

# Am29LV640D/641D

## CS 4080

**Qualification of: Am29LV64xD, 64 Megabit (4 M x 16-Bit) 3.0 Volt-only, Uniform Sector Flash Memory with VersatileIO™ 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

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Product Description: Am29LV641D  
64 Megabit (4 M x 16-Bit) 3.0 Volt-only, Uniform Sector Flash Memory with VersatileIO™ Control

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Package:	TS048	Qualification:	4080
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:			

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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

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Die:	98363A	Die Size:	9.26 x 8.80 mm
Process:	CS49S (230nm)	Fab:	FSET
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	2000 hrs	Ea eV	TAF	VAF	OAF	MTTF (yrs)	Early Life	Inherent Life
PLASTIC											
Sample Size	2700	2994	1134	150							
Zero fails, Process ave. Ea	0 *	0	0	0	0.66	148	1	148		84	4
Totals	0	0	0	0					28539	84	4

\* Contributes to early life FITS

Data Retention Bake - 150 °C

Reliability Stress	Number of Rejects	Sample Size	Failure Rate %	Failure Mechanism
500 hrs	0	1237	0.00	No Failures
1000 hrs	0	1391	0.00	No Failures
2000 hrs	0	1471	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 4080:							
HTOL (EL)	(3.6V, 150°C)	TS048 <sup>1</sup>	151	1	0	0.00	168 hours
HTOL (IL)	(3.6V, 150°C)	TS048 <sup>1</sup>	151	1	0	0.00	504 hours
HTOL (XL)	(3.6V, 150°C)	TS048 <sup>1</sup>	151	1	0	0.00	1000 hours
HTOL (2kh)	(3.6V, 150°C)	TS048 <sup>1</sup>	151	1	0	0.00	2000 hours
ESD HBM	(100pF, 1500 Ohms)	TS048 <sup>1</sup>	30	1	Passed 2.0kV		
Latch Up	(+/- 100mA)	TS048 <sup>1</sup>	6	1	Passed		
Endurance (10k)	(130°C, 3.6V)	TS048 <sup>1</sup>	64	1	0	0.00	10k cycles
Temp Cycle	(-40°C/150°C)	TS048 <sup>1</sup>	152	1	0	0.00	1000 cycles
Steam Pressure Pot	(121°C/100%RH / 15PSIG)	TS048 <sup>1</sup>	143	1	0	0.00	168 hours
Temp Humidity Bias	(Biased, 85°C/85% RH)	TS048 <sup>1</sup>	220	0	0	0.00	1000 hours

Notes / Justification: 1) Results from Qual 4080, Am29LV641D, 64M CS49S (230nm) Floating Gate in 48 Lead TSOP (18.4 x 12 x 1.1mm)

## IV. Revision History

Section	Description
Revision A - 9/19/2012	Initial Release.

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