



## Product Change Notification / MFOL-16RWLS294

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### Date:

21-Jun-2022

### Product Category:

Microprocessors

### PCN Type:

Manufacturing Change

### Notification Subject:

eSign# E000114850 Final Notice: Qualification of MCSO (Microchip -Fab 5) as a new fabrication site for Die # 2 of components DSC6003HI2B-024.0000T (Y2) and DSC6102HI2B-025.0000T (Y3) for modules ATSAMA5D27-WLSOM1 and ATSAMA5D27-WLSOM21 available in 188L Module (40.8x40.8x3.3mm) package assembled at MMT assembly site.

### Affected CPNs:

[MFOL-16RWLS294\\_Affected\\_CPN\\_06212022.pdf](#)

[MFOL-16RWLS294\\_Affected\\_CPN\\_06212022.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 MCSO (Microchip -Fab 5) as a new fabrication site for Die # 2 of components DSC6003HI2B-024.0000T (Y2) and DSC6102HI2B-025.0000T (Y3) for modules ATSAMA5D27-WLSOM1 and ATSAMA5D27-WLSOM21 available in 188L Module (40.8x40.8x3.3mm) package assembled at MMT assembly site.

### Pre and Post Change Summary:



**Method to Identify Change:**Traceability code

**Qualification Report:**Please open the attachments included with this PCN labeled as PCN\_#\_Qual\_Report.

**Revision History:**June 21, 2022: 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\\_MFOL-16RWLS294\\_PRE AND POST CHANGE SUMMARY.pdf](#)

[PCN\\_MFOL-16RWLS294\\_PACKAGE\\_QUAL\\_REPORT.pdf](#)

[PCN\\_MFOL-16RWLS294\\_PROCESS\\_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.

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MFOL-16RWLS294 - eSign# E000114850 Final Notice: Qualification of MCSO (Microchip -Fab 5) as a new fabrication site for Die # 2 of components DSC6003HI2B-024.0000T (Y2) and DSC6102HI2B-025.0000T (Y3) for modules ATSAMA5D27-WLSOM1 and ATSAMA5D27-WLSOM21 available in 188L Module (40.8x40.8x3.3mm) package assembled at MMT assembly site.

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Affected Catalog Part Numbers (CPN)

ATSAMA5D27-WLSOM1

ATSAMA5D27-WLSOM21



**MICROCHIP**

**QUALIFICATION REPORT SUMMARY**  
RELIABILITY LABORATORY

**PCN #: MFOL-16RWLS294**

**Date:**  
**January 22, 2020**

**Qualification of new bill of materials (BOM) in selected  
Micrel products available in 6L VDFN (3.2x2.5x0.9mm)  
package at NSEB assembly site.**



## MICROCHIP PACKAGE QUALIFICATION REPORT

<b>Purpose</b>	Qualification of new bill of materials (BOM) in selected Micrel products available in 6L VDFN (3.2x2.5x0.9mm) package at NSEB assembly site.
<b>CCB #:</b>	3859 and E000114850
<b>Reliability test site</b>	UTL
<b>CN</b>	ES306693
<b>QUAL ID</b>	Q20005 Rev A
<b>MP CODE</b>	3610Q5H5A001
<b>Part No.</b>	D50C-M3
<b>Bonding No.</b>	BDE-005636 Rev. 02
<b><u>Package</u></b>	
<b>Type</b>	6L VDFN
<b>Package size</b>	3.2 x 2.5 x 0.9 mm
<b><u>Lead Frame</u></b>	
<b>Paddle size</b>	COL
<b>Material</b>	A194
<b>Process</b>	Etched
<b>Lead Lock</b>	Yes
<b>Part Number</b>	FR0510
<b><u>Material</u></b>	
<b>Epoxy</b>	HR-5104 / 2200D
<b>Wire</b>	Au wire
<b>Mold Compound</b>	G700LTD
<b>Die Coat Material</b>	JCR6109
<b>Plating Composition</b>	NiPdAu



# MICROCHIP PACKAGE QUALIFICATION REPORT

## Manufacturing Information

Lot No.	Wafer lot No.	Date Code
NSEB201400680.000	TC03920022154.000	1927G53
NSEB201400692.000	TC03920022154.000	1927G9W
NSEB201500083.000	TC03920022154.000	1928GAD

### Result

Pass     Fail     \_\_\_\_\_

6L VDFN 3.2x2.5x0.9 mm assembled by NSEB 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
<b>Temp Cycle</b>	<b>Stress Condition:</b> -65°C to +150°C, 500 Cycles System: Hot and cold chamber	JESD22- A104		231		Parts had been pre-conditioned at 260°C
	<b>Electrical Test:</b> +85°C and 125°C System: Tester: D10, Handler: AET55V8,V16		231(0)	0/231	Pass	77 units / lot
	<b>Bond Strength:</b> Wire Pull (> 3.00 grams)		15 (0)	0/15	Pass	
<b>UNBIASED-HAST</b>	<b>Stress Condition:</b> +130°C/85%RH, 96 hrs. System: HAST 6000X	JESD22- A118		231		Parts had been pre-conditioned at 260°C
	<b>Electrical Test:</b> +25°C System: Hot and moisture chamber		231(0)	0/231	Pass	77 units / lot
<b>HAST</b>	<b>Stress Condition:</b> +130°C/85%RH, 96 hrs. <b>Bias Volt:</b> 3.3 Volts System: HAST 6000X	JESD22- A110		231		Parts had been pre-conditioned at 260°C
	<b>Electrical Test:</b> +25°C, 85°C and 125°C System: Tester: D10, Handler: AET55V8,V16		231(0)	0/231	Pass	77 units / lot
			5(0) Units	0/5	Pass	

# PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
<b>High Temperature Storage Life</b>	<b>Stress Condition:</b> Bake 150°C, 1008 hrs System: SHEL LAB	JESD22-A103		50		50 units
	<b>Electrical Test</b> :+25°C and 125°C System: Oven chamber		50 (0)	0/50	Pass	
<b>Solderability Temp 245°C</b>	<b>Steam Aging:</b> Temp 93°C,8Hrs Solder Dipping:Solder Temp.245°C Solder material:Pb Free Sn 95.5Ag3.9 Cu0.6 Visual Inspection: External Visual Inspection	J-STD-002	22 (0)	22		
				0/22	Pass	
<b>Physical Dimensions</b>	Physical Dimension, 10 units / lot from 3 lot	JESD22-B100/B108	30 (0) Units	0/30	Pass	
<b>Bond Strength Data Assembly</b>	Wire Pull (> 3.00 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>10.00 grams)	JESD22-B116	30 (0) bonds	0/30	Pass	



**MICROCHIP**

**QUALIFICATION REPORT SUMMARY  
Process Qualification Report**

**PCN #: MFOL-16RWLS294**

**Date:  
November 14, 2019**

**Qualification of a new fabrication site (Microchip -Fab 5) for selected Micrel DSCxxx and DSAxxx product available in 6L VDFN, 4L VDFN, 4L VFLGA, 6L VFLGA, 4L VLGA, 14L VQFN and 20L VQFN packages.**

**I. Summary:**

The purpose of this report is to qualify Fab 5 G2.5 MEMS (Mask 59401) for product family Mask 3610Q, 3610R, 3610V, per AEC-Q100 specification and following guidelines established in Microchip specification QCI-39000, "Worldwide Quality Conformance Requirements".

**II. Conclusion:**

Based on the results, Fab 5 G2.5 MEMS mask# 3610Q, 3610R, 3610V complies with the AEC-Q100 specification and reliability guidelines implemented in the qualification plan. Therefore, the product family with Fab5 G2.5 MEMS mask 3610Q, 3610R, 3610V is released as qualified Q100 Grade 1 products.

**III. Device Description:**

Device	D4BD-L3, D500-M3,610RA3A
Mask	3610R (TGEA1+59401), 3610Q (TALA1+59401), 3610V (SG6A1+59401)
Document Revision	A
Document Control #	ML112019005E
CCB	3433 and E000114850

**IV. Qualification Material:**

	Lot 1	Lot 2	Lot 3
Device	DSC1004DL1-121.5000	DSC1101DM1-170.0000	DSC613RA1A-0106
MPC	3610R9J5A003	3610Q5J7A003	3610V4AWA003
Wafer Lot	MCSO520083773.000/ GF35919404999.100	MCSO520094446.000/ TC03920075522.100	MCSO520083774.000/ GF07919404984.000
Assembly Lot	NSEB201200020.000	NSEB201300465.000	NSEB201300001.000
Package	VDFN-6L	VDFN-6L	LGA-6L
Assembly Site	UTAC	UTAC	UTAC
Final Test	UTAC	UTAC	UTAC
Project #	39140-1	39141-1	39142-1
Qualification Tests	HTOL, ELFR, LTOL, ESD/LU	HTOL, ELFR, LTOL, ESD/LU	HTOL, ELFR, LTOL, ESD/LU

V. Qualification Data:

**ELFR (EARLY LIFE FAILURE RATE)**

Test Method/ Condition	JESD22, Method 108, Ta = + 125°C, VCC = 3.6V,48 HRS Minimum sample size 800 units/lot
<b>Lot #</b>	<b>Results (Fail/Pass)</b>
Lot 1	0/814
Lot 2	0/824
Lot 3	0/810

Post stress ATE @ Room +25°C, and Hot +125°C

**HTOL (High Temperature Operating Life)**

Test Method/ Condition	JESD22, Method 108, Ta = + 125°C, VCC = 3.6V, 1008 HRS Minimum sample size 77 units/lot
<b>Lot #</b>	<b>Results (Fail/Pass)</b>
Lot 1	0/77
Lot 2	0/90
Lot 3	0/96

Post stress ATE @ Room +25°C, Cold -40°C and Hot +125°C

**LTOL (Low Temperature Operating Life)**

Test Method/ Condition	JESD22, Method 108, Ta = -40°C, VCC = 3.6V, 1008 HRS
<b>Lot #</b>	<b>Results (Fail/Pass)</b>
Lot 1	0/74
Lot 2	0/77
Lot 3	0/98

Post stress ATE @ Room +25°C, Cold -40°C and Hot +125°C

**ESD / LU / CDM**

Test	Reference Method	Results (Fail/Pass)	Notes
HBM	JEDEC JS-001/ AEC-Q100-001	±500V 0/3 ±1000V 0/3 ±2000V 0/3 ±4000V 0/3	DSC1004DL1- 121.5000 Pass 4000V, Lot #1
Test	Reference Method	Results (Fail/Pass)	Notes

HBM	JEDEC JS-001/ AEC-Q100-001	±500V 0/3 ±1000V 0/3 ±2000V 0/3 ±4000V 0/3	DSC1101DM1- 170.0000 Pass 4000V, Lot #2
HBM	JEDEC JS-001/ AEC-Q100-001	±500V 0/3 ±1000V 0/3 ±2000V 0/3 ±4000V 0/3	DSC613RA1A-0106 Pass 4000V, Lot #3
CDM	JESD C101/ AEC-Q100-010	± 250V 0 /3 ±500V 0 /3 ± 750V 0 /3 ±1000V 0 /3 ± 1500V 0 /3 ± 2000V 0 /3	DSC1004DL1- 121.5000 Pass 2000V, Lot#1
CDM	JESD C101/ AEC-Q100-010	± 250V 0 /3 ±500V 0 /3 ± 750V 0 /3 ±1000V 0 /3 ± 1500V 0 /3 ± 2000V 0 /3	DSC1101DM1- 170.0000 Pass 2000V, Lot #2
CDM	JESD C101/ AEC-Q100-010	± 250V 0 /3 ±500V 0 /3 ± 750V 0 /3 ±1000V 0 /3 ± 1500V 0 /3 ± 2000V 0 /3	DSC613RA1A-0106 Pass 2000V, Lot #3
LU	EIA/JESD78 Room	0 6 I-test (105mA) 0 /6 0/V Test	DSC1004DL1- 121.5000 (Lot #1)
	EIA/JESD78 Hot 125°C	0 6 I-test (105mA) 0 /6 0/V Test	
Test	Reference Method	Results (Fail/Pass)	Notes
LU	EIA/JESD78	0 6 I-test (105mA)	

	Room	0 /6 0/V Test	DSC1101DM1- 170.0000 (Lot #2)
	EIA/JESD78 Hot 125°C	0 6 I-test (105mA) 0 /6 0/V Test	
LU	EIA/JESD78 Room	0 6 I-test (105mA) 0 /6 0/V Test	DSC613RA1A-0106 Lot #3
	EIA/JESD78 Hot 125°C	0 6 I-test (105mA) 0 /6 0/V Test	

Post ATE Test was @ +25°C & +125°C

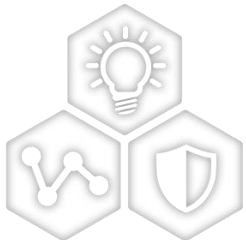
# Pre and Post Change Summary

## PCN# MFOL-16RWLS294



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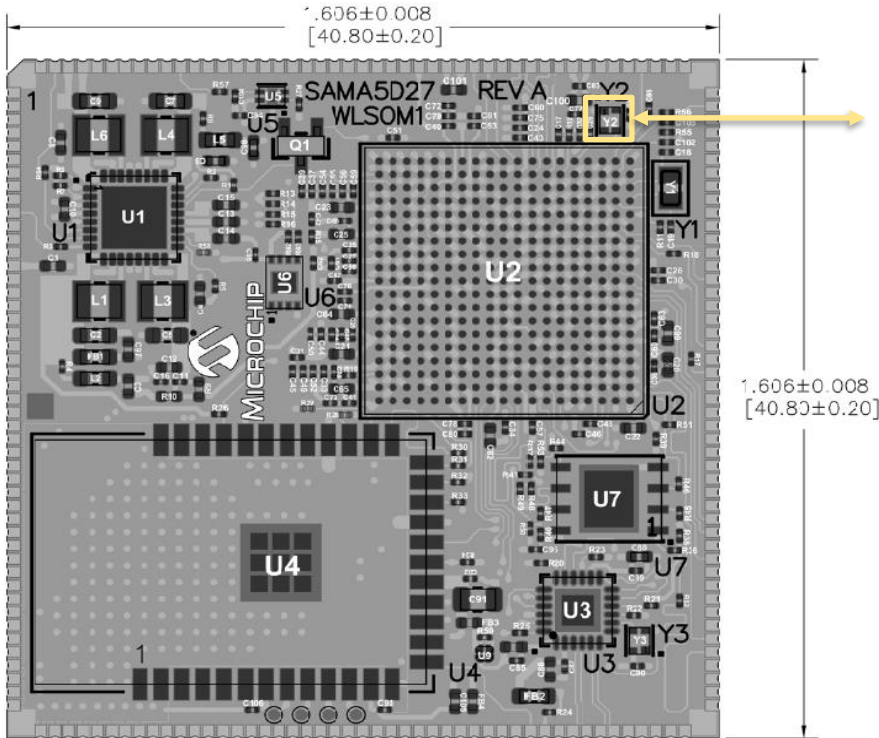
SMART | CONNECTED | SECURE



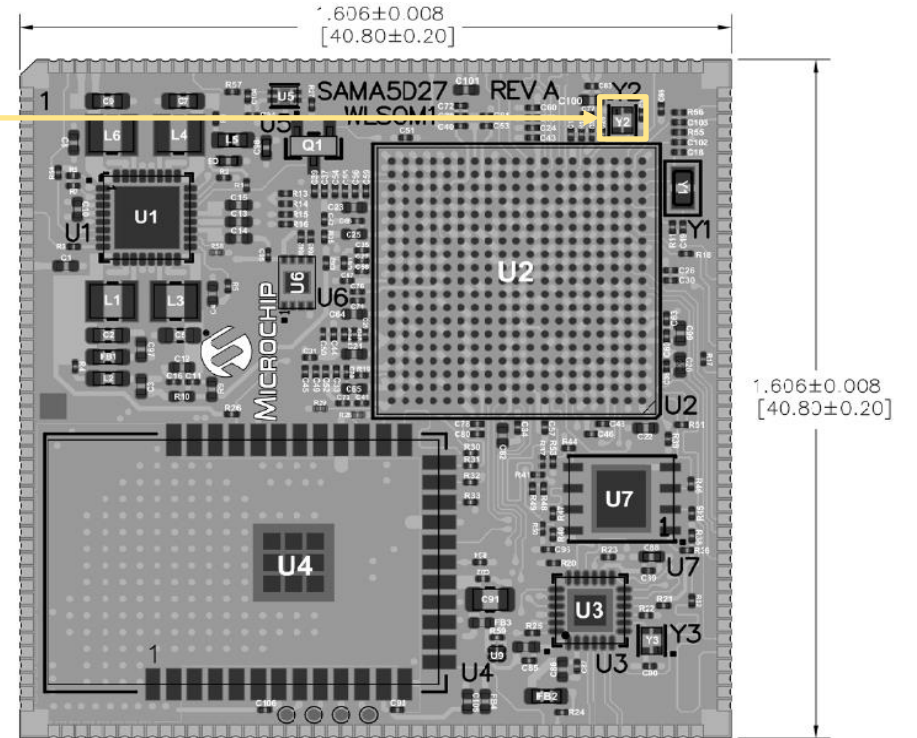
# Location of Y2 component

Pre change

Post change



Y2  
Location



Component

Catalog part number (CPN)

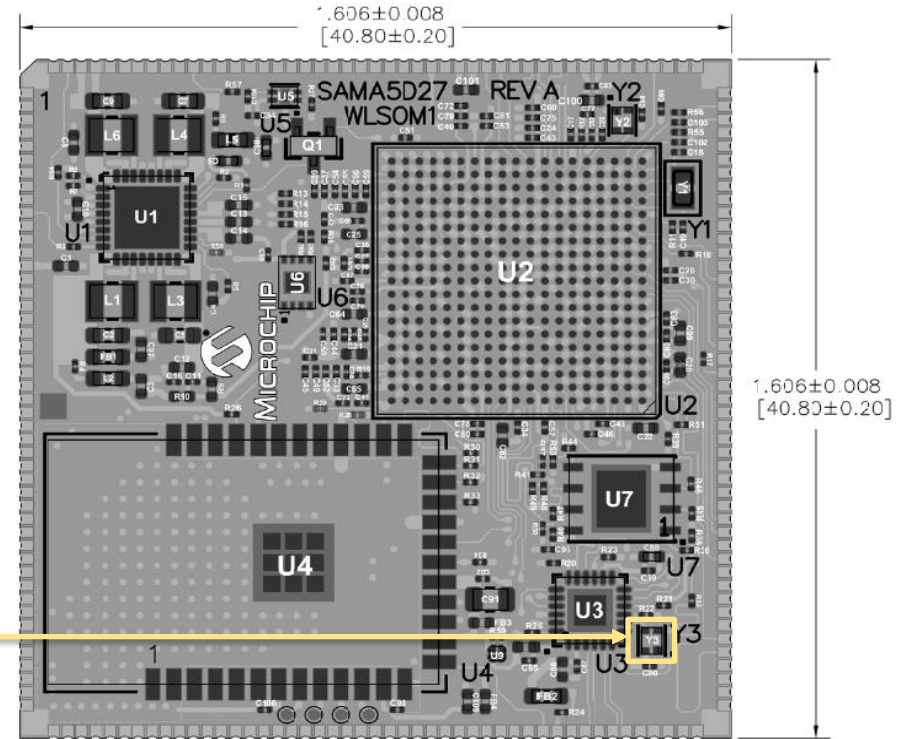
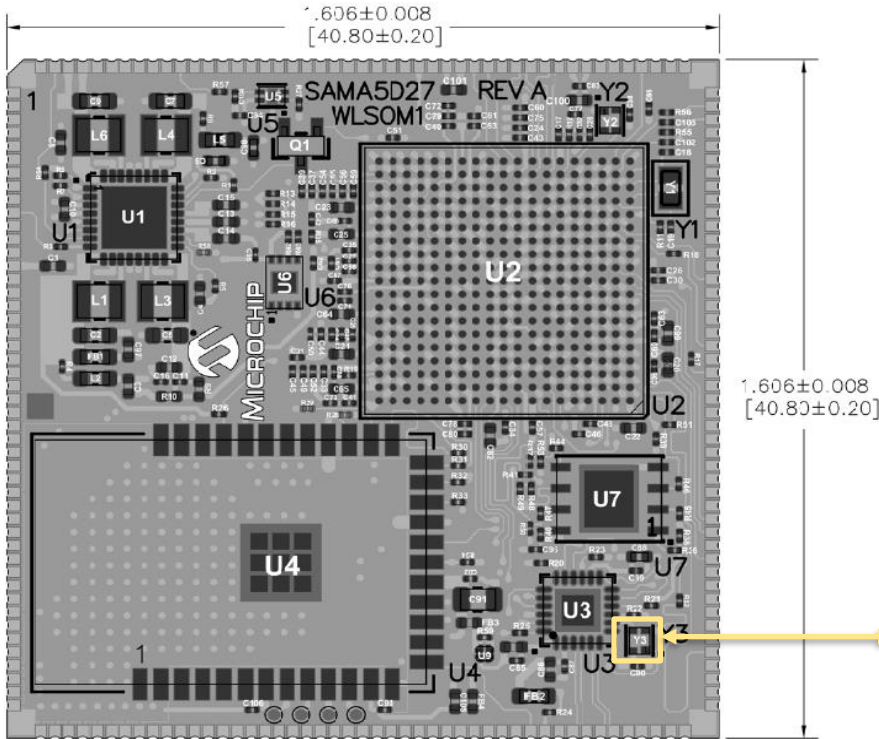
Y2

ATSAMA5D27-WLSOM21

# Location of Y3 component

Pre change

Post change



Y3  
Location

Component

Catalog part number (CPN)

Y3

ATSAMA5D27-WLSOM1