



Product Change Notification / RMES-16SJKO622

Date:

29-Dec-2021

Product Category:

Clock and Timing - Oscillators

PCN Type:

Manufacturing Change

Notification Subject:

CCB 4550 and 4550.001 Final Notice: Qualification of STAR as an additional assembly site for selected Micrel products available in 4L VDFN (3.2x2.5x0.9mm) and (2.0x2.5x0.9mm) packages.

Affected CPNs:

[RMES-16SJKO622_Affected_CPN_12292021.pdf](#)
[RMES-16SJKO622_Affected_CPN_12292021.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 STAR as an additional assembly site for selected Micrel products available in 4L VDFN (3.2x2.5x0.9mm) and (2.0x2.5x0.9mm) packages.

Pre and Post Change Summary:

	Pre Change	Post Change
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Assembly Site	UTAC Thai Limited (NSEB)	UTAC Thai Limited (NSEB)	Star Microelectronics (Thailand) Public Company Limited (STAR)
Wire material	Au	Au	Au
Die attach material 1	HR-5104	HR-5104	HR-5104
	Non-Conductive (DAF)	Non-Conductive (DAF)	Non-Conductive (DAF)
Die attach material 2	2200D	2200D	2200D
	Conductive	Conductive	Conductive
Die Coat	JCR6109	JCR6109	JCR6109
Molding compound material	G700	G700	G700
Leadframe material	A194	A194	A194
Lead Lock (Locking Hole)	No	No	No

Impacts to Data Sheet:None

Change Impact:None

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

Change Implementation Status:In Progress

Estimated First Ship Date:January 30, 2022 (date code: 2206)

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

Time Table Summary:

	February 2021				>	December 2021					January 2022				
Workweek	06	07	08	09		49	50	51	52	53	2	3	4	5	6
Initial PCN Issue Date				x											
Qual Report Availability										x					

Affected Catalog Part Numbers (CPN)

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MICROCHIP

QUALIFICATION REPORT SUMMARY

PCN #: RMES-16SJKO622

**Date:
December 16, 2021**

**Qualification of STAR as an additional assembly site for
selected Micrel products available in 4L VDFN
(3.2x2.5x0.9mm) and (2.0x2.5x0.9mm) packages.**



MICROCHIP PACKAGE QUALIFICATION REPORT

Purpose	Qualification of STAR as an additional assembly site for selected Micrel products available in 4L VDFN (3.2x2.5x0.9mm) and (2.0x2.5x0.9mm) packages.
CCB	4550 & 4550.001
CN	ES356860
QUAL ID	R2100889 Rev. A
MP CODE	3610R9H4A003
Part No.	D4BC-L3
Bonding No.	BDM-002830 Rev. A
<u>Package</u>	
Type	4L VDFN
Package size	3.2 x 2.5 x 0.9 mm
<u>Lead Frame</u>	
Paddle size	79 x 110 mils
Material	A194
Surface	Roughen NiPdAu
Process	Etched
Lead Lock	No
Part Number	MLEP00004MIC-T
<u>Material</u>	
Epoxy	Die 1: HR-5104 / Die2: 2200D (Conductive)
Die Coating	JCR6109
Wire	Au wire
Mold Compound	G700LTD
Plating Composition	NiPdAu



Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
STAR220600012.000	GF35921267205.100	2118MM3
STAR220600013.000	GF35921267205.100	2118MMK
STAR220600014.000	GF35921267205.100	2118MMS

Result

Pass Fail _____

4L VDFN (3.2x2.5x0.9 mm) assembled by STAR 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, 105°C and -40°C System: D10X_TCG	JESD22-A113	693(0)	693		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 and 105°C System: D10X_TCG			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
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: +105°C System: D10X_TCG		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.5 grams)		30 (0)	0/30	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: D10X_TCG		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.5 grams)		30 (0)	0/30	Pass	
HAST	Stress Condition: +130°C/85%RH, 96 hrs. Bias Volt: 3.3 Volts System: HAST 6000X	JESD22- A110		231		Parts had been pre-conditioned at 260°C
	Electrical Test: +25°C and 105°C System: D10X_TCG		231(0)	0/231	Pass	77 units / lot
	Bond Strength: Wire Pull (> 2.5 grams)		15 (0)	0/15	Pass	

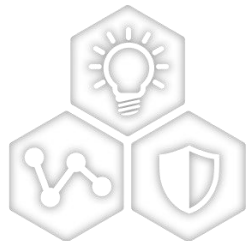
PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	Stress Condition: Bake 150°C, 500 hrs System: SHEL LAB	JESD22-A103		45		45 units
	Electrical Test: +25°C and 105°C System: D10X_TCG		45(0)	0/45	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)	Mil. Std. 883-2011	30 (0) Wires	0/30	Pass	
	Bond Shear (> 15.00 grams)	CDF-AEC-Q100-001	30 (0) bonds	0/30	Pass	

**CCB 4550 and 4550.001
Pre and Post Change Summary
PCN #: RMES-16SJKO622**



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

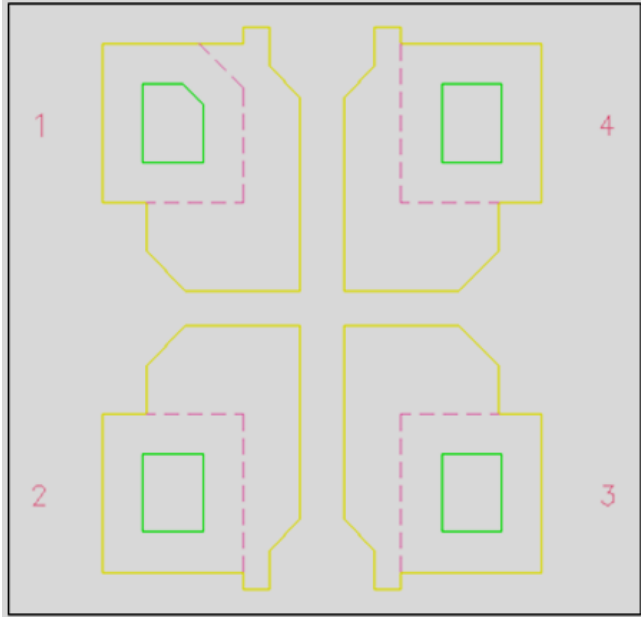


SMART | CONNECTED | SECURE

Qualification of STAR as an additional assembly site for selected Micrel products available in 4L VDFN (3.2x 2.5 x 0.9 mm) and (2.0 x2.5 x0.9 mm) packages.

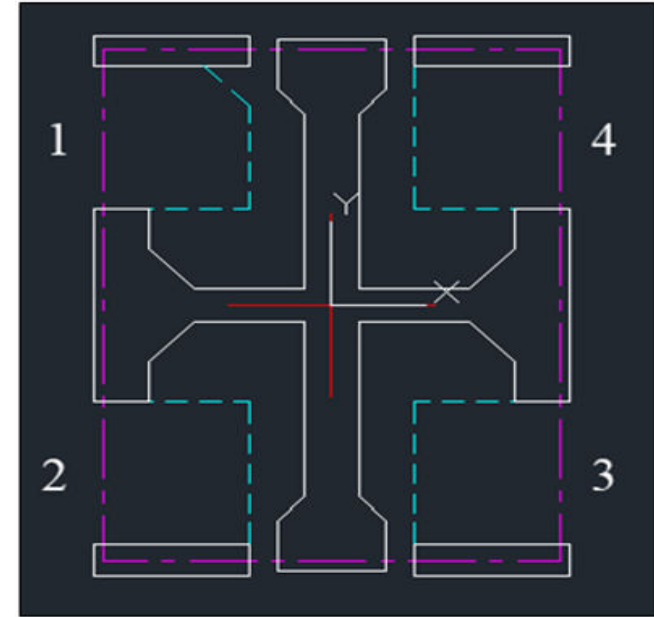
LEAD FRAME COMPARISON

NSEB



Leadframe Material	A194
Lead Lock (Locking Hole)	No
Lead Plating	NiPdAu

STAR



Leadframe Material	A194
Lead Lock (Locking Hole)	No
Lead Plating	NiPdAu