1.1. S34ML-1 Product

Families 48 nm SLC NAND

48 nm SLC NAND was introduced in July 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 48 nm SLC NAND is using Tungsten.

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	2810	900							
125C, Zero fails, Process ave. Ea	0	0	0.7	74	1	74		0	14
							8317		

Data Retention Bake - 150°C

Reliability Stress	Sample Size	Reject	PPM	FITS
1000	616	0	0	<1

1.2. 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	3000	972							
125C, Zero fails, Process ave. Ea	0	0	0.7	74	1	74		0	13
							8982		

Data Retention Bake - 150°C

Reliability Stress	Sample Size	Reject	PPM	FITS
1000	847	0	0	<1

1.3. 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	3000	1440							
125C, Zero fails, Process ave. Ea	0	0	0.7	74	1	74		0	9
							13307		

Data Retention Bake - 150°C

Reliability Stress	Sample Size	Reject	PPM	FITS
1000	923	0	0	<1

2.   Data Summaries by Package Family

2.1.   BGA (Ball Grid Array)

Reliability Stress		Sample Size	Reject	Failure Rate PPM
HAST	96hrs	1389	0	0
	264hrs	2252	0	0
HIGH TEMP STORAGE	1000hrs	5118	0	0
TEMP CYCLE	500cycle	3045	0	0
	1000cycle	3206	0	0
UNBIASED HAST TEST	96hrs	4335	0	0
	264hrs	404	0	0

2.2.   TSOP (Thin Small Outline Package)

Reliability Stress		Sample Size	Reject	Failure Rate PPM
HAST	96hrs	5200	0	0
	264hrs	282	0	0
HIGH TEMP STORAGE	1000hrs	5187	0	0
PRESSURE COOKER TEST	96hrs	500	0	0
	168hrs	2476	0	0
TEMP CYCLE	500cycle	6219	0	0
	1000cycle	821	0	0
UNBIASED HAST TEST	96hrs	3439	0	0