



Process Qualification Report

Reliability By Design

Qualification Description:

The information contained herein represents proof of Reliability and Performance of the baseline process technology listed below in accordance with the Qualification Plan and test methods referenced in Section 8.0, after exposure to a variety of environments (electrical, thermal, humidity, etc) and mechanical events that may occur during installation and operational lifetime of the product. Upon conclusion of the testing the product continued to operate within specification limits, demonstrating its capability of reliable operation throughout its lifetime.

The purpose of this report is to present Qualification Test results of the of referenced process technology. The Pericom product data presented in this report qualifies all products manufactured using the exact semiconductor materials and processing techniques used in the baseline process and its off-shoot processes. The report describes the qualification test program, procedures used, criteria enforced (at the time of product validation), and the resulting test data obtained during the Qualification Test. The materials and processing techniques used in the baseline process are incorporated into the off-shoot processes, so the quality/integrity of the baseline and off-shoots (i.e.: 2PxM, 1PxM) processes will be equivalent.

Lot Background Information:

Qual Test Date:	Jan-2014 updated Apr-2016	By Ext. Process:	0.18um 1PxM BiCMOS
Process Technology:	0.18um 1P6M BiCMOS	Qual Vehicle:	PI3EQX12801ZDE
Foundry & Code:	GBL (C)		
Qual Test Number:	QDG13018		

Pericom's Qualification Test Results:

Stress Test	Test Procedure	Test Conditions	Duration	# of Lots	Samples per Lot	Results Pass/Fail
High Temp Operating	JESD22-A108	1000 hrs 3.6V 125°C	168 hrs	3	77	223 / 8(*)
Life (HTOL)		1000 hrs 3.6V 125°C	500 hrs	3	75, 73, 75	223 / 0
HTOL was stopped and the boards were verified. HTOL will be restarted with fresh units.						
High Temp Operating	JESD22-A108	1000 hrs 3.6V 125°C	168 hrs	1	79	79 / 0
Life (HTOL)		1000 hrs 3.6V 125°C	500 hrs	1	79	79 / 0
		1000 hrs 3.6V 125°C	1000 hrs	1	79	78 / 1(**)
	ELFR based on 302 units	ELFR (40C, 0.7 eV, 3.6V, 60% CL)		46.7		
	>168hrs HTOL	FIT Rate (40C, 0.7 eV, 3.6V, 60% CL)		30.3		
	FIT based on 78 units	Calculated MTBF (hours)		33,032,571		
	1000hrs HTOL					
Temp Cycle Test	JESD22-A104	-65°C to 150°C, 500cyc	100 cycles	3	77	77 / 0
		-65°C to 150°C, 500cyc	500 cycles	3	77	77 / 0
High Temp Storage	JESD22-A103	1000hrs, 0V, 150°C	168 hrs	3	77	77 / 0
(HTS)		1000hrs, 0V, 150°C	500 hrs	3	77	77 / 0
		1000hrs, 0V, 150°C	1000 hrs	3	77	77 / 0
Latch Up Test	EIA JESD78	Report available by Device				
ESD-HBM Test	JESD22-A114	Report available by Device				

(*) 8 failures found >168 hrs - Analysis shows EOS damage. HTOL continued to see if there are more failures, none found. Verified boards. Restart HTOL with fresh units.

(**) 1 failure found at 1000 hrs - Analysis shows EOS damage related to handling during load/unload of the BIB. Not related to HTOL operation.

Qualification by Extension Information:

It is valid to use the reliability data of a particular process technology and apply to all products within this process technology family. All parts within the same family are designed to the same rules (layout & electrical), and manufacturing is controlled by SPC. Within a product family, a device can only be fabricated on one process technology option.

If there are any questions about this qualification, please contact Quality Support at: customerquestion@pericom.com

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Date: Jan-2014 updated Apr-2016
 Subject: Process Qualification Report
 Mfg-Fab-Process: GBL (C) 0.18um 1P6M BiCMOS
 Qual Vehicle: PI3EQX12801ZDE

By extension: Active devices using the Fab/Process at the time of the Qualification:

PI3DPX1203ZHE				
PI3DPX1203ZHEX				
PI3DPX1206XUAEX				
PI3EQX1001XUAEX				
PI3EQX1002AZLEX				
PI3EQX1002BZLEX				
PI3EQX1002CZLEX				
PI3EQX1002XUAEX				
PI3EQX1002ZLEX				
PI3EQX10904ZHE				
PI3EQX10904ZHEX				
PI3EQX10908AZFEX				
PI3EQX10908ZFEX				
PI3EQX10964ZFEX				
PI3EQX1204-BZHE				
PI3EQX1204-BZHEX				
PI3EQX1204C1ZHEX				
PI3EQX1204-CZHEX				
PI3EQX1204DZHEX				
PI3EQX1204EZHE				
PI3EQX1204EZHEX				
PI3EQX12801BZLEX				
PI3EQX12801CZLEX				
PI3EQX12801ZDEX				
PI3EQX12802ZHEX				
PI3EQX12804ZFEX				
PI3EQX12908AZFEX				
PI3EQX8904ZHE				
PI3EQX8904ZHEX				
PI3EQX8908AZFEX				
PI3EQX8908ZFEX				
PI3EQX8984ZLEX				
PI3HDX1204-BZHE				
PI3HDX1204-BZHEX				
PI3HDX1204DZHEX				
PI3HDX1204DZLEX				
PI3HDX1204EZHEX				
PI3HDX1204EZLEX				
PI6C5913004ZHIEX				
PI6C5916004ZHIEX				
PI6C5922504ZHIEX				
PI6C5946002ZHIEX				
PI6C5946004ZHIEX				
PI6C59S6005ZDIEX				