



Date Created: 1/27/2004
Date Issued: 2/6/2004
PCN # 20033803-B

DESIGN/PROCESS CHANGE NOTIFICATION -- FINAL

This PCN has been amended to add additional products to the affected FSID listing. These products were originally slated to be obsoleted but instead will be added to the fab transfer list.

This is to inform you that a design and/or process change will be made to the following product(s). This notification is for your information and concurrence.

If you require data or samples to qualify this change, please contact **Fairchild Semiconductor within 30 days of receipt of this notification.**

If you have any questions concerning this change, please contact:

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PCN Originator

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REL Engineer

Name: Travis, Rob
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PCN Type: Alternate Fab Location

Effectivity

Expected 1st Device Shipment Date: 3/12/2004
Earliest Year/Work Week of Changed Product: 0411
(Note: Package marking may differ from this format)

Product ID (Description):

Fairchild Semiconductor's selected Metal Gate CMOS logic products currently being manufactured using Fairchild's 4-inch, class 100, fab process in South Portland, ME. Please refer to affected FSID listing attached.

Description of Change:

Fairchild Semiconductor is announcing a wafer fab location change for the processing of existing versions of Metal Gate CMOS devices currently manufactured using Fairchild's 4-inch, Class-100 fab facility located in South Portland, Maine, which is closing. These devices will be transferred to Fairchild's 6-inch, Class-1 fab facility, also located in South Portland, ME. This facility is also used to manufacture many of Fairchild's other logic products including VCX, FACT, ABT, LCX, LVT, and VHC. There are no die size, design, geometry or layout changes planned for the affected Fairchild products.

Effect of Change:

This change will not impact the parametric performance or electrical characteristics of any affected device. Product manufactured at the new wafer fab location will continue to be fully compliant to all published datasheet specification and will be completely interchangeable with products manufactured at the existing wafer fab location. Quality and reliability will remain at the highest standards already demonstrated with Fairchild's existing products.

Qualification:

Qual/REL Plan Numbers

Additional Qualification Data



**RELIABILITY
TEST REPORT**

F20030042B

Title:

4 inch to 6 inch fab transfer/qualification of Metal Gate CMOS.

Abstract:

Qualify the Metal Gate family in the 6" South Portland Maine Fab.

Reference File Numbers

Q20030042B

Distribution List

Rolf Dries	Jean Gordon
Rob Travis	Robert Murphy
Dennis Twomey	Sean Ryan
KT Loh	Joe Matukas
MT Poh	Wayne Parker
Pete Muzzy	

Description

Lot	Device Name	Fab	Fab Lot Number	Assembly	Assembly Lot Number	Description
Q20030042AA	CD4051BCN	Maine	M000245389-09	Penang	P010350424	6-inch Qual Material
Q20030042AB	CD4051BCN	Maine	M000247483-06	Penang	P010350123	6-inch Qual Material
Q20030042AC	CD4051BCN	Maine	M000247624-10	Penang	P010350124	6-inch Qual Material

Approvals

Test Report Author: Rob Travis	Date: 1-26-04
Qualification Plan Author: Rob Travis	Date: 1-26-04
Reliability Manager: Dennis Twomey	Date: 1-26-04

Tests Performed

Test: (Autoclave)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AAACLVB	CD4051BCN	JESD22-A102	121C, 100%RH	96 hrs
Q20030042ABACLVB	CD4051BCN	JESD22-A102	121C, 100%RH	96 hrs
Q20030042ACACLVB	CD4051BCN	JESD22-A102	121C, 100%RH	96 hrs
Test: (High Temperature Storage Life)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AAHTSLB	CD4051BCN	JESD22-A103	150C	168 , 500 , 1000 hrs
Q20030042ABHTSLB	CD4051BCN	JESD22-A103	150C	168 , 500 , 1000 hrs
Q20030042ACHTSLB	CD4051BCN	JESD22-A103	150C	168 , 500 , 1000 hrs
Test: (Highly Accelerated Stress Test)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AAHAST1B	CD4051BCN	JESD22-A110	130C, 85%RH	96 hrs
Q20030042ABHAST1B	CD4051BCN	JESD22-A110	130C, 85%RH	96 hrs
Q20030042ACHAST1B	CD4051BCN	JESD22-A110	130C, 85%RH	96 hrs
Test: (Static Op Life)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AASOPL1B	CD4051BCN	JESD22-A108	150C	168 , 500 , 1000 hrs
Q20030042ABSOPL1B	CD4051BCN	JESD22-A108	150C	168 , 500 , 1000 hrs
Q20030042ACSOPL1B	CD4051BCN	JESD22-A108	150C	168 , 500 , 1000 hrs
Test: (Temperature Cycle)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AATMCL1B	CD4051BCN	JESD22-A104	-65C, 150C	500 Cycles
Q20030042ABTMCL1B	CD4051BCN	JESD22-A104	-65C, 150C	500 Cycles
Q20030042ACTMCL1B	CD4051BCN	JESD22-A104	-65C, 150C	500 Cycles

Mechanical Tests:

Test: (Bond Pull)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AABPULLB	CD4051BCN	JESD22-C100	2.6 grams	
Q20030042ABBPULLB	CD4051BCN	JESD22-C100	2.6 grams	
Q20030042ACBPULLB	CD4051BCN	JESD22-C100	2.6 grams	
Test: (Bond Shear)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AABSHRB	CD4051BCN	AEC-Q100-001	27 grams	
Q20030042ABBSHRB	CD4051BCN	AEC-Q100-001	27 grams	
Q20030042ACBSHRB	CD4051BCN	AEC-Q100-001	27 grams	
Test: (Die Shear)				
Lot	Device	Industry Standard	Test Conditions	Read Points
Q20030042AADSHRB	CD4051BCN	MIL-STD-883-2019	.4 gr/sq mil	
Q20030042ABDSHRB	CD4051BCN	MIL-STD-883-2019	.4 gr/sq.mil	
Q20030042ACDSHRB	CD4051BCN	MIL-STD-883-2019	.4 gr/sq mil	

Results/Discussion

Test: (Autoclave)					
Lot	Device	96-HOURS	Failure Code		
Q20030042AAACLVB	CD4051BCN	0 / 77			
Q20030042ABACLVB	CD4051BCN	0 / 77			
Q20030042ACACLVB	CD4051BCN	0 / 77			
Test: (High Temperature Storage Life)					
Lot	Device	168-HOURS	500-HOURS	1000-HOURS	Failure Code
Q20030042AAHTSLB	CD4051BCN	0 / 77	0 / 77	0 / 77	
Q20030042ABHTSLB	CD4051BCN	0 / 77	0 / 77	0 / 77	
Q20030042ACHTSLB	CD4051BCN	0 / 77	0 / 77	0 / 77	
Test: (Highly Accelerated Stress Test)					
Lot	Device	96-HOURS	Failure Code		
Q20030042AAHAST1B	CD4051BCN	0 / 45			
Q20030042ABHAST1B	CD4051BCN	0 / 45			
Q20030042ACHAST1B	CD4051BCN	0 / 45			
Test: (Static Op Life)					
Lot	Device	168-HOURS	500-HOURS	1000-HOURS	Failure Code
Q20030042AASOPL1B	CD4051BCN	0 / 77	0 / 77	0 / 77	
Q20030042ABSOP1B	CD4051BCN	0 / 77	0 / 77	0 / 77	
Q20030042ACSOPL1B	CD4051BCN	0 / 77	0 / 77	0 / 77	
Test: (Temperature Cycle)					
Lot	Device	500-CYCLES	Failure Code		
Q20030042AATMCL1B	CD4051BCN	0 / 77			
Q20030042ABTMCL1B	CD4051BCN	0 / 77			
Q20030042ACTMCL1B	CD4051BCN	0 / 77			

Mechanical Results:

Test: (Bond Pull)			
Lot	Device		Failure Code
Q20030042AABPULLB	CD4051BCN	0 / 45	
Q20030042ABBPULLB	CD4051BCN	0 / 45	
Q20030042ACBPULLB	CD4051BCN	0 / 45	
Test: (Bond Shear)			
Lot	Device		Failure Code
Q20030042AABSHRB	CD4051BCN	0 / 45	
Q20030042ABBSHRB	CD4051BCN	0 / 45	
Q20030042ACBSHRB	CD4051BCN	0 / 45	
Test: (Die Shear)			
Lot	Device		Failure Code
Q20030042AADSHRB	CD4051BCN	0 / 5	

Q20030042ABDSHRB	CD4051BCN	0 / 5	
Q20030042ACDSHRB	CD4051BCN	0 / 5	

Conclusion

All reliability stresses outlined in the reliability qualification plan Q20030042B were successfully met, and unconditionally qualify for production Metal Gate CMOS manufactured in the 6-inch South Portland Fab.

Affected FSIDs

CD4001BCM	CD4001BCMX	CD4001BCN
CD4001BCSJ	CD4001BCSJX	CD40106BCM
CD40106BCMX	CD40106BCN	CD4011BCM
CD4011BCMX	CD4011BCN	CD4011BCSJ
CD4011BCSJX	CD4013BCM	CD4013BCMX
CD4013BCN	CD4013BCSJ	CD4013BCSJX
CD4015BCM	CD4015BCN	CD4016BCM
CD4016BCMX	CD4016BCN	CD40174BCM
CD40174BCN	CD4017BCM	CD4017BCMX
CD4017BCN	CD40193BCM	CD40193BCN
CD4020BCM	CD4020BCMX	CD4020BCN
CD4021BCM	CD4021BCMX	CD4021BCN
CD4022BCM	CD4022BCMX	CD4022BCN
CD4023BCM	CD4023BCMX	CD4023BCN
CD4023BCSJ	CD4024BCM	CD4024BCMX
CD4024BCN	CD4027BCM	CD4027BCN
CD4028BCM	CD4028BCMX	CD4028BCN
CD4029BCN	CD4029BCSJ	CD4029BCWM
CD4040BCM	CD4040BCMX	CD4040BCN
CD4043BCM	CD4043BCMX	CD4043BCN
CD4044BCM	CD4044BCMX	CD4044BCN
CD4046BCM	CD4046BCMX	CD4046BCN
CD4047BCM	CD4047BCMX	CD4047BCN
CD4049UBCM	CD4049UBCMX	CD4049UBCN
CD4049UBCSJ	CD4049UBCSJX	CD4050BCM
CD4050BCMX	CD4050BCN	CD4050BCSJ
CD4050BCSJX	CD4051BCM	CD4051BCMTX
CD4051BCMTX	CD4051BCMX	CD4051BCN
CD4051BCSJ	CD4051BCSJX	CD4052BCM
CD4052BCMX	CD4052BCN	CD4052BCSJ
CD4052BCSJX	CD4053BCM	CD4053BCMX
CD4053BCN	CD4053BCSJ	CD4053BCSJX
CD4060BCM	CD4060BCMX	CD4060BCN
CD4066BCM	CD4066BCMX	CD4066BCN
CD4066BCSJ	CD4066BCSJX	CD4069UBCM
CD4069UBCMX	CD4069UBCN	CD4069UBCSJ
CD4069UBCSJX	CD4070BCM	CD4070BCMX
CD4070BCN	CD4071BCM	CD4071BCMX
CD4071BCN	CD4081BCM	CD4081BCMX
CD4081BCN	CD4093BCM	CD4093BCMX
CD4093BCN	CD4094BCN	CD4094BCWM
CD4094BCWMX	CD4099BCN	CD4503BCM
CD4503BCN	CD4511BCN	CD4511BCWM
CD4512BCM	CD4512BCMX	CD4512BCN
CD4514BCN	CD4514BCWM	CD4515BCN
CD4515BCWM	CD4515BCWMX	CD4528BCM
CD4528BCN	CD4538BCM	CD4538BCMX

CD4538BCN
CD4541BCM
CD4724BCM
MM74C00M
MM74C02N
MM74C04N
MM74C14MX
MM74C157N
MM74C165N
MM74C240N
MM74C244N
MM74C32N
MM74C373WMX
MM74C48N
MM74C74MX
MM74C902M
MM74C906M
MM74C914M
MM74C922N
MM74C923N
MM74C925N
MM82C19N
MM88C30MX

CD4538BCWM
CD4541BCM
CD4724BCM
MM74C00MX
MM74C04M
MM74C08N
MM74C14N
MM74C164M
MM74C175N
MM74C240WM
MM74C244WM
MM74C373N
MM74C374N
MM74C73N
MM74C74N
MM74C902N
MM74C906MX
MM74C914MX
MM74C922WM
MM74C923WM
MM74C926N
MM88C29N
MM88C30N

CD4538BCWMX
CD4541BCN
CD4724BCN
MM74C00N
MM74C04MX
MM74C14M
MM74C154N
MM74C164N
MM74C221N
MM74C240WMX
MM74C244WMX
MM74C373WM
MM74C42N
MM74C74M
MM74C85N
MM74C905N
MM74C906N
MM74C914N
MM74C922WMX
MM74C923WMX
MM74C93N
MM88C30M