1.1. S34ML-1 Product Families

41 nm SLC NAND

41 nm SLC NAND were introduced in Jun 2012 and utilize tunnel Oxide, Polysilicon floating gate and interconnections are three metal layers with contact plugs and barrier metals. The 1st Metal layer for 41 nm SLC NAND is using Copper.

Data Summary and Failure Rate Estimation using Exponential Model HTOL Stress Temperature - 125°C

Failure Mechanisms	Read Point / Test Result		Modeling Parameters @ 55°C					Average Failure Rate	
	Early Life (hrs)	Inherent Life (hrs)	Ea eV	TAF	VAF	OAF	MTTF (yrs)	Early Life (PPM)	Inherent Life (FITS)
	96	1000							
Sample Size	498	150							
125C, Zero fails, Process ave. Ea	0	0	0.7	74	1	74	9259	0	12

Data Retention Bake - 150°C

Reliability Stress	Sample Size	Reject	PPM	FITS
1000	77	0	0	<1

Endurance - 90°C

Reliability Stress	Sample Size	Reject	PPM	FITS
10000	60	0	0	2
100000(Decade)	64	0	0	

1.2. S34ML-2 Product

Families

32 nm SLC NAND

32 nm SLC NAND were introduced in October 2012 and utilize tunnel Oxide, Polysilicon floating gate and interconnections are three metal layers with contact plugs and barrier metals. The 1st Metal layer for 32 nm SLC NAND is using Copper

Data Summary and Failure Rate Estimation using Exponential Model HTOL Stress Temperature - 125°C

Failure Mechanisms	Read Point / Test Result		Modeling Parameters @ 55°C					Average Failure Rate	
	Early Life (hrs)	Inherent Life (hrs)	Ea eV	TAF	VAF	OAF	MTTF (yrs)	Early Life (PPM)	Inherent Life (FITS)
	96	1000							
Sample Size	500	150							
125C, Zero fails, Process ave. Ea	0	0	0.7	74	1	74	12198	0	9

Data Retention Bake - 150°C

Reliability Stress	Sample Size	Reject	PPM	FITS
1000	77	0	0	<1

Endurance - 90°C

Reliability Stress	Sample Size	Reject	PPM	FITS
10000	60	0	0	2
100000(Decade)	64	0	0	

2. Data Summaries by Package Family

2.1. BGA (Ball Grid Array)

Reliability Stress		Sample Size	Reject	Failure Rate PPM
HAST	96hrs	1505	0	0
	264hrs	3768	0	0
HIGH TEMP STORAGE	1000hrs	5126	0	0
TEMP CYCLE	500cycle	4080	0	0
	1000cycle	1794	0	0
UNBIASED HAST TEST	96hrs	3589	0	0
	264hrs	2198	0	0

2.2. TSOP (Thin Small Outline Package)

Reliability Stress		Sample Size	Reject	Failure Rate PPM
HAST	96hrs	4725	0	0
	264hrs	130	0	0
HIGH TEMP STORAGE	1000hrs	4680	0	0
PRESSURE COOKER TEST	96hrs	1454	0	0
	168hrs	2854	0	0
TEMP CYCLE	500cycle	6339	0	0
UNBIASED HAST TEST	96hrs	1400	0	0