Product Change Notification / NTDO-11BSAL752

Date:

25-May-2022

Product Category:

Driver / Interface ICs

PCN Type:

Manufacturing Change

Notification Subject:

CCB 5092 Final Notice: Qualification of MMT as an additional assembly site for selected HV5523K7, HV5623K7, HV5522K7 and HV5622K7 device families available in 44L WQFN (7x7x0.8mm) package.

Affected CPNs:

NTDO-11BSAL752_Affected_CPN_05252022.pdf
NTDO-11BSAL752_Affected_CPN_05252022.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 HV5523K7, HV5623K7, HV5522K7 and HV5622K7 device families available in 44L WQFN (7x7x0.8mm) package.

Pre and Post Change Summary:

	Pre Change	Post Change

Assembly Site	UTAC Thai Limited (UTL-1) LTD. (NSEB)	Carsem (Suzhou) (CARC)	UTAC Thai Limited (UTL-1) LTD. (NSEB)	Carsem (Suzhou) (CARC)	Microchip Technology Thailand (Branch) (MMT)
Wire Material	CuPdAu	Au	CuPdAu	Au	CuPdAu
Die Attach Material	8600	QMI519	8600	QMI519	3280
Molding Compound Material	G700LTD	EME-G770HCD	G700LTD	EME-G770HCD	G700LTD
MSL information	MSL 1	MSL 3	MSL 1	MSL 3	MSL 1
Lead-Frame Material	EFTEC-64T	A194	EFTEC-64T	A194	A194
Lead-lock	Yes	No	Yes	No	Yes
Lead-frame Paddle Size	217x 217 mils	213x213 mils	217x 217 mils	213x213 mils	213x213 mils
DAP Surface Prep	Ag Ring Plated	Bare Cu	Ag Ring Plated	Bare Cu	Bare Cu
Lead-Frame Drawing	See Pre and Post Change attachment comparison				

Impacts to Data Sheet: Yes – Updated POD.

Units: mm		CARC			NSEB			MMT		
		Min	**Nom**	**Max**	**Min**	**Nom**	**Max**	**Min**	**Nom**	**Max**
Number of Pins	**N**	44			44			44		
Pitch	**e**	0.50 BSC			0.50 BSC			0.50 BSC		
Overall height	**A**	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80
Stand off (§)	**A1**	0.00	0.02	0.05	0.00	-	0.05	0.00	-	0.05
Terminal Thickness	**A3**	0.203 REF			0.195	0.203	0.261	0.195	0.203	0.261
Overall Length	**D**	7.00 BSC			6.90	7.00	7.10	6.90	7.00	7.10
Exposed Pad Length	**D2**	5.00	5.15	5.25	5.10	5.20	5.30	5.10	5.20	5.30
Overall Width	**E**	7.00 BSC			6.90	7.00	7.10	6.90	7.00	7.10
Exposed Pad Width	**E2**	5.00	5.15	5.25	5.10	5.20	5.30	5.10	5.20	5.30
Terminal Width	**b**	0.18	0.25	0.30	0.20	0.25	0.30	0.18	0.23	0.28
Terminal Length	**L**	0.45	0.55	0.65	0.49	0.50	0.51	0.59	0.64	0.69
Pullback	**L1**	-	-	-	-	-	-	-	-	-
Mold Angle	**Θ**	-	-	-	-	-	-	-	-	-
Terminal to Exposed Pad	**K**	0.20	-	-	-	0.40	-	-	0.26	-

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: May 25, 2022 (date code: 2222)

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

Time Table Summary:

	April 2022					**May 2022**				
Workweek	14	15	16	17	18	19	20	21	22	23
Initial PCN Issue Date			x							
Qual Report Availability									x	
Final PCN Issue 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:
April 12, 2022: Issued initial notification.
May 10, 2022: Updated to correct the POD data of exposed pad size.
May 25, 2022: Issued final notification. Attached is the qualification report. Provided estimated first ship date on May 25, 2022.

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

Attachments:

PCN_NTDO-11BSAL752_Qual_Report.pdf
PCN_NTDO-11BSAL752_Pre and Post Change_Summary.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)

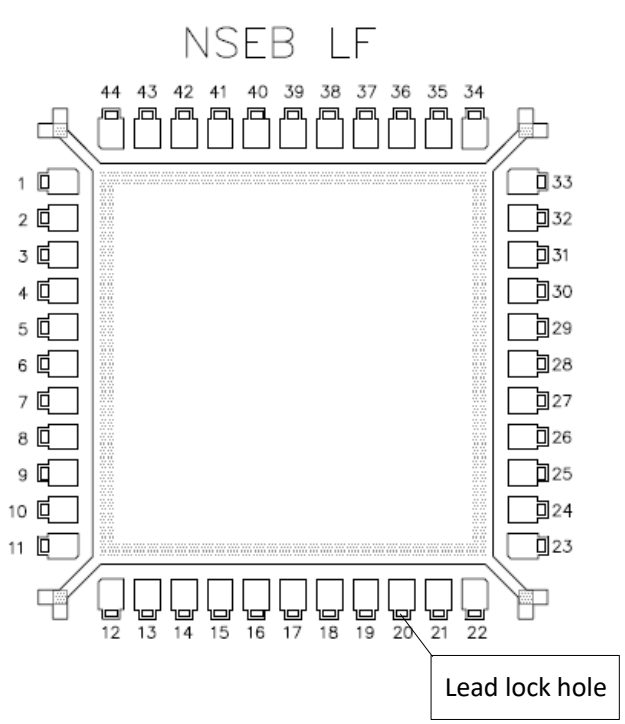
HV5523K7-G
HV5523K7-G-M933
HV5623K7-G
HV5623K7-G-M933
HV5522K7-G-S344
HV5622K7-G-S343

CCB 5092
Pre and Post Change Summary
PCN#: NTDO-11BSAL752

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

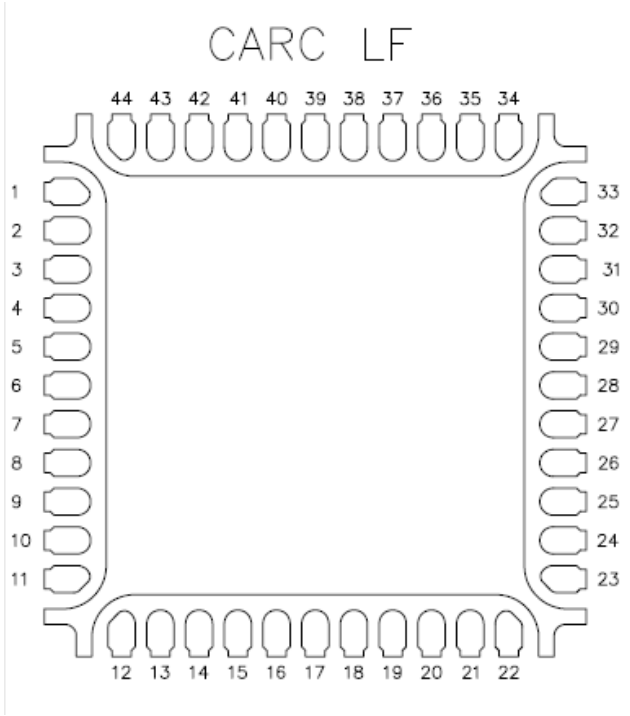
Lead Frame Comparison

NSEB



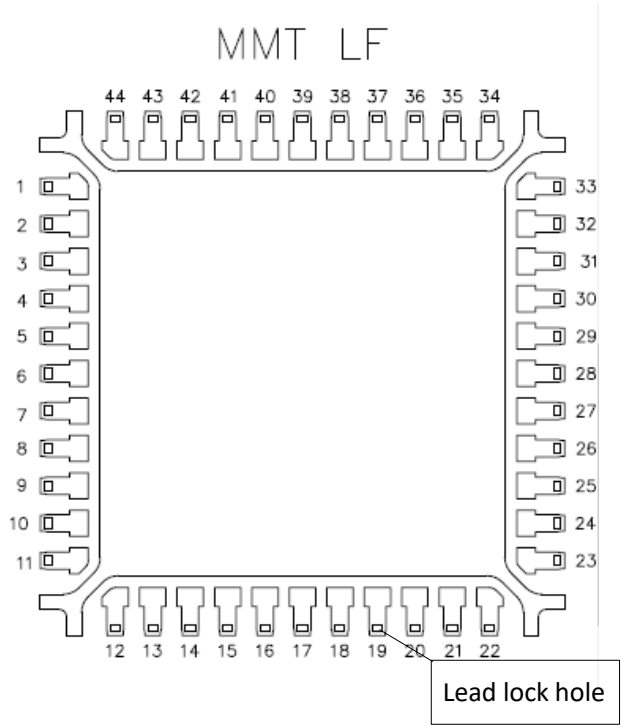
Lead frame material	EFTEC-64T
Lead frame Paddle size	217x 217 mils
Lead-lock (Locking Hole)	Yes

CARC



Lead frame material	A194
Lead frame Paddle size	213x213 mils
Lead-lock (Locking Hole)	No

MMT



Lead frame material	A194
Lead frame Paddle size	213x213 mils
Lead-lock (Locking Hole)	Yes

Note: Mold compound material fills the leadlock hole, which provides improved protection against moisture penetration along the edge of the leads (pins) of the package.

QUALIFICATION REPORT SUMMARY

PCN#: NTDO-11BSAL752

Date
May 10, 2022

Qualification of MMT as an additional assembly site for selected HV5523K7, HV5623K7, HV5522K7 and HV5622K7 device families available in 44L WQFN (7x7x0.8mm) package.

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PACKAGE QUALIFICATION REPORT

Purpose	Qualification of MMT as an additional assembly site for selected HV5523K7, HV5623K7, HV5522K7 and HV5622K7 device families available in 44L WQFN (7x7x0.8mm) package.
CN	E000101694
QUAL ID	R2200350 Rev A
MP CODE	65AA177PXC00
Part No.	HV5524K7-G
Bonding No.	BD-000513 Rev.01
CCB No.	5092
Package	
Type	44L WQFN
Package size	7 x 7 x 0.8 mm
Lead Frame	
Paddle size	213 x 213 mils
Material	A194
Surface	Bare Cu
Process	Etched
Lead Lock	Yes
Part Number	10104415
Treatment	BOT
Material	
Epoxy	3280
Wire	CuPdAu wire
Mold Compound	G700LTD
Plating Composition	Matte Sn

MICROCHIP

PACKAGE QUALIFICATION REPORT

Manufacturing Information:

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-230102412.000	TMPE220108580.100	2214GV0
MMT-230200397.000	TMPE220108580.100	2215GV1
MMT-230102311.000	TMPE220108580.100	2214D2C

Result [X] Pass [ ] Fail [ ] _____

44L WQFN (7x7x0.8 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 System: ETS88	JESD22-A113	693(0)	693	Pass	Good Devices
	Bake 150°C, 24 hrs System: CHINEE	JIP/IPC/JEDEC		693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH	J-STD-020E		693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test: +25°C System: ETS88			0/693		
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: +25°C System: ETS88		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (>4.00 grams)		15 (0)	0/15	Pass	
	Bond Shear (>18.00 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: ETS88		231(0)	0/231	Pass	77 units / lot
HAST	**Stress Condition:** +130°C/85%RH, 96 hrs. **Bias Volt:** VDD 5.5 Volts, VPP 40 Volts System: HAST 6000X	JESD22- A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C System: ETS88		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, 504 hrs System: SHEL LAB **Electrical Test:** +25°C System: ETS88	JESD22- A103	 135(0)	135 0/135	 Pass	45 units / lot
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	
Wire sweep	Wire sweep Inspection 15 Wires / lot	-	45(0) Wires	0/45	Pass	
Physical Dimensions	Physicalimension, 10 units from 1 lot	JESD22-B100/B108	30(0) Units	0/30	Pass	
Bond Strength Data Assembly	Wire Pull (>4.00 grams) Bond Shear (>18.00 grams)	Mil. Std. 883-2011 CDF-AEC- Q100-001	30 (0) Wires 30 (0) bonds	0/30 0/30	Pass Pass	