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:	Dec-2005, update Nov-2014	By Ext. Process:	0.18um 1P6M 0.18um 1PxM
Process Technology:	0.18um 1P4M		
Foundry & Code:	UMC (U)		
Qual Test Number:	QDU05004, QDU09009*	Qual Device:	PI2EQX4401

* = continuation of DHTOL to 2,000 hrs

Pericom's Qualification Test Results:

Stress Test	Test Procedure	Test Conditions	Duration	# of Lots	Samples per Lot	Results Pass/Fail
Dynamic High Temp	JESD22-A108	2000 hrs 1.1V 125°C	168 hrs	1	135	135 / 0
Operating Life		2000 hrs 1.1V 125°C	500 hrs	1	135	135 / 0
(DHTOL)		2000 hrs 1.1V 125°C	1000 hrs	1	135	135 / 0
		2000 hrs 1.1V 125°C	1168 hrs	1	135	135 / 0
		2000 hrs 1.1V 125°C	2000 hrs	1	135	** 130 / 0
	ELFR based on 130 units at 168 hours	**ELFR Rate** (40C, 0.7eV, 1.1V, 60% CL)	**146**			
	FIT based on 130 units completing 2,000 hours of DHTOL	**FIT Rate** (40C, 0.7eV, 1.1V, 60%CL)	**12**			
		Calculated MTBF (hours)	**81,652,046**			
Temp Cycle Test	JESD22-A104	-65°C to 150°C, 500cycles	100 cycles	2	76	152 / 0
		-65°C to 150°C, 500cycles	500 cycles	2	76	152 / 0
High Temp Storage	JESD22-A103	1000hrs, 0V, 150°C	168 hrs	2	46	95 / 0
(HTS)		1000hrs, 0V, 150°C	1000 hrs	2	46	95 / 0
Latch Up Test	EIA JESD78	Report available by Device				
ESD-HBM Test	JESD22-A114	Report available by Device				

** 5 units disqualified due to EOS damage during DHTOL.

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

Date:	**Dec-2005, update Nov-2014**
Subject:	**PericomProcess Qualification Report**
Mfg-Fab-Process:	**UMC (U) 0.18um 1P4M**
Qual Device:	**PI2EQX4401**

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

PI2EQX3201BLZFE				
PI2EQX3201BLZFEX				
PI2EQX3201BZFE				
PI2EQX3201BZFEX				
PI2EQX3202BNBE				
PI2EQX3202BNBEX				
PI2EQX3211BHE				
PI2EQX3211BHEX				
PI2EQX3232AZDE				
PI2EQX3232AZDEX				
PI2EQX4401DZFE				
PI2EQX4401DZFEX				
PI2EQX4402DNBE				
PI2EQX4402DNBEX				
PI2EQX4432DZDE				
PI2EQX4432DZDEX				
PI7C9X110BNB				
PI7C9X110BNBE				
PI7C9X130DND				
PI7C9X130DNDE				
PI7C9X7952AFDE				
PI7C9X7952BFDE				
PI7C9X7952BFDEX				
PI7C9X7954AFDE				
PI7C9X7954BFDE				
PI7C9X7954BFDEX				
PI7C9X7958ANBE				
PI7C9X7958BNBE				

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