

Date Created : 2008/03/07
Date Issued On : 2008/08/14
PCN# : Q1081004

DESIGN/PROCESS CHANGE NOTIFICATION -- FINAL

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.**

Updated process quality documentation, such as FMEAs and Control Plans, are available for viewing upon request.

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

Technical Contact:

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Implementation of change:

Expected 1st Device Shipment Date: 2008/10/31

Earliest Year/Work Week of Changed Product: 0844

Change Type Description: Lead Frame Composition, Mold Compound, Wafer Diameter

Description of Change (From): Fairchild products currently manufactured using Fairchild's 150mm class 1 fab process in South Portland, Maine. The 42-ball BGA package currently used by Fairchild is RoHS compliant.

Description of Change (To): Products will now be produced on 200mm wafers at the Fairchild Semiconductor South Portland, Maine fab. The 42-ball BGA package in addition to being RoHS compliant is now fully green compliant. Die size, design, geometry and layout of the affected products remains unchanged. The products will be fully compliant to all published datasheet specifications. Quality and reliability will remain at the highest standards already demonstrated with Fairchild's existing products.

Reason for Change : Fairchild Semiconductor is increasing capacity by converting to 200mm wafers at the South Portland, Maine fab. Fairchild is committed to protecting the environment by reducing the use of hazardous substances in our products.

Qual/REL Plan Numbers : Q20080338

The FIN662CGFX and FIN662CMLX are the devices used to qualify the 200mm process in both the BGA and MLP package. The FIN454CGFX is also on the 200mm process, and additionally qualifies the BGA Green package with the largest die and highest power device in the product family to date.

Qualification :

The FIN662CGFX 1000hr failure has been deemed a die failure. Failure analysis

identified a hot spot where bridging likely occurred. There are multiple potential root causes for bridging defects which are outlined in the 8D Corrective Action Report. The defect is considered random based on one failure out of 20 reliability lots (1,540 units). Cumulative reliability data calculated on these 20 lots results in a FIT of 12 (9,500 years MTTF). Additionally, three lots of 77 units each passed 1500 hours of extended SOPL with zero failures. The Reliability Test Report includes the Failure Analysis Report and an 8D Corrective Action Report from Fab Quality Assurance.

Results/Discussion for Qual Plan Number Q20080338

Test: (High Temperature Storage Life)				
Lot	Device	168-HOURS	1000-HOURS	Failure Code
Q20080338AAHTSL	FIN662CGFX	0/77		
Q20080338AAHTSL	FIN662CGFX		0/77	
Q20080338ABHTSL	FIN662CGFX	0/77		
Q20080338ABHTSL	FIN662CGFX		0/77	
Q20080338ACHTSL	FIN662CGFX	0/77		
Q20080338ACHTSL	FIN662CGFX		0/77	
Q20080338BAHTSL	FIN662CMLX	0/77		
Q20080338BAHTSL	FIN662CMLX		0/77	
Q20080338BBHTSL	FIN662CMLX	0/77		
Q20080338BBHTSL	FIN662CMLX		0/77	
Q20080338BCHTSL	FIN662CMLX	0/77		
Q20080338BCHTSL	FIN662CMLX		0/77	
Q20080338CAHTSL	FIN454CGFX	0/77		
Q20080338CAHTSL	FIN454CGFX		0/77	
Q20080338CBHTSL	FIN454CGFX	0/77		
Q20080338CBHTSL	FIN454CGFX		0/77	
Q20080338CCHTSL	FIN454CGFX	0/77		
Q20080338CCHTSL	FIN454CGFX		0/77	

Test: (Static Op Life)					
Lot	Device	168-HOURS	500-HOURS	1000-HOURS	Failure Code
Q20080338AASOPL1	FIN662CGFX	0/77			
			0/77		
				0/77	
Q20080338ABSOP1		0/77			
			0/77		
				0/77	
Q20080338ACSOPL1		0/77			
			0/77		
				1/77	Die (Not Otherwise Classified)
Q20080338BASOPL1	FIN662CMLX	0/77			
			0/77		
				0/77	
Q20080338BBSOPL1		0/77			
			0/77		
				0/77	
Q20080338BCSOPL1		0/77			
			0/77		
				0/77	
Q20080338CASOPL1	FIN454CGFX	0/77			
			0/77		
				0/77	
Q20080338CBSOPL1		0/77			
			0/77		
				0/77	
Q20080338CCSOPL1		0/77			
			0/77		
				0/77	

Test: -65C, 150C (Temperature Cycle)			
Lot	Device	500-CYCLES	Failure Code
Q20080338AATMCL1	FIN662CGFX	0/77	
Q20080338ABTMCL1	FIN662CGFX	0/77	
Q20080338ACTMCL1	FIN662CGFX	0/77	
Q20080338BATMCL1	FIN662CMLX	0/77	

Q20080338BBTMCL1	FIN662CMLX	0/77	
Q20080338BCTMCL1	FIN662CMLX	0/77	
Q20080338CATMCL1	FIN454CGFX	0/77	
Q20080338CBTMCL1	FIN454CGFX	0/77	
Q20080338CCTMCL1	FIN454CGFX	0/77	
Test: 110C (Highly Accelerated Stress Test)			
Lot	Device	264-HOURS	Failure Code
Q20080338AAHAST2	FIN662CGFX	0/45	
Q20080338ABHAST2	FIN662CGFX	0/45	
Q20080338ACHAST2	FIN662CGFX	0/45	
Q20080338BAHAST2	FIN662CMLX	0/45	
Q20080338BBHAST2	FIN662CMLX	0/45	
Q20080338BCHAST2	FIN662CMLX	0/45	
Q20080338CDHAST2	FIN454CGFX	0/45	
Q20080338CEHAST2	FIN454CGFX	0/45	
Q20080338CFHAST2	FIN454CGFX	0/45	
Test: MSL(2), PKG(Small), PeakTemp(260c), Cycles(3) (Precondition)			
Lot	Device	Results	Failure Code
Q20080338AAPCNL2A	FIN662CGFX	0/276	
Q20080338ABPCNL2A	FIN662CGFX	0/276	
Q20080338ACPCNL2A	FIN662CGFX	0/276	
Q20080338CAPCNL2A	FIN454CGFX	0/154	
Q20080338CBPCNL2A	FIN454CGFX	0/154	
Q20080338CCPCNL2A	FIN454CGFX	0/154	
Test: MSL(3), PKG(Small), PeakTemp(260c), Cycles(3) (Precondition)			
Lot	Device	Results	Failure Code
Q20080338BAPCNL3A	FIN662CMLX	0/276	
Q20080338BBPCNL3A	FIN662CMLX	0/276	
Q20080338BCPCNL3A	FIN662CMLX	0/276	

Product Id Description : FIN668C, FIN670C Transfer to 200mm Wafer and Conversion to Green BGA package.

Affected FSIDs :

FIN668CGFX	FIN668CGFX_SB82143	FIN668CMLX
FIN668CMLX_SB82155	FIN670CGFX	FIN670CMLX