S25FL008A

CS 80642

Qualification of: S25FL008A, 8-Megabit 3.0 Volt Flash Memory with 50 MHz SPI Bus Interface in SOC008 (8.00 x 5.28 x 2.159mm) 8 Lead, Small Outline Integrated Circuit (SOIC)

Reliability Qualification Summary

CONFIDENTIAL

NOTICE: The material in this report is confidential. It is prepared to assist in the qualification of our product. It is declassified for the internal use of our customers only, and may be modified to meet the needs of specific customers. It also serves as a record of full qualification according to JESD47 and AEC-Q100 Grade 1 requirements.

Additionally, the package details (material set, assembly location, etc.) are specific to the qual vehicle used for the qualification. Alternate material sets and assembly locations may be qualified for the product. Production material can be assembled with any qualified material set and at any qualified assembly location. Tests are performed in accordance with AEC-Q100 and relevant JEDEC specifications.

Table of Contents

I. Product Information

II. Life Test Failure Rate Calculation

III. Summary of Stress Test Results

IV. Revision History

I. Product Information

Product Description: S25FL008A
8-Megabit 3.0 Volt Flash Memory with 50 MHz SPI Bus Interface

Package:	SOC008	**Qualification:**	80642
Description:	(8.00 x 5.28 x 2.159mm) 8 Lead, Small Outline Integrated Circuit (SOIC)		
Theta Ja:	75 °C/W	**Psi Jt:**	15 °C/W
Assembly Location:	Stats ChipPAC Shanghai	**Molding Compound:**	RoHS Compliant Epoxy Resin
Substrate/Leadframe:	Copper Leadframe	**Die Attachment:**	Paste
Lead Finish:	100% Matte Sn Plating	**Bond Wire:**	Gold
Comments:			

Est. Field Temperature:	55 °C	**Life Test Temperature:**	150 °C
Est. DC Field Current:	25 mA	**Life Test Dynamic Current:**	4 mA
Est. Field Voltage:	3.0 V	**Life Test Voltage:**	3.6 V
Est. Field Power Dissipation:	75 mWatts	**Est. Stress Power Dissipation:**	14.4 mWatts
Est. Field Tj:	60.6 °C	**Est. Stress Tj:**	151.0 °C

Die:	98GZ1A	**Die Size:**	3.33 x 4.20 mm
Process:	CS99S (200nm)	**Fab:**	Spansion Monden
Type:	MirrorBit	**Density:**	8M

II. CS99S Life Test Failure Rate Calculation

HTOL Stress Temperature - 150 °C

Failure Mechanism	Read Points / Test Results				Modeling Parameters @ 55°C					Avg. Failure Rate FITS @55°C, 60% Conf.	
	24 hrs	168 hrs	504 hrs	1000 hrs	Ea eV	TAF	VAF	OAF	MTTF (yrs)	Early Life	Inherent Life
PLASTIC											
Sample Size	2662	2542	965	462							
Zero fails, Process ave. Ea	0 *	0	0	0	0.66	158	1	158		84	8
Totals	**0**	**0**	**0**	**0**					**19026**	**84**	**6**

* - Contributes to early life FITS

Data Retention Bake - 150 °C

Reliability Stress	Number of Rejects	Sample Size	Failure Rate %	Failure Mechanism
500 hrs	0	731	0.00	No Failures
1000 hrs	0	479	0.00	No Failures
2000 hrs	0	326	0.00	No Failures

III. Summary of Stress Test Results

Stress Test	Stress Condition	Package Type	Sample Size	Num. of Lots	Num. of Fails	Failure Rate %	Comments
Data From Qualification 80642:							
HTOL (EL)	(3.6V, 150°C)	SOC008 [1]	144	3	0	0.00	168 hours
ESD CDM	N/A	SOC008 [1]	45	3	Passed 1.0kV		
ESD HBM	(100pF, 1500 Ohms)	SOC008 [1]	180	3	Passed 2.0kV		
Latch Up	(125°C, +/- 100mA)	SOC008 [1]	18	3	Passed		
Endurance (10k)	(90°C, 3.6V)	SOC008 [1]	96	1	0	0.00	10k cycles
Preconditioning	(PC1/260°C, +0°C/-5°C)	SOC008 [1]	693	3	Passed Jedec L3 / Jeita Rank E		
Precon+Temp Cycle	(PC1/260°C, -40°C/150°C)	SOC008 [1]	231	3	0	0.00	1000 cycles
Precon+HAST	(PC1/260°C, Biased, 130°C/85% RH)	SOC008 [1]	231	3	0	0.00	96 hours
Precon+Steam Pressure	(PC1/260°C, 121°C/100%RH/15PSIG)	SOC008 [1]	231	3	0	0.00	168 hours

Notes / Justification: 1) Results from Qual 80642, S25FL008A, 8M CS99S (200nm) MirrorBit in 8 Lead SOIC (8 x 5.28 x 2.159mm)

Preconditioning Flows: PC1 (Exceeds JEDEC L3 and JEITA Rank E): Bake 125°C, 24hr => Soak @ 30°C/70%RH, 216hr => 3x Reflow

IV. Revision History

Section	Description
Revision A - 2/28/2006	
	Initial Release.

Trademarks and Notice

The contents of this document are subject to change without notice. This document may contain information on a Spansion product under development by Spansion. Spansion reserves the right to change or discontinue work on any product without notice. The information in this document is provided as is without warranty or guarantee of any kind as to its accuracy, completeness, operability, fitness for particular purpose, merchantability, non-infringement of third-party rights, or any other warranty, express, implied, or statutory. Spansion assumes no liability for any damages of any kind arising out of the use of the information in this document.

Copyright © 2012 Spansion Inc. All rights reserved. Spansion®, the Spansion logo, MirrorBit®, MirrorBit® Eclipse™, ORNAND™, and combinations thereof, are trademarks and registered trademarks of Spansion LLC in the United States and other countries. Other names used are for informational purposes only and may be trademarks of their respective owners.