



Reliability Report

TSMC 0.25u 1P5M Logic/PCI9X56-BA66BI

March 31st, 2003

A handwritten signature in black ink, which appears to read 'Edward T. Ng', is written over a light gray grid background.

Edward Ng

Acting QA Manager

1. Operating Life Test (HTOL)

Condition: 125°C; 3.6V		168 hrs			500 hrs			1000 hrs		
Lot ID	Lot #	Rej	Qty	Note	Rej	Qty	Note	Rej	Qty	Note
PCI9056BA	Qual Lot#1	0	120		0	120		0	119	
PCI9656BA	Qual Lot#1	0	120		0	120		0	120	
PCI9656BA	Qual Lot#2	0	120		0	120		0	120	

Failure Rate Calculation:

Device Hour		Failure Rate	
125°C; 3.6V	55°C; 3.6V	No. Rej.	at 60% UCL, 55°C, 0.7eV
359,500	27,977,336	0	33 FIT

Note (1): invalid reject, mechanical

2. ELF (Early Life Failure)

Condition: 125°C; 3.6V		48 hrs		
Lot ID	Lot #	Rej	Qty	Note
PCI9656BA	Qual Lot#1	0	857	
PCI9656BA	Qual Lot#2	0	911	
PCI9656BA	Qual Lot#3	0	864	
Total		0	2632	

Failure Rate Calculation:

Device Hour		Failure Rate	
125°C; 3.6V	55°C; 3.6V	No. Rej.	at 60% UCL, 55°C, 0.7eV
126,336	9,831,835	0	93 FIT

3. Electrostatic Discharge (ESD)

Human Body Model (HBM), JESD22-A114-B

Lot ID	Lot #	Test Result
PCI9056BA	Qual Lot#1	Passed ±2000V
PCI9656BA	Qual Lot#1	Passed ±2000V

4. Electrostatic Discharge (ESD)

Machine Model (MM), JESD22-A115-A

Lot ID	Lot #	Test Result
PCI9056BA	Qual Lot#1	Passed ±200V ₍₂₎
PCI9656BA	Qual Lot#1	Passed ±200V ₍₂₎

Note (2): PCI I/Os are rated at +/- 150V

5. Latch-Up

JESD-78, Class I

Lot ID	Lot #	Test Result
PCI9056BA	Qual Lot#1	Passed $\pm 200\text{mA}$
PCI9656BA	Qual Lot#1	Passed $\pm 200\text{mA}$

6. Pre-Conditioning

JESD22-A113-B, Level 3

Lot ID	Lot #	Rej	Qty
PCI9056BA	Qual Lot#1	0	100
PCI9056BA	Qual Lot#2	0	150
PCI9656BA	Qual Lot#1	0	150
PCI9656BA	Qual Lot#2	0	150

7. Temp Cycle

JESD22-A104-B, Condition C

Lot ID	Lot #	250 Cycles		500 Cycles		1000 Cycles	
		Rej	Qty	Rej	Qty	Rej	Qty
PCI9056BA	Qual Lot#1	0	45	0	45	0	45
PCI9056BA	Qual Lot#2	0	44 ₍₃₎	0	44	0	44
PCI9656BA	Qual Lot#1	0	45	0	45	0	45
PCI9656BA	Qual Lot#2	0	45	0	45	0	45

Note (3): invalid reject, mechanical

8. Pressure Pot

JESD22-A102-C, 168 Hrs @ 121 C/100% RH

Lot ID	Lot #	Rej	Qty
PCI9056BA	Qual Lot#1	0	45
PCI9056BA	Qual Lot#2	0	45
PCI9656BA	Qual Lot#1	0	45
PCI9656BA	Qual Lot#2	0	45

9. HAST (Unbiased)

JESD22-A118, 96 Hrs @ 130 C/85% RH

Lot ID	Lot #	Rej	Qty
PCI9056BA	Qual Lot#1	0	45
PCI9056BA	Qual Lot#2	0	45
PCI9656BA	Qual Lot#1	0	45
PCI9656BA	Qual Lot#2	0	45