

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:	Apr-2011 updated Jun-2015
Process Technology:	0.18um 1P6M
Foundry & Code:	SMI (I)
Qual Test Number:	QDI10037

By Ext. Process:	0.18um 1PxM
Qual Part Number:	PI6LC4820
Date Code:	1037XI, 1145XI

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	1000 hrs 3.6V 150°C	168 hrs	2	80	160 / 0
Operating Life		1000 hrs 3.6V 150°C	500 hrs	2	80	160 / 0
(DHTOL-PI6LC4820ZDE)		1000 hrs 3.6V 150°C	1000 hrs	2	80	160 / 0
Dynamic High Temp	JESD22-A108	1000 hrs 3.6V 150°C	168 hrs	1	80	80 / 0
Operating Life		1000 hrs 3.6V 150°C	500 hrs	1	80	80 / 0
(DHTOL-PI6LC4820ZDE-2015)		1000 hrs 3.6V 150°C	1000 hrs	1	80	80 / 0
	ELFR based on 240 units completing 168hrs	ELFR Rate (55C, 0.7 eV, 3.6V, 60% CL)		147.9		
	FIT base on 240 units completing 1000 hrs	FIT Rate (55C, 0.7 eV, 3.6V, 60% CL)		24.8		
		Calculated MTBF (hours)		40,255,638		
Temp Cycle Test	JESD22-A104	-65°C to 150°C, 500cyc	100 cycles	1	77	77 / 0
		-65°C to 150°C, 500cyc	500 cycles	1	77	77 / 0
Temp Cycle Test	JESD22-A104	-65°C to 150°C, 500cyc	100 cycles	1	77	77 / 0
(TC - Ongoing Rel Monitoring-2012)		-65°C to 150°C, 500cyc	500 cycles	1	77	77 / 0
High Temp Storage	JESD22-A103	1000hrs, 0V, 150°C	168 hrs	1	77	77 / 0
(HTS)		1000hrs, 0V, 150°C	500 hrs	1	77	77 / 0
		1000hrs, 0V, 150°C	1000 hrs	1	77	77 / 0
High Temp Storage	JESD22-A103	1000hrs, 0V, 150°C	168 hrs	1	77	77 / 0
(HTS - Ongoing Rel Monitoring-2012)		1000hrs, 0V, 150°C	500 hrs	1	77	77 / 0
		1000hrs, 0V, 150°C	1000 hrs	1	77	77 / 0
Latch Up Test	EIA JESD78	Report available by Device				
ESD-HBM Test	JESD22-A114	Report available by Device				

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:	<u>Apr-2011 updated Jun-2015</u>
Subject:	<u>PericomProcess Qualification Report</u>
Mfg-Fab-Process:	<u>SMI (I) 0.18um 1P6M</u>
Qual Device:	<u>PI6LC4820</u>

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

PI6LC4820ZDE			
PI6LC4820ZDEX			
PI6LC4830ZHE			
PI6LC4830ZHEX			
PI6LC4833ZBIE			
PI6LC4833ZBIEX			
PI6LC4840ZHE			
PI6LC4840ZHEX			
PI6LC4872-01ZDE			
PI6LC4872-01ZDEX			
PI6LC4872-01ZDIE			
PI6LC4872-01ZDIEX			
PI6LC4872-02ZDE			
PI6LC4872-02ZDEX			
PI6LC4872-02ZDIE			
PI6LC4872-02ZDIEX			

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