Qualification Program

Introduction

Lattice Semiconductor Corporation (LSC) has an intensive qualification program for examining and testing new products, processes, and vendors in order to insure the highest levels of quality. LSC's Quality and Reliability Group is responsible for defining and implementing this qualification program.

The following table outlines the steps which must be performed before a new product, package or process is released. The requirements listed below are general guidelines. Detailed information on Lattice's qualification process is available to customers upon request.

Qualification Requirements

Test	Duration		
	New Product	New Wafer Process	New Package
125° C Operating Lifetest (5.25V)	1,000 Hours	1,000 Hours	1,000 Hours[1]
150° C Biased Retention Bake (5.25V)	1,000 Hours	1,000 Hours	1,000 Hours[1]
Endurance Cycling	10,000 Cycles	10,000 Cycles	N/A
ESD (CDM, HBM, MM)	End of Test	End of Test	N/A
Latch-Up Immunity	End of Test	End of Test	N/A
Temperature Cycling (-65 to 150° C)	1,000 Cycles	1,000 Cycles	1,000 Cycles
Biased 85/85 (5V)	N/A	1,000 Hours	1,000 Hours
Autoclave (121° C, 15psig)	N/A	168 Hours	168 Hours
Solderability	N/A	N/A	End of Test
Physical Dimensions	N/A	N/A	End of Test

1. Required for new assembly technologies only.

Qualification Program

Reliability Monitor Program

The Reliability Monitor Program provides for a periodic reliability monitor of LSC products. The program assures that all Lattice products comply on a continuing basis with established reliability and quality levels.

The Reliability Monitor Program is designed to monitor all fab and assembly facilities as well as each process technology in production. A summary of the program test and sampling plan is shown below.

Short Term Process Monitor (Bi-Weekly)

Test	# of Samples	Duration
125° C Operating Lifetest (6.50V)	70	160 Hours
150° C Biased Retention Bake (5.25V)	70	160 Hours
Autoclave (121° C, 15psig)	35	160 Hours
Temperature Cycling (-65 to 150° C)	35	250 Cycles

Long Term Process Monitor (Monthly)

Test	# of Samples	Duration
125° C Operating Lifetest (6.00V)	100	1000 Hours
150° C Biased Retention Bake (5.25V)	150	1000 Hours

Ongoing Package Monitor (Monthly)

Test	# of Samples	Duration
Temperature Cycling (-65 to 150° C)	50	1000 Cycles
85° C / 85% RH	75	1000 Hours

LATTICE SEMICONDUCTOR CORPORATION
5555 Northeast Moore Court
Hillsboro, Oregon 97124 U.S.A.
Tel.: (503) 681-0118
FAX: (503) 681-3037
http://www.latticesemi.com

November 1996