

Am29LV065D

CS 4197

Qualification of: Am29LV065D, a 64 Mbit (8 M x 8-Bit) with Versatile/I/O Control in TS048 (18.4 x 12.0 x 1.1mm) 48 Lead, Thin Small Outline Package (TSOP)



Reliability Qualification Summary

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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.

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I. Product Information

Product Description: Am29LV065D
64 Mbit (8 M x 8-Bit) with Versatile/O Control

Package:	TS048	Qualification:	4197
Description:	(18.4 x 12.0 x 1.1mm) 48 Lead, Thin Small Outline Package (TSOP)		
Theta Ja:	40 °C/W	Psi Jt:	17 °C/W
Assembly Location:	Spansion Thailand	Molding Compound:	RoHS Compliant Epoxy Resin
Substrate/Leadframe:	Copper Leadframe	Die Attachment:	Paste
Lead Finish:	SnPb Plating	Bond Wire:	Gold
Comments:	Current Material Set		

Est. Field Temperature:	55 °C	Life Test Temperature:	150 °C
Est. DC Field Current:	26 mA	Life Test Dynamic Current:	2.5 mA
Est. Field Voltage:	3.0 V	Life Test Voltage:	3.6 V
Est. Field Power Dissipation:	78 mWatts	Est. Stress Power Dissipation:	9 mWatts
Est. Field Tj:	58.1 °C	Est. Stress Tj:	150.3 °C

Die:	98642A	Die Size:	9.26 x 8.80 mm
Process:	CS49S (230nm)	Fab:	Spansion Monden
Type:	Floating Gate	Density:	64M

II. CS49S/LS 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	1000 hrs	Ea eV	TAF	VAF	OAF	MTTF (yrs)	Early Life	Inherent Life
PLASTIC										
Sample Size	11266	11536	2646							
Zero fails, Process ave. Ea	0 *	0	0	0.66	191	1	191		20	1
Totals	0	0	0					114155	20	1

* - Contributes to early life FITS

Data Retention Bake - 150 °C

Reliability Stress	Number of Rejects	Sample Size	Failure Rate %	Failure Mechanism
500 hrs	0	2916	0.00	No Failures
1000 hrs	0	2846	0.00	No Failures
2000 hrs	1	3099	0.03	Poly to Contact Short

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 4197:							
HTOL (EL)	(3.6V, 150°C)	TS048 ¹	150	3	0	0.00	168 hours
ESD HBM	(100pF, 1500 Ohms)	TS048 ¹	60	1	Passed 2.0kV		
Latch Up	(125°C, +/- 100mA)	TS048 ¹	6	1	Passed		
Endurance (10k)	(90°C, 3.6V)	TS048 ¹	64	1	0	0.00	10k cycles
Generic Reference Data:							
ESD CDM	N/A	TS048 ²	30	1	Passed 500V		
Preconditioning	(PC1/260°C, +0°C/-5°C)	TS048 ²	204	1	Passed Jedec L3 / Jeita Rank E		
Precon+Temp Cycle	(PC1/260°C, -40°C/150°C)	TS048 ²	77	1	0	0.00	1000 cycles
Precon+HAST	(PC1/260°C, Biased, 130°C/85% RH)	TS048 ²	50	1	0	0.00	96 hours
Precon+Steam Pressure	(PC1/260°C, 121°C/100%RH/15PSIG)	TS048 ²	77	1	0	0.00	168 hours

Notes / Justification: 1) Results from Qual 4197, Am29LV065D, 64M CS49S (230nm) Floating Gate in 48 Lead TSOP (18.4 x 12 x 1.1mm)
 2) Results from Qual 80337, Am29LV641D in 48 Lead TSOP (18.4 x 12 x 1.1mm) - Same Package, Technology, Similar Die

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 - 11/20/2006	Initial Release.

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