

S25FL064K

CS Q99953

Qualification of: S25FL064K, 64-Mbit CMOS 3.0 Volt Flash Memory with 104-MHz SPI (Serial Peripheral Interface) Multi I/O Bus in SOC008 Package



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: S25FL064K
 64-Mbit CMOS 3.0 Volt Flash Memory
 with 80-MHz SPI (Serial Peripheral Interface) Multi I/O Bus

Package:	SOC008	Qualification:	Q99953
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:	ChipMOS 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:	125 °C
Est. DC Field Current:	25 mA	Life Test Dynamic Current:	12 mA
Est. Field Voltage:	3.0 V	Life Test Voltage:	3.6 V
Est. Field Power Dissipation:	75 mWatts	Est. Stress Power Dissipation:	43.2 mWatts
Est. Field Tj:	60.6 °C	Est. Stress Tj:	128.2 °C

Die:	KAG019A	Die Size:	4.14 x 2.97 mm
Process:	90nm	Fab:	Winbond
Type:	Floating Gate	Density:	64M

II. 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 Q99953:							
ESD CDM	N/A	SOC008 ¹	15	1		Passed 1.0kV	
Preconditioning	(PC9/260°C, +0°C/-5°C)	SOC008 ¹	154	1		Passed Jedec L3 / Jeita Rank E	
Precon+Temp Cycle	(PC9/260°C, -40°C/150°C)	SOC008 ¹	77	1	0	0.00	1000 cycles
Precon+HAST	(PC9/260°C, Biased, 130°C/85% RH)	SOC008 ¹	77	1	0	0.00	96 hours
Generic Reference Data:							
HTOL (EL)	(3.6V, 125°C)	SOC008 ²	231	3	0	0.00	168 hours
ESD HBM	(100pF, 1500 Ohms)	SOC008 ²	36	3		Passed 2.0kV	
Latch Up	(25°C, +/- 100mA)	SOC008 ²	18	3		Passed	
Cycling + DRB	(25°C, 3.3V, 100kcyc, DRB@125C)	SOC008 ²	114	3	0	0.00	500h DRB
	(85°C, 3.3V, 100kcyc, DRB@125C)	SOC008 ²	117	3	0	0.00	500h DRB
Preconditioning	(PC2/260°C, +0°C/-5°C)	SOC008 ²	1155	3		Passed Jedec L3	
Temp Cycle	(-65°C/150°C)	SOC008 ²	231	3	0	0.00	500 cycles
HAST	(Biased, 130°C/85% RH)	SOC008 ²	231	3	0	0.00	168 hours
Steam Pressure Pot	(121°C/100%RH / 15PSIG)	SOC008 ²	231	3	0	0.00	168 hours

Notes / Justification: 1) Results from Qual Q99953, S25FL064K, 64M 90nm Floating Gate in 8 Lead SOIC (8 x 5.28 x 2.159mm)
 2) Results from Qual 64M_Winbond_FL-K, S25FL064K in 8 Lead SOIC (8 x 5.28 x 2.159mm) - Winbond 90nm Qualification

Preconditioning Flows: PC2 (JEDEC L3): Bake 125°C, 24hr => Soak @ 30°C/60%RH, 192hr => 3x Reflow
 PC9 (Accelerated JEDEC L3 / JEITA Rank E): Bake 125°C, 24hr => Soak @ 60°C/70%RH, 72hr => 3x Reflow

III. Revision History

Section	Description
Revision A - 11/24/2010	Initial Release.

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