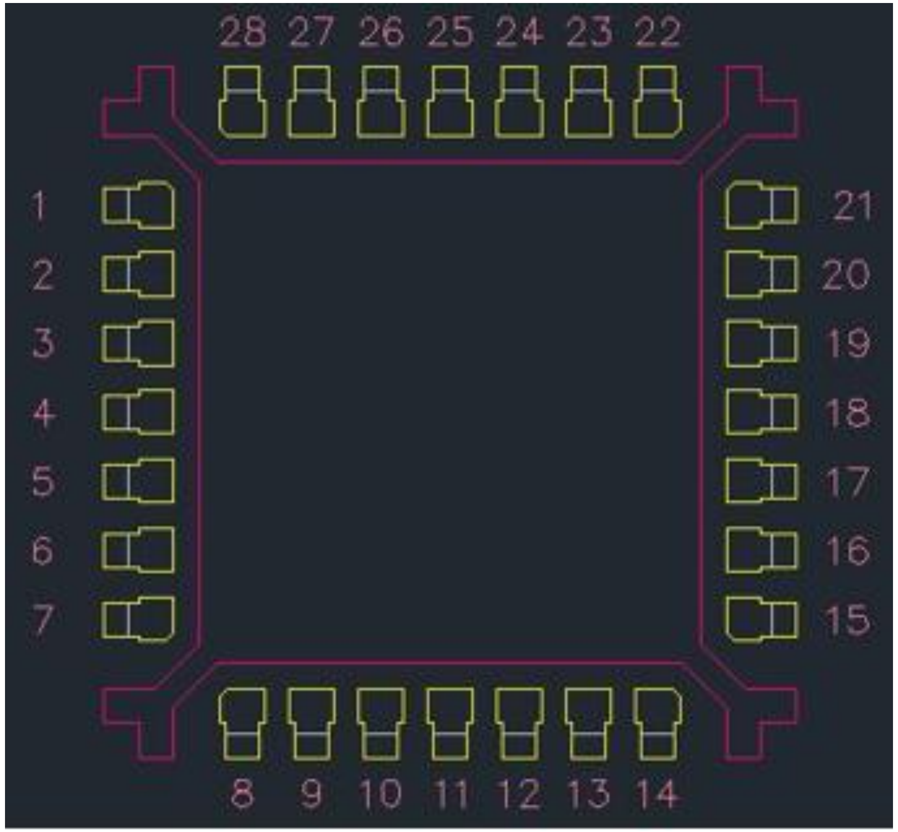
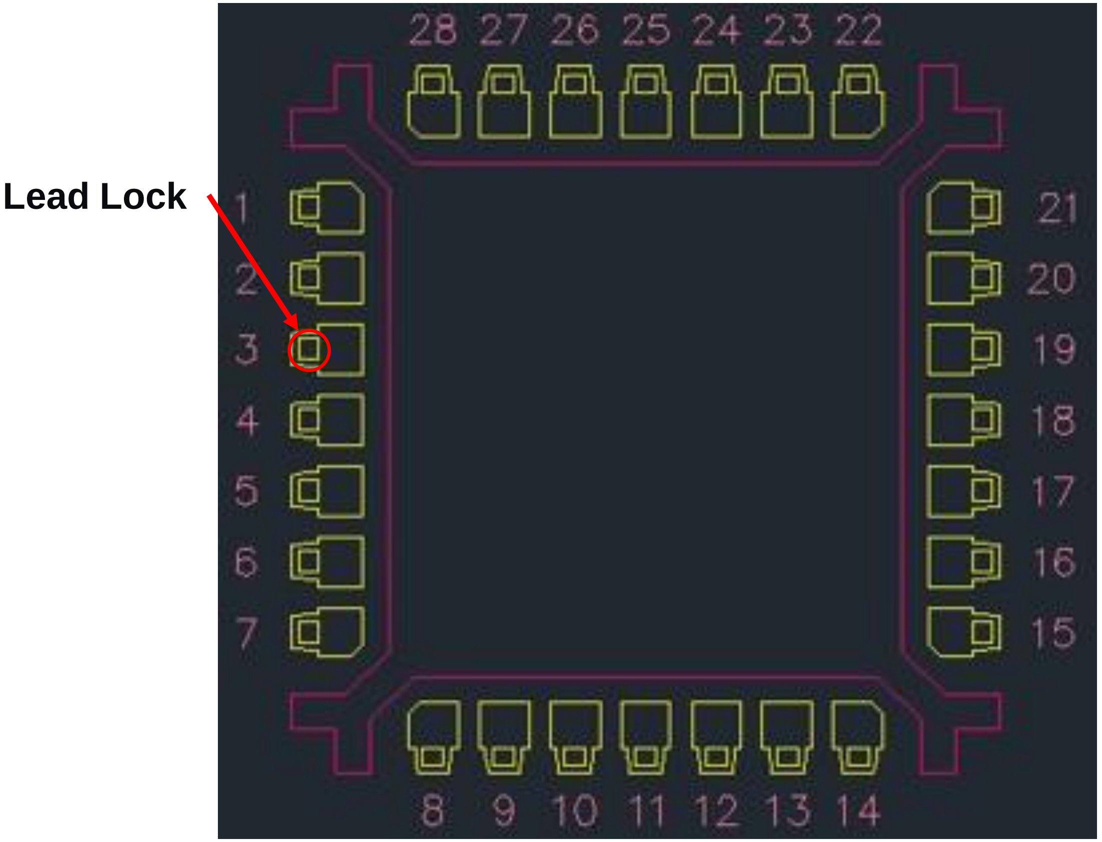


Lead Lock

Lead Lock	Yes

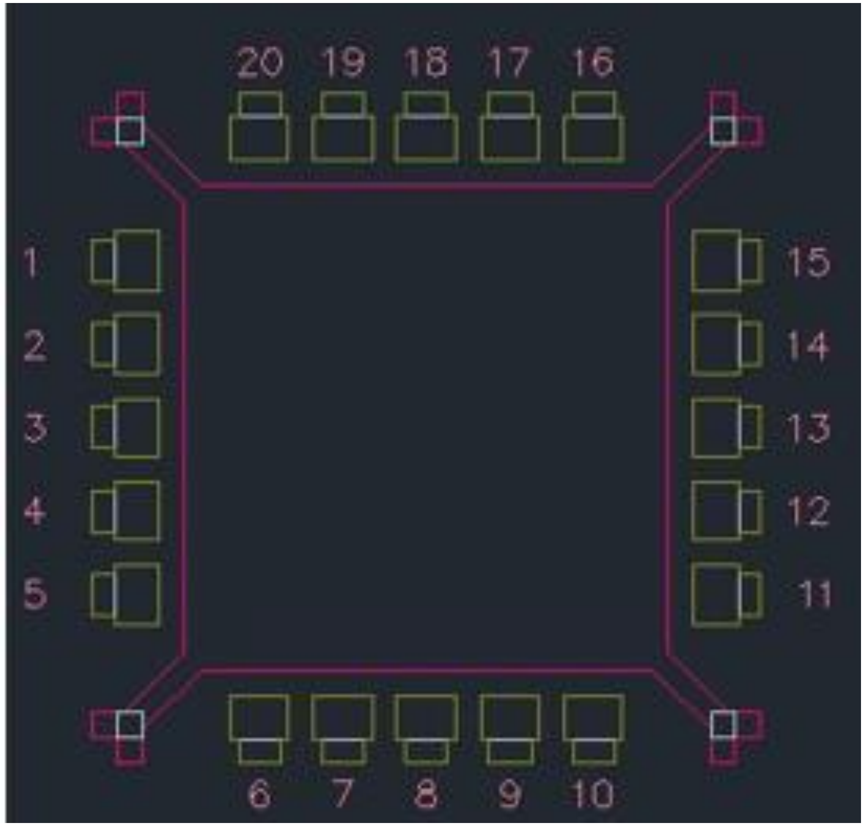
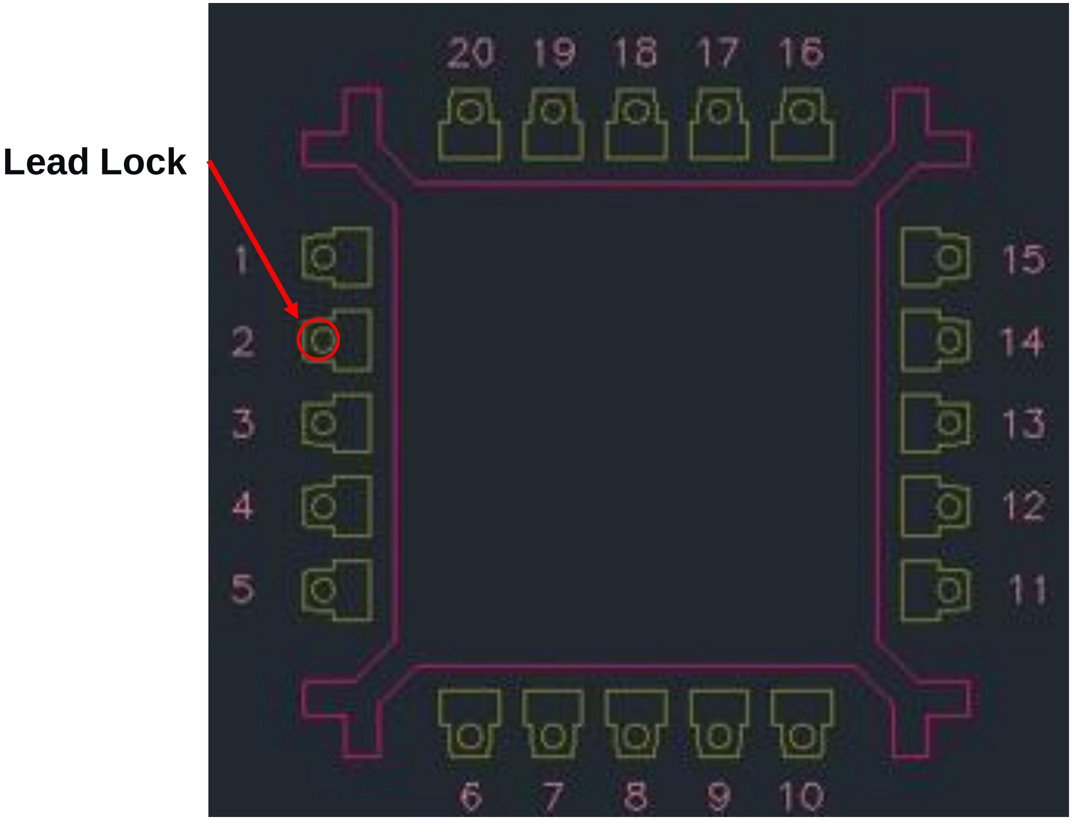
Lead frame Comparison

28L UQFN 4x4x0.5mm

NSEB		MMT	
			
Lead Lock	No	Lead Lock	Yes

Lead frame Comparison

20L UQFN 4x4x0.5mm

NSEB	MMT
	

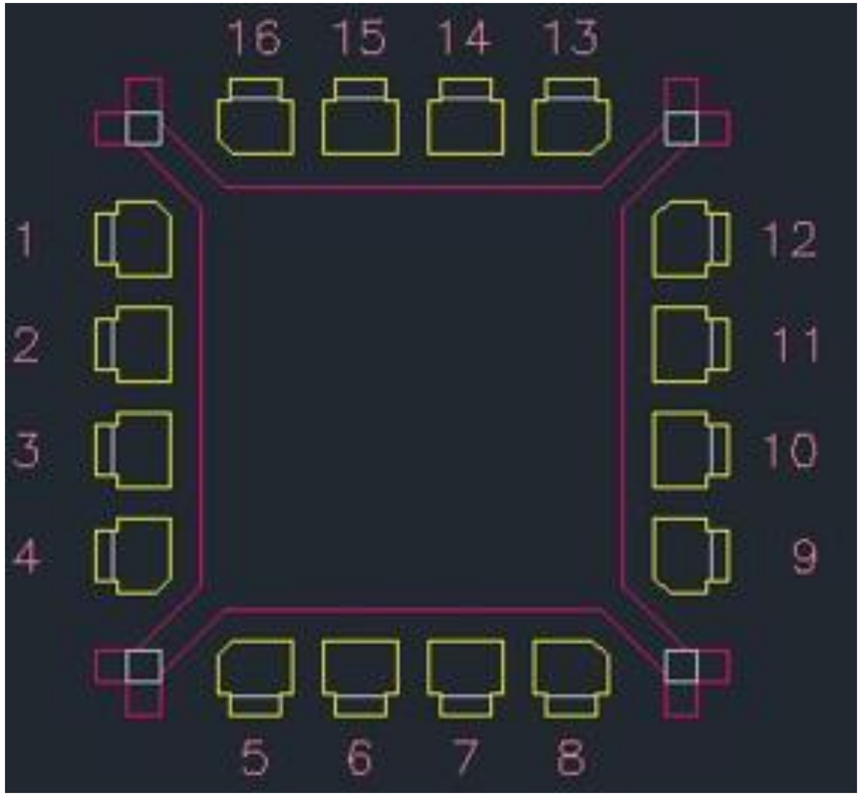
Lead Lock	No

Lead Lock	Yes

Lead frame Comparison

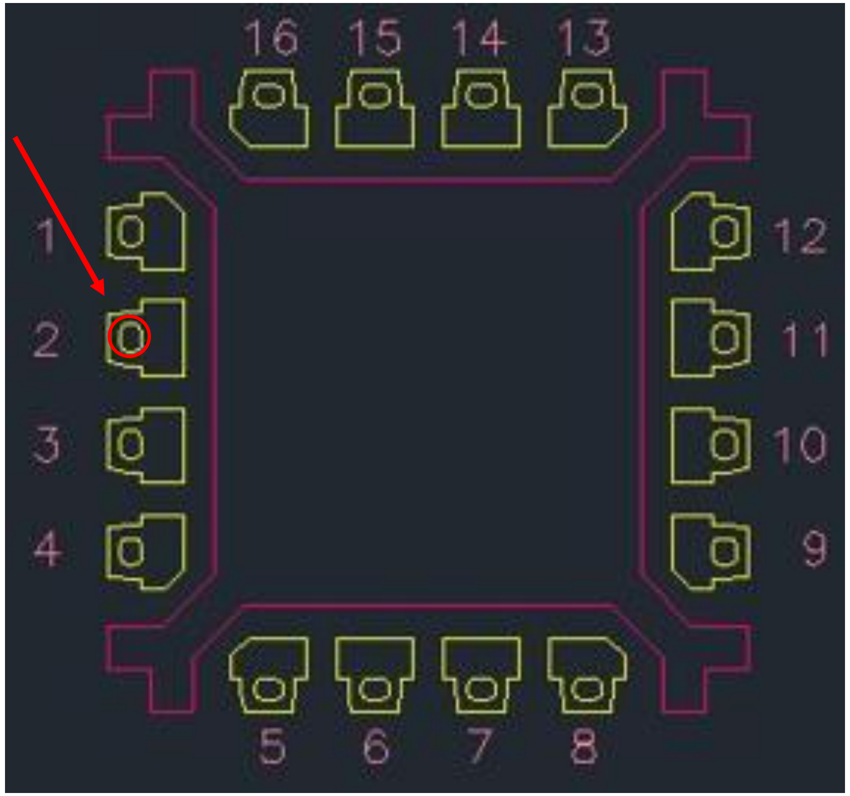
16L UQFN 3x3x0.5mm

NSEB



Lead Lock	No

MMT



Lead Lock

Lead Lock	Yes

QUALIFICATION REPORT SUMMARY

RELIABILITY LABORATORY

PCN#: GBNG-27BMFR453

Date
October 29, 2020

Qualification of MMT as an additional assembly site for selected products available in 40L UQFN (5x5x0.5mm) package. The selected products available in 16L (3x3x0.5mm), 16L (4x4x0.5mm), 20L (4x4x0.5mm) and 28L (4x4x0.5mm) packages will qualify by similarity (QBS). This is Q100 Grade 1 qualification.

PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MMT as an additional assembly site for selected products available in 40L UQFN (5x5x0.5mm) package. The selected products available in 16L (3x3x0.5mm), 16L (4x4x0.5mm), 20L (4x4x0.5mm) and 28L (4x4x0.5mm) packages will qualify by similarity (QBS). This is Q100 Grade 1 qualification.
CN	ES338705
QUAL ID	R2000374 Rev. B
MP CODE	LEDC14S5XAXX
Part No.	PIC16F1777-E/MV
Bonding No.	BDM-002381 Rev. A
CCB No.	4181, 4181.004, 4181.005, 4181.006
<u>Package</u>	
Type	40L UQFN
Package size	5x5x0.5 mm
<u>Lead Frame</u>	
Paddle size	154 x 154 mils
Material	EFTEC 64T
Surface	Bare Cu with BOT
Process	Etched
Lead Lock	Yes
Part Number	10104014
<u>Material</u>	
Epoxy	8600
Wire	Au wire
Mold Compound	G700LTD
Plating Composition	Matte Tin

PACKAGE QUALIFICATION REPORT

Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-211001472.000	GRSM420460658.310	2023GCK
MMT-211100706.000	GRSM420460658.320	2024GCP
MMT-211100707.000	GRSM420460658.300	2024GCQ

Result ☒ Pass ☐ Fail ☐ ____________________

40L UQFN (5x5x0.5 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
Precondition Prior Perform Reliability Tests **(At MSL Level 1)**	**Electrical Test:** +25°C, 85°C and 125°C System: J750	JESD22-A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/ IPC/JEDEC J-STD-020E		693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C, 85°C and 125°C System: J750			0/693	Pass	
Temp Cycle	**Stress Condition:** -65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H	JESD22-A104		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +85°C and 125°C System: J750		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.5 grams)		15 (0)	0/15	Pass	
	Bond Shear (>15.00 grams)		15 (0)	0/15	Pass	
UNBIASED-HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22-A118		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: J750		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** 5.5 Volts System: HAST 6000X	JESD22-A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C, 85°C and 125°C System: J750		231(0)	0/231	Pass	77 units / lot

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: SHEL LAB	JESD22-A103		45		45 units
	Electrical Test: +25°C, 85°C and 125°C System: J750		45(0)	0/45	Pass	
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 (> 2.50 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>12.60 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	