

Am29BL162C

CS 81296

Qualification of: Am29BL162C, 16 Megabit (1M x 16-Bit) 3.0 Volt-only Burst Mode Flash Memory in SSO056 (23.7 x 13.3 x 2.0mm) 56 Lead, Shrink Small Outline Package (SSOP)



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: Am29BL162C
16 Megabit (1M x 16-Bit) 3.0 Volt-only Burst Mode Flash Memory

Package:	SSO056	Qualification:	81296
Description:	(23.7 x 13.3 x 2.0mm) 56 Lead, Shrink Small Outline Package (SSOP)		
Theta Ja:	72 °C/W	Psi Jt:	°C/W
Assembly Location:	Spansion Kuala Lumpur	Molding Compound:	RoHS Compliant Epoxy Resin
Substrate/Leadframe:	Laminate Substrate	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:	3 mA
Est. Field Voltage:	3.0 V	Life Test Voltage:	3.6 V
Est. Field Power Dissipation:	75 mWatts	Est. Stress Power Dissipation:	10.8 mWatts
Est. Field Tj:	60.4 °C	Est. Stress Tj:	150.7 °C

Die:	98849ABT	Die Size:	7.72 x 6.85 mm
Process:	CS39LS (320nm)	Fab:	Spansion Monden
Type:	Floating Gate	Density:	16M

II. CS39S/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	13538	13616	2400							
Zero fails, Process ave. Ea	0 *	0	0	0.66	135	1	135		17	2
Totals	0	0	0					57078	17	2

* Contributes to early life FITS

Data Retention Bake - 150 °C

Reliability Stress	Number of Rejects	Sample Size	Failure Rate %	Failure Mechanism
500 hrs	0	4620	0.00	No Failures
1000 hrs	0	4847	0.00	No Failures
2000 hrs	0	4674	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
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Data From Qualification 81296:

Gate Leakage	(155°C, +/- 400V)	SSO056 ¹	6	1	0	0.00	Passed
Preconditioning	(PC1/260°C, +0°C/-5°C)	SSO056 ¹	77	1	0	0.00	Passed Jedec L3
Precon+Temp Cycle	(PC1/260°C, -40°C/150°C)	SSO056 ¹	77	1	0	0.00	1000 cycles

Generic Reference Data:

HTOL (EL)	(3.6V, 150°C)	SSO056 ²	1	300	0	0.00	168 hours
Preconditioning	(PC1/240°C, +0°C/-5°C)	SSO056 ²	2	450	0	0.00	Passed Jedec L3
Precon+Temp Cycle	(PC1/240°C, -40°C/150°C)	SSO056 ²	2	150	0	0.00	1000 cycles
Precon+HAST	(PC1/240°C, Biased, 130°C/85% RH)	SSO056 ²	150	2	0	0.00	168 hours
Precon+Steam Pressure	(PC2/240°C, 121°C/100%RH/15PSIG)	SSO056 ²	2	150	0	0.00	168 hours

Notes / Justification: 1) Results from Qual 81296, Am29BL162C, 16M CS39LS (320nm) Floating Gate in 56 Lead SSOP (23.7 x 13.3 x 2mm)

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 - 8/19/2008	Initial Release.

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