Quality and Reliability Report

Fourth Quarter 2011

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Quality and Reliability Report

Overview

Silicon Laboratories is pleased to share this Quality and Reliability Report with our customers and other interested parties. It provides the latest quality performance data along with failure rate estimates and reliability monitor data. These data are collected on a continual basis as qualification, production and reliability monitors are completed. The report is published and updated quarterly to provide customers visibility to the most recent information. The Quality Trend charts on page 5 are shown on a rolling five year basis. All other reports include data from the previous four quarters on a rolling, one year basis.

The report provides data covering:

- Estimates of shipped product quality
- Long-term operating life estimates
- Mean time to failure
- Data retention life estimates
- Reliability monitor results

Silicon Laboratories is registered to the current versions of ISO 9001, ISO14001, and ISO/TS 16949 (automotive products only) and is committed to quality excellence. That commitment is demonstrated by extensive product and process qualification. Each product undergoes extensive qualification testing prior to production release. Silicon Laboratories qualifies integrated circuit products using JEDEC JESD47, *Stress-Test-Driven Qualification of Integrated Circuits* or AEC-Q100, *Stress Test Qualification for Integrated Circuits*, as appropriate.

Once a product is qualified, on-going product quality and reliability is verified through monitoring programs. Monitors are scheduled to periodically sample device families, wafer fab technologies, and package technologies. The results are published in this report. Any failures are used to drive corrective action and process and product improvement.

We hope you find this report useful. Please let us know if you have any specific questions or suggestions.

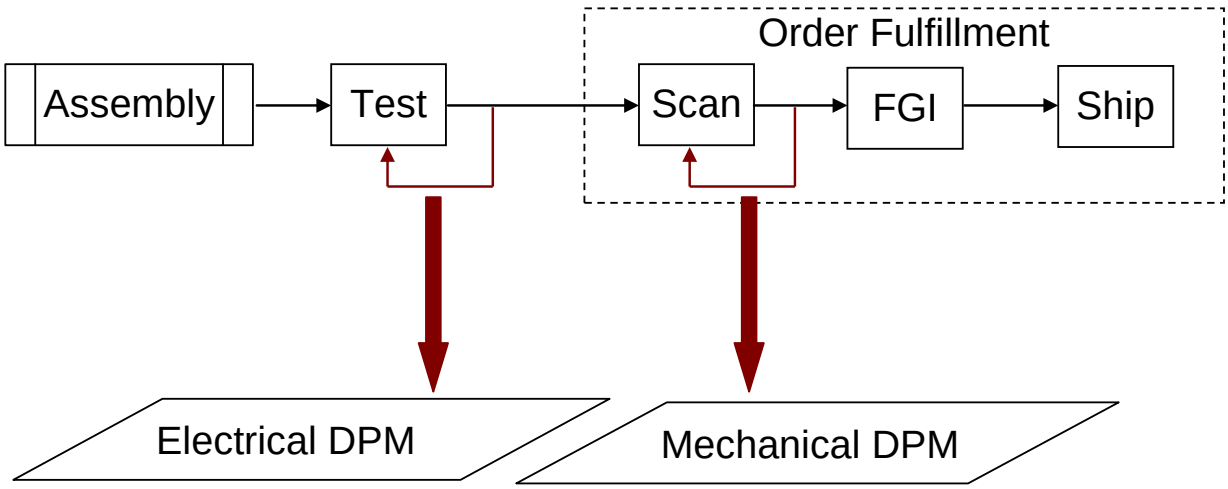
Quality Assurance

Overview

Two elements of product quality are reported – electrical quality and mechanical/visual quality. We measure electrical quality by taking a sample (monitor) of production parts and retesting the sample to the datasheet limits (see Figure 1). The sample electrical test may be performed at an alternate test temperature to verify part performance across the datasheet temperature range. This sample method identifies defects introduced at the test process step or that have escaped the test process. Any failures drive corrective actions and product/process improvements.

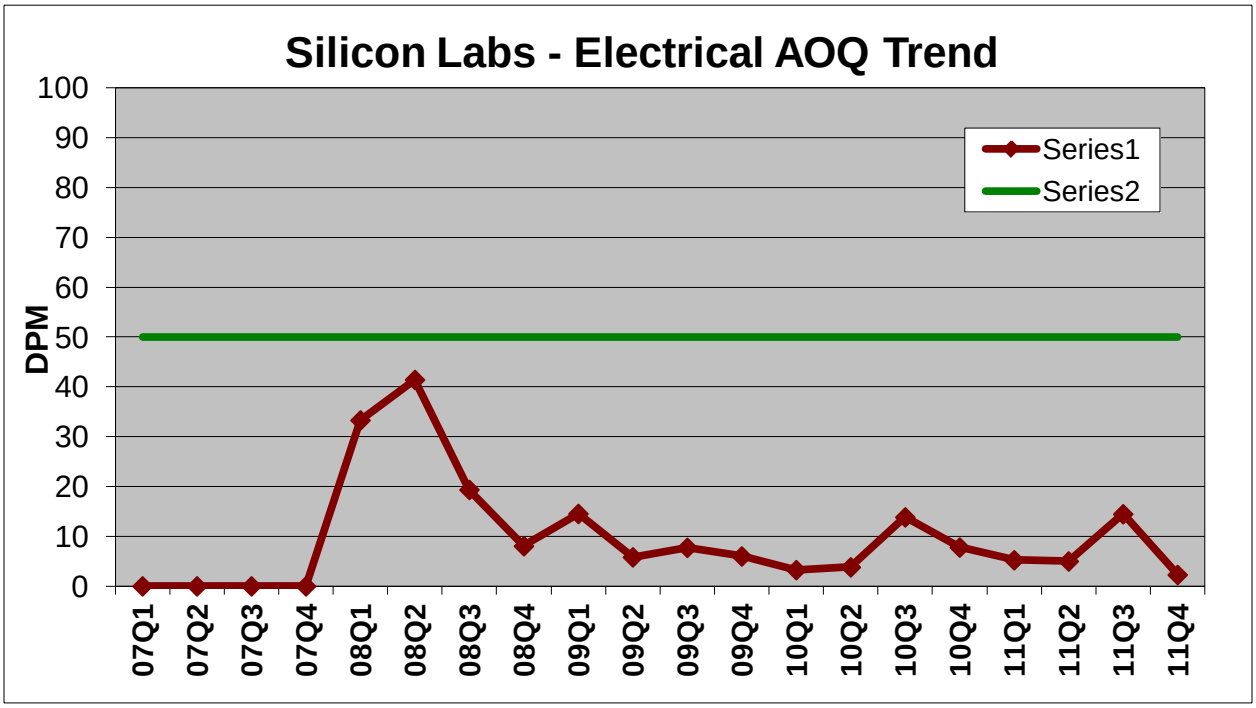
Visual/Mechanical quality is estimated by sample inspection of the completed product prior to final pack. Inspection items cover a broad range of characteristics and include mark, count, label, cover tape workmanship, moisture barrier bag integrity, lead location, part placement, and many other general workmanship items required for customer satisfaction and product protection during shipment. Any failures drive corrective actions and process improvements.

Figure 1 – Quality Monitor Flow

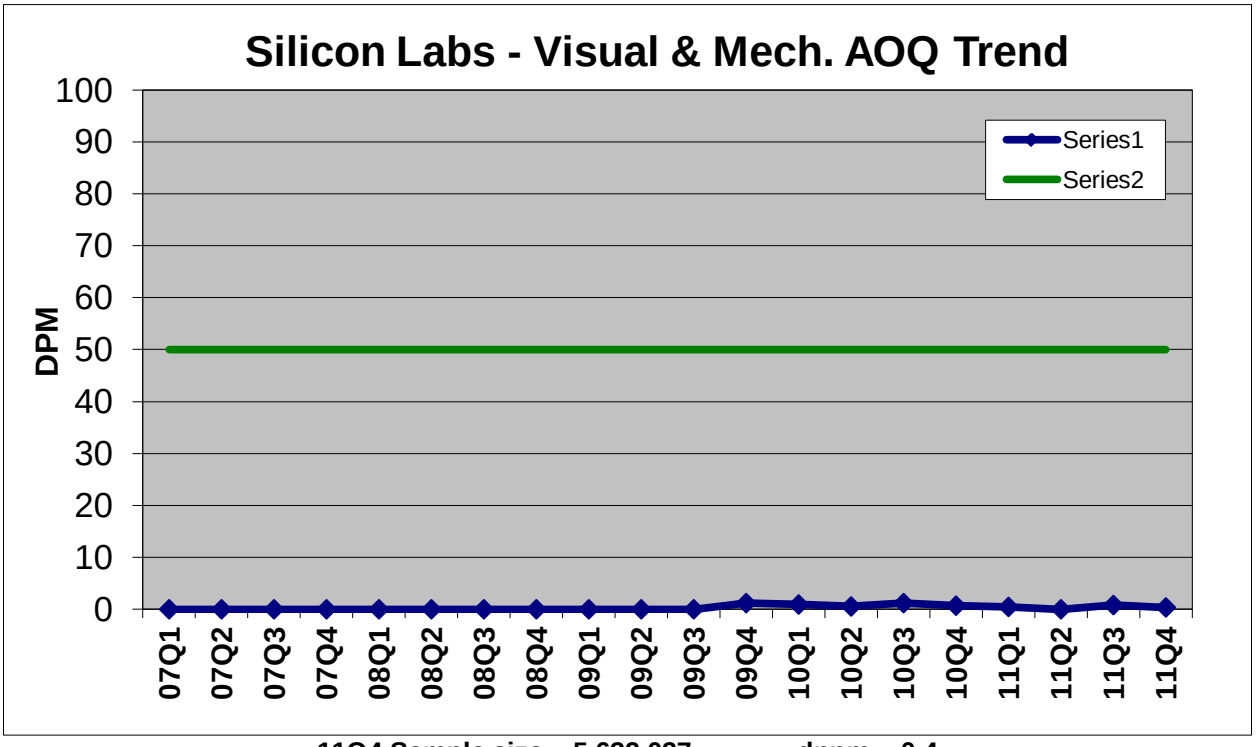


PLEASE NOTE: Shift in reported value beginning 08Q1 is the result of quality monitor reporting that is more closely linked to customer experience.

Electrical and Visual / Mechanical Outgoing Quality Graphs



11Q4 Sample size = 21,411,358 dppm = 2



11Q4 Sample size = 5,632,037 dppm = 0.4

Failure Rate Estimation

Failure in Time (FIT)

A long-term, steady-state failure rate is often required by circuit and system engineers for allocations of the failure rates at the component level during system design. FIT, which stands for failure-in-time, is a widely used term to describe failure rates of electronic components, and as used here, represents the number of failures in a billion hours of operation. FIT rates are reported in the following section as curves and in tables for specific temperatures and assumptions.

Mean Time to Failure (MTTF)

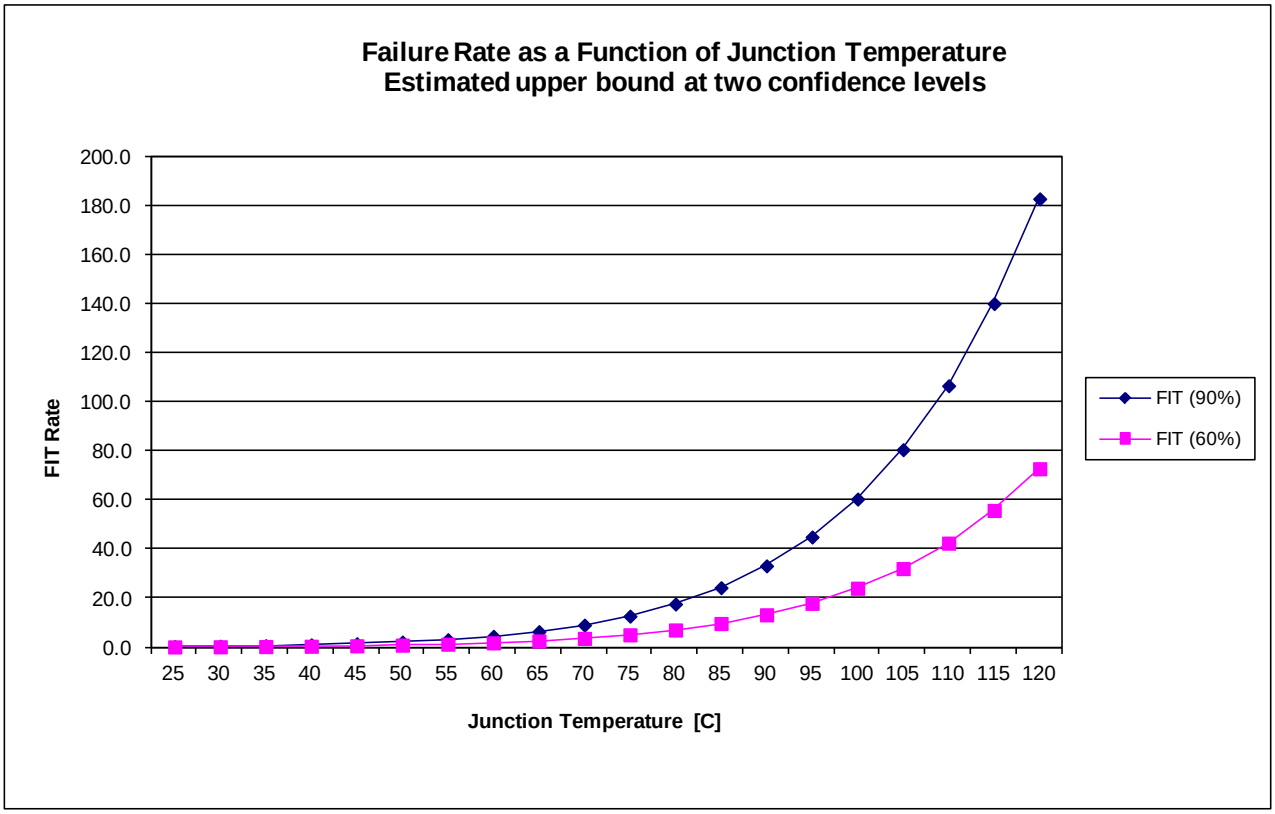
Another way to express failure rates is by mean time to failure (MTTF). MTTF is the inverse of the FIT rate and is useful for repair and maintenance planning. This relationship can be seen by examining the units of each measure: MTTF is given in time/failure; FIT is given in failure/time. MTTF is reported in the tables following the FIT rate curves for each specific fab technology.

Failure Rate Calculation Method

Long-term failure rates are estimated by applying the Arrhenius equation to data collected from long term operating life tests. A confidence factor is applied based upon the sample size and number of failures to estimate the maximum failure rate at a specific confidence level. The calculation details are provided in the table below each of the following FIT rate curves.

FIT Rate Curves and Data

Process - 0.11 micron

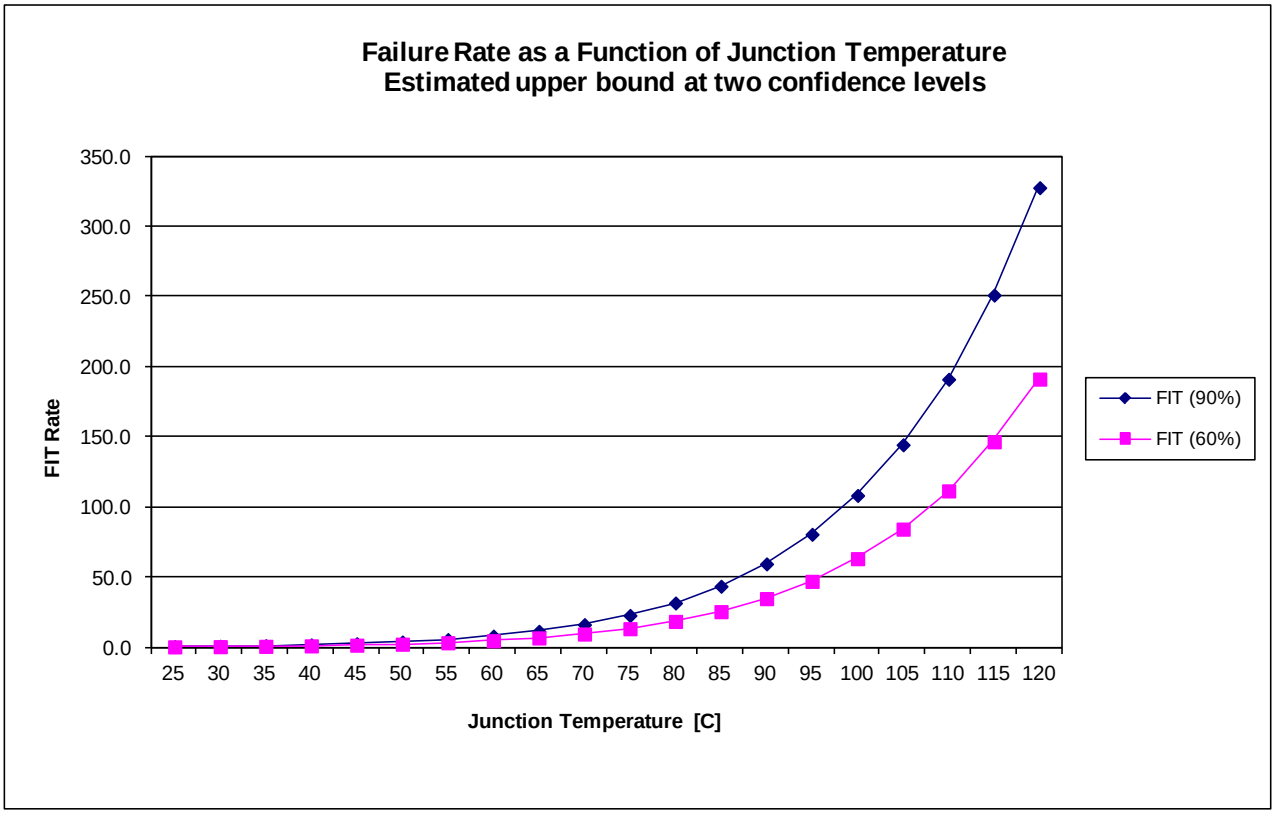


Single Point Calculation for 0.11 micron			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	4636	4636	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	4636402	4636402	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	2.1	0.8	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	4.8E+08	1.2E+09	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	55021.9	138266.9	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.11 micron

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.3	0.1	453199	1138864
30	1257.7	0.4	0.2	289105	726504
35	814.1	0.6	0.2	187136	470262
40	534.4	0.9	0.4	122826	308655
45	355.4	1.4	0.6	81691	205284
50	239.4	2.1	0.8	55022	138267
55	163.2	3.0	1.2	37508	94257
60	112.5	4.4	1.8	25865	64998
65	78.5	6.3	2.5	18033	45317
70	55.3	9.0	3.6	12706	31929
75	39.3	12.6	5.0	9043	22724
80	28.3	17.6	7.0	6498	16329
85	20.5	24.2	9.6	4713	11842
90	15.0	33.1	13.2	3448	8665
95	11.1	44.9	17.9	2544	6394
100	8.2	60.3	24.0	1893	4757
105	6.2	80.4	32.0	1419	3567
110	4.7	106.5	42.4	1072	2695
115	3.5	139.9	55.7	816	2050
120	2.7	182.6	72.7	625	1571

Process - 0.13 micron

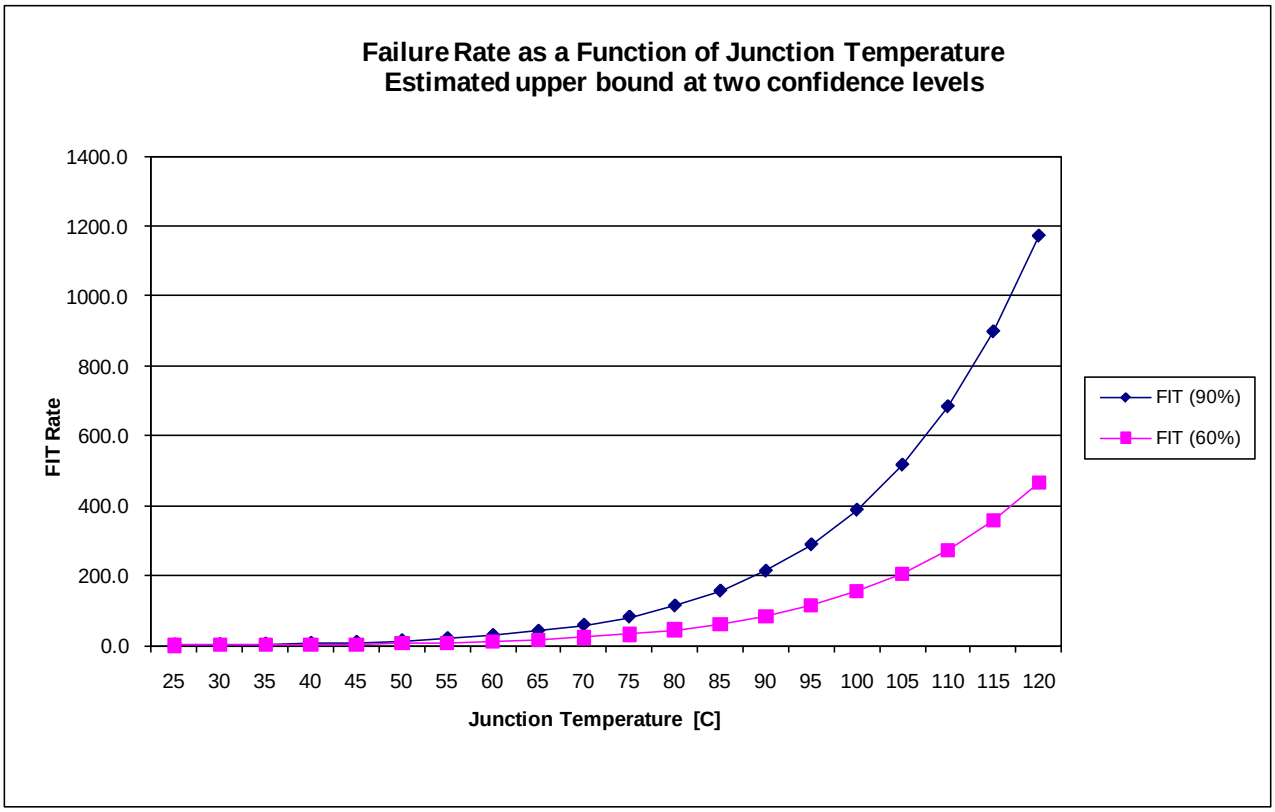


Single Point Calculation for 0.13 micron			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	5975	5975	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	2	2	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	6.0	6.0	degrees of freedom [2(F+1)]
DH	5974576	5974576	Total device hours D*H
X2	10.6	6.2	Chi-Square Distribution Value
FIT	3.7	2.2	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	2.7E+08	4.6E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	30674.4	52573.0	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.13 micron

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.5	0.3	252656	433028
30	1257.7	0.7	0.4	161174	276237
35	814.1	1.1	0.6	104327	178807
40	534.4	1.7	1.0	68475	117360
45	355.4	2.5	1.5	45542	78055
50	239.4	3.7	2.2	30674	52573
55	163.2	5.5	3.2	20911	35839
60	112.5	7.9	4.6	14420	24714
65	78.5	11.4	6.6	10054	17231
70	55.3	16.1	9.4	7083	12140
75	39.3	22.6	13.2	5041	8640
80	28.3	31.5	18.4	3623	6209
85	20.5	43.5	25.4	2627	4503
90	15.0	59.4	34.6	1922	3295
95	11.1	80.5	47.0	1419	2431
100	8.2	108.2	63.1	1055	1809
105	6.2	144.3	84.2	791	1356
110	4.7	191.0	111.4	598	1025
115	3.5	251.0	146.4	455	780
120	2.7	327.5	191.1	349	597

Process - 0.15 micron



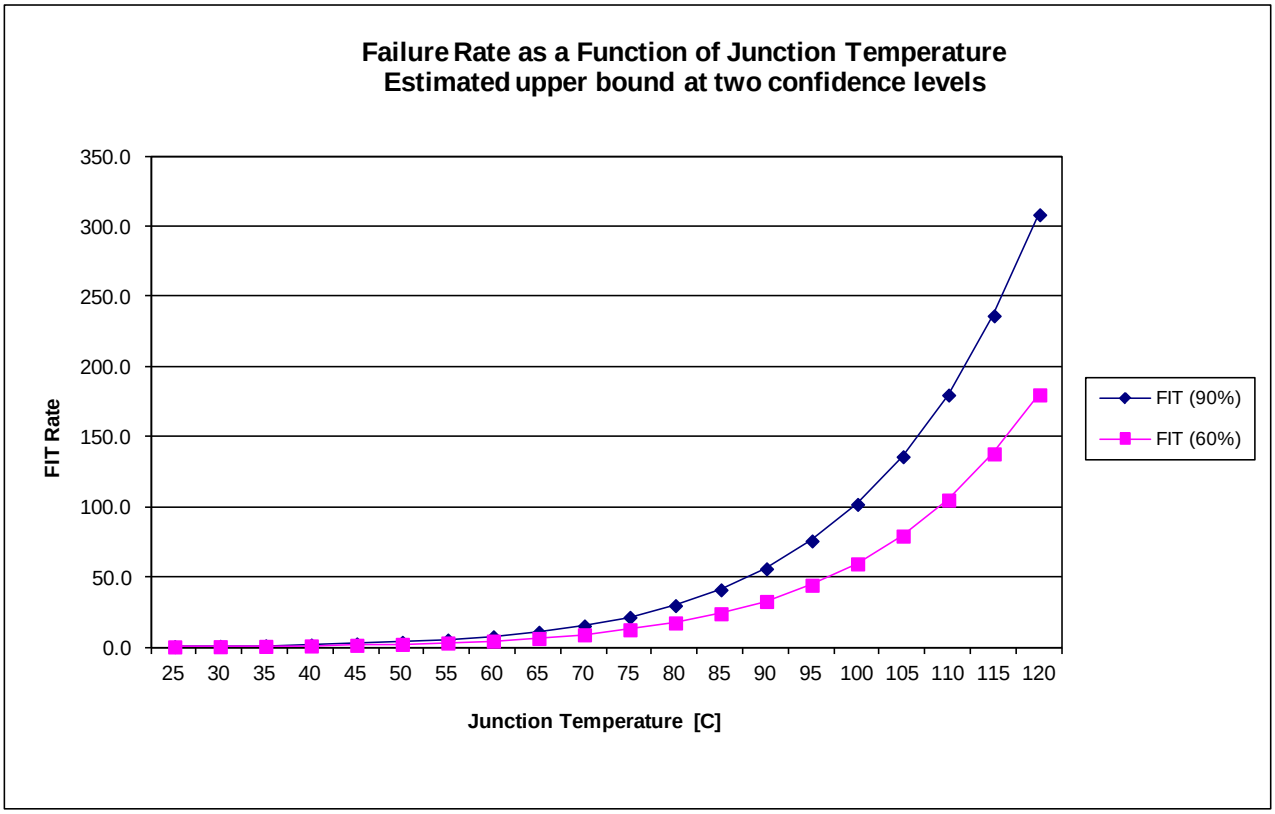
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.15 micron			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	723	723	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	723000	723000	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	13.3	5.3	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	7.5E+07	1.9E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	8580.1	21561.3	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.15 micron

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	1.6	0.6	70672	177594
30	1257.7	2.5	1.0	45083	113291
35	814.1	3.9	1.6	29182	73333
40	534.4	6.0	2.4	19154	48132
45	355.4	9.0	3.6	12739	32012
50	239.4	13.3	5.3	8580	21561
55	163.2	19.5	7.8	5849	14698
60	112.5	28.3	11.3	4033	10136
65	78.5	40.6	16.2	2812	7067
70	55.3	57.6	22.9	1981	4979
75	39.3	81.0	32.2	1410	3544
80	28.3	112.7	44.8	1013	2546
85	20.5	155.3	61.8	735	1847
90	15.0	212.3	84.5	538	1351
95	11.1	287.7	114.5	397	997
100	8.2	386.7	153.9	295	742
105	6.2	515.8	205.2	221	556
110	4.7	682.7	271.7	167	420
115	3.5	897.2	357.0	127	320
120	2.7	1170.9	466.0	97	245

Process - 0.18 micron

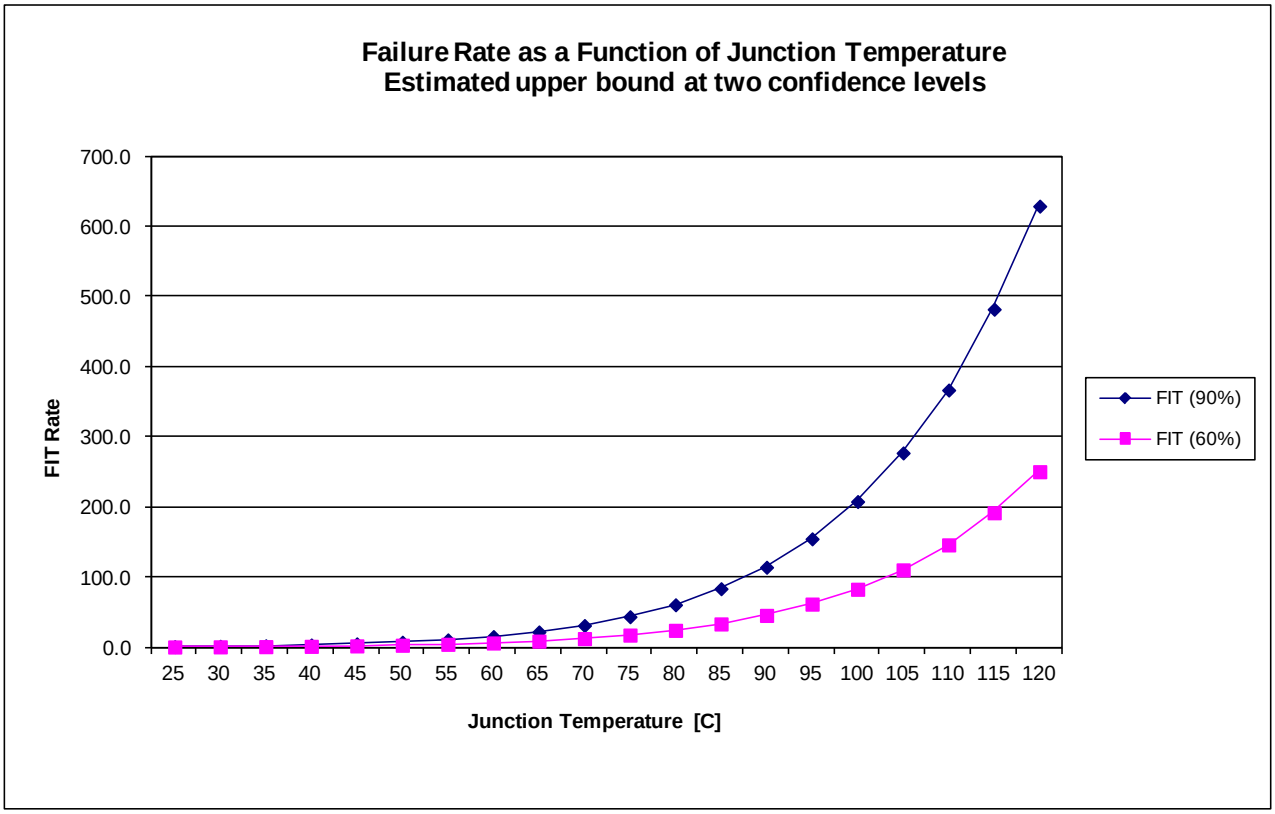


Single Point Calculation for 0.18 micron			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	6349	6349	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	2	2	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	6.0	6.0	degrees of freedom [2(F+1)]
DH	6348709	6348709	Total device hours D*H
X2	10.6	6.2	Chi-Square Distribution Value
FIT	3.5	2.0	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	2.9E+08	4.9E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	32595.3	55865.2	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.18 micron

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.4	0.2	268478	460145
30	1257.7	0.7	0.4	171267	293536
35	814.1	1.0	0.6	110860	190004
40	534.4	1.6	0.9	72763	124709
45	355.4	2.4	1.4	48394	82943
50	239.4	3.5	2.0	32595	55865
55	163.2	5.1	3.0	22220	38083
60	112.5	7.5	4.3	15323	26262
65	78.5	10.7	6.2	10683	18310
70	55.3	15.2	8.8	7527	12901
75	39.3	21.3	12.4	5357	9181
80	28.3	29.7	17.3	3849	6598
85	20.5	40.9	23.9	2792	4785
90	15.0	55.9	32.6	2043	3501
95	11.1	75.7	44.2	1507	2583
100	8.2	101.8	59.4	1121	1922
105	6.2	135.8	79.2	841	1441
110	4.7	179.7	104.9	635	1089
115	3.5	236.2	137.8	483	828
120	2.7	308.2	179.8	370	635

Process - 0.18 micron w/ embedded flash

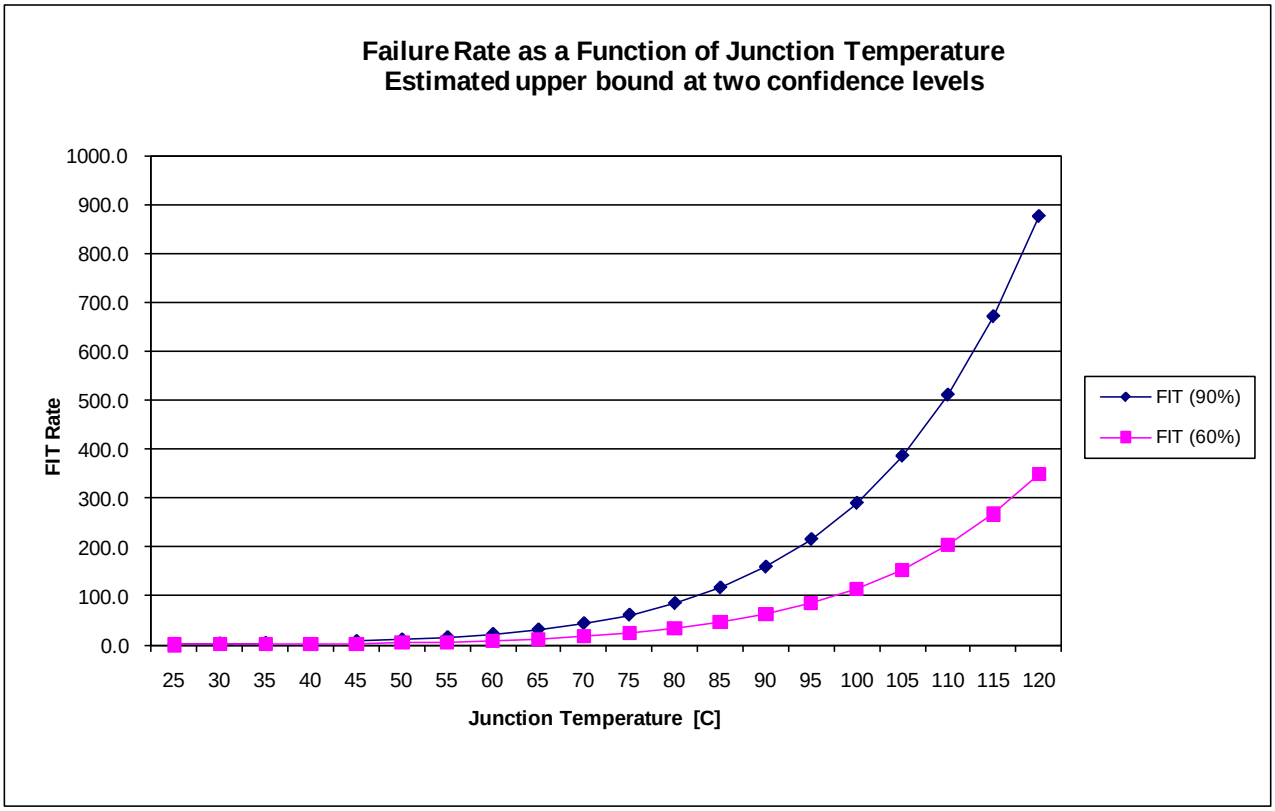


Single Point Calculation for 0.18 micron w/ embedded flash			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	1347	1347	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	1346502	1346502	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	7.1	2.8	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	1.4E+08	3.5E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	15979.5	40155.4	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.18 micron w/ embedded flash

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.9	0.3	131618	330748
30	1257.7	1.4	0.5	83962	210991
35	814.1	2.1	0.8	54348	136573
40	534.4	3.2	1.3	35671	89640
45	355.4	4.8	1.9	23725	59619
50	239.4	7.1	2.8	15979	40155
55	163.2	10.5	4.2	10893	27374
60	112.5	15.2	6.0	7512	18877
65	78.5	21.8	8.7	5237	13161
70	55.3	30.9	12.3	3690	9273
75	39.3	43.5	17.3	2626	6599
80	28.3	60.5	24.1	1887	4742
85	20.5	83.4	33.2	1369	3439
90	15.0	114.0	45.4	1001	2516
95	11.1	154.5	61.5	739	1857
100	8.2	207.6	82.6	550	1382
105	6.2	276.9	110.2	412	1036
110	4.7	366.6	145.9	311	783
115	3.5	481.8	191.7	237	595
120	2.7	628.7	250.2	182	456

Process - 0.18 micron w/ OTP



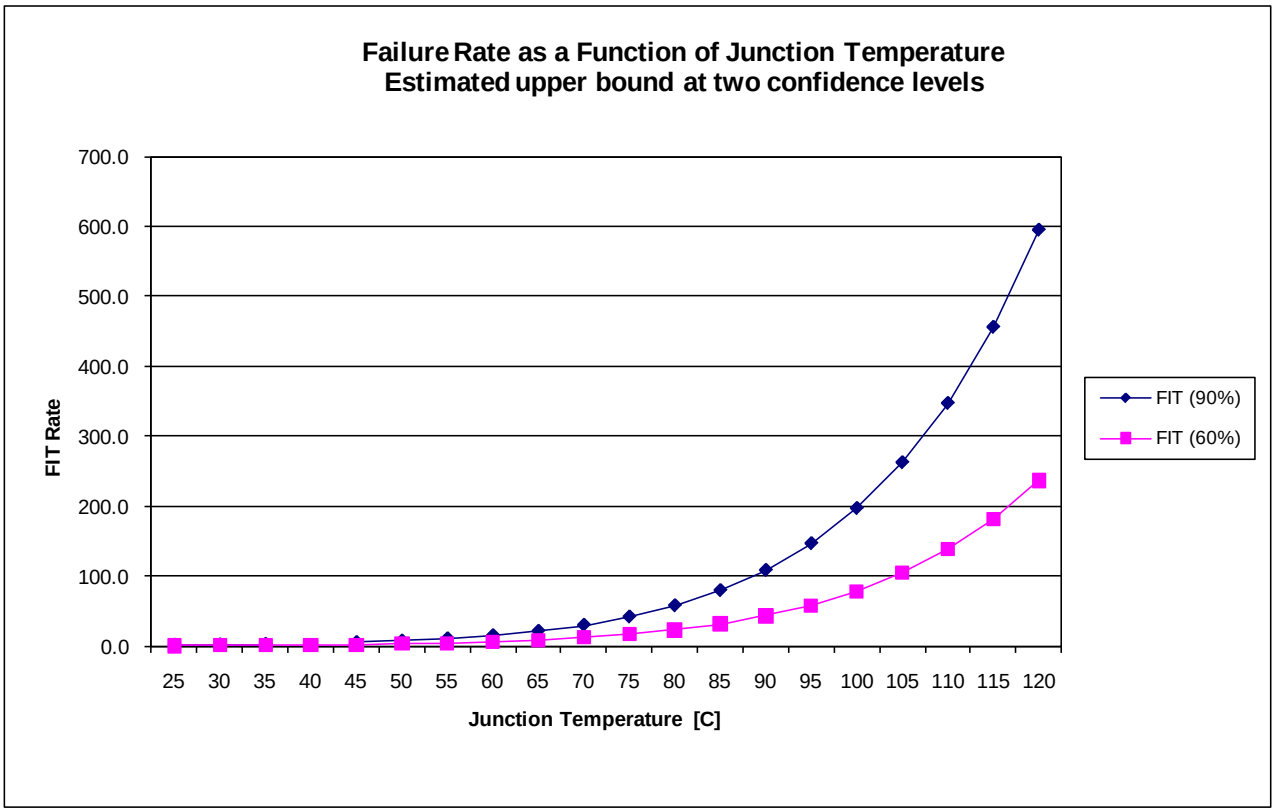
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.18 micron w/ OTP			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	967	967	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	967000.0	967000.0	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	9.9	4.0	Failures in time [failures / 1xE9 hours]
			=[X2/(2*AF*D*H)*1E9]
MTTF	1.0E+08	2.5E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	11475.8	28837.9	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.18 micron w/ OTP

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	1.2	0.5	94522	237529
30	1257.7	1.9	0.8	60298	151525
35	814.1	2.9	1.2	39030	98081
40	534.4	4.5	1.8	25617	64375
45	355.4	6.7	2.7	17038	42815
50	239.4	9.9	4.0	11476	28838
55	163.2	14.6	5.8	7823	19659
60	112.5	21.2	8.4	5395	13556
65	78.5	30.4	12.1	3761	9452
70	55.3	43.1	17.1	2650	6659
75	39.3	60.5	24.1	1886	4739
80	28.3	84.2	33.5	1355	3406
85	20.5	116.1	46.2	983	2470
90	15.0	158.7	63.2	719	1807
95	11.1	215.1	85.6	531	1334
100	8.2	289.1	115.1	395	992
105	6.2	385.6	153.5	296	744
110	4.7	510.4	203.1	224	562
115	3.5	670.8	266.9	170	428
120	2.7	875.5	348.4	130	328

Process - 0.18 micron w/ RF



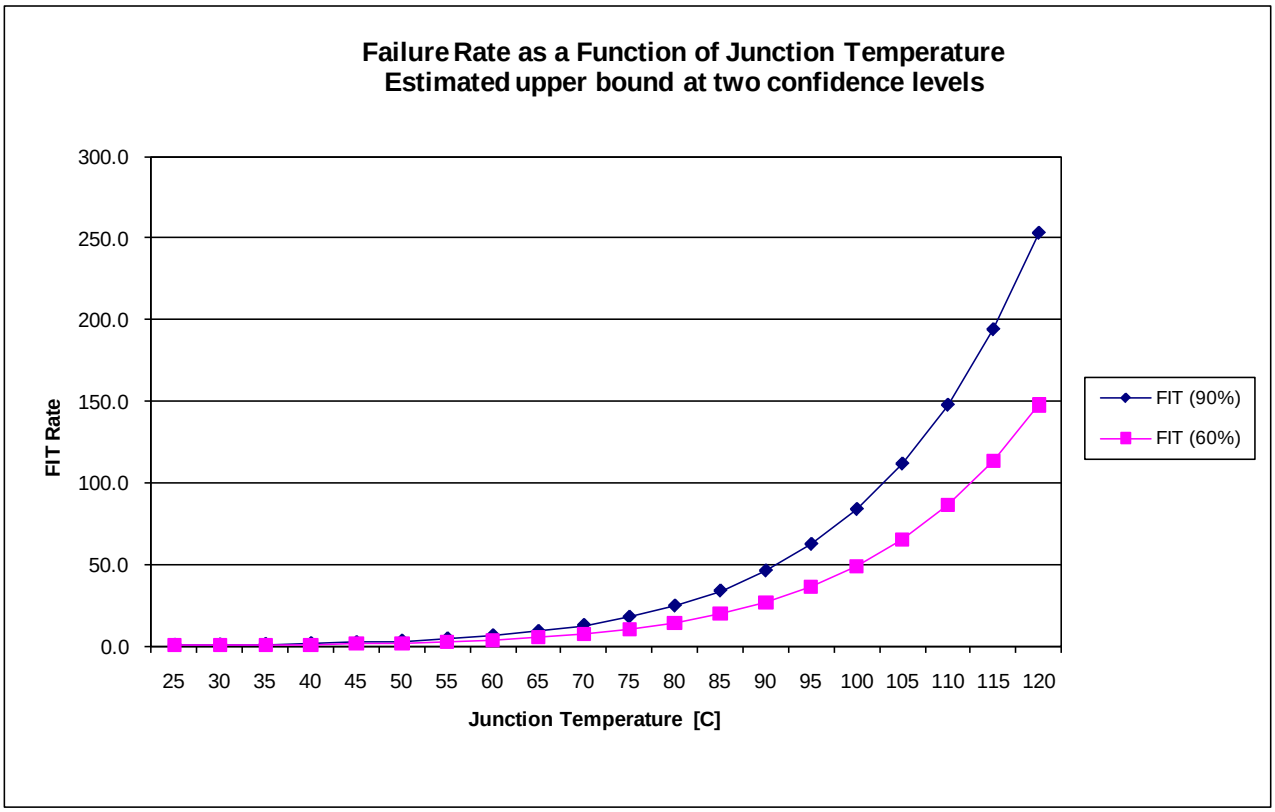
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.18 micron w/ RF			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	1424	1424	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	1424000.0	1424000.0	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	6.8	2.7	Failures in time [failures / 1xE9 hours]
			=[X2/(2*AF*D*H)*1E9]
MTTF	1.5E+08	3.7E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	16899.2	42466.6	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.18 micron w/ RF

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.8	0.3	139193	349785
30	1257.7	1.3	0.5	88794	223135
35	814.1	2.0	0.8	57476	144434
40	534.4	3.0	1.2	37724	94799
45	355.4	4.5	1.8	25090	63050
50	239.4	6.8	2.7	16899	42467
55	163.2	9.9	3.9	11520	28949
60	112.5	14.4	5.7	7944	19963
65	78.5	20.6	8.2	5539	13918
70	55.3	29.3	11.6	3902	9807
75	39.3	41.1	16.4	2777	6979
80	28.3	57.2	22.8	1996	5015
85	20.5	78.9	31.4	1447	3637
90	15.0	107.8	42.9	1059	2661
95	11.1	146.1	58.1	781	1964
100	8.2	196.3	78.1	581	1461
105	6.2	261.9	104.2	436	1095
110	4.7	346.6	137.9	329	828
115	3.5	455.5	181.3	251	630
120	2.7	594.5	236.6	192	483

Process - 0.25 micron



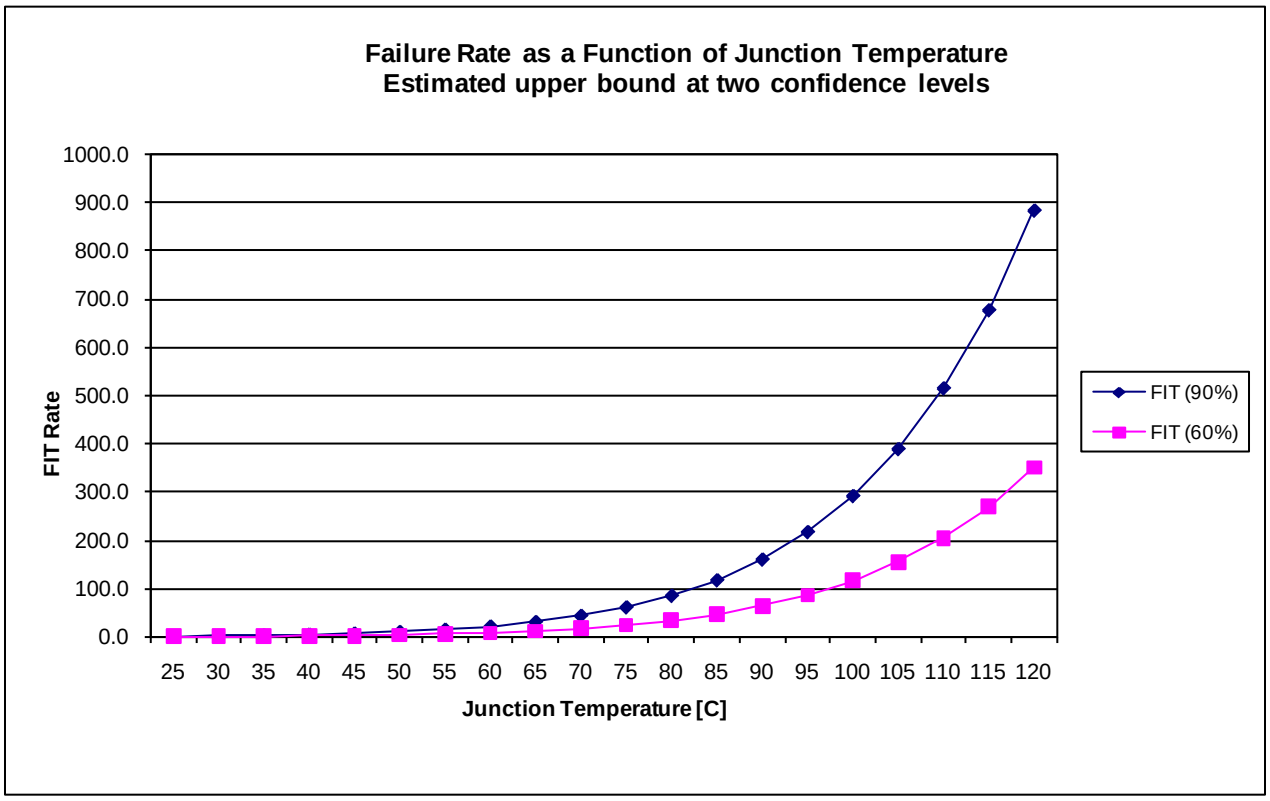
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.25 micron			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	7732	7732	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	2	2	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	6.0	6.0	degrees of freedom [2(F+1)]
DH	7731743	7731743	Total device hours D*H
X2	10.6	6.2	Chi-Square Distribution Value
FIT	2.9	1.7	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	3.5E+08	6.0E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	39696.0	68035.2	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.25 micron

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.3	0.2	326964	560385
30	1257.7	0.5	0.3	208577	357481
35	814.1	0.8	0.5	135011	231395
40	534.4	1.3	0.8	88614	151876
45	355.4	1.9	1.1	58936	101011
50	239.4	2.9	1.7	39696	68035
55	163.2	4.2	2.5	27061	46380
60	112.5	6.1	3.6	18661	31983
65	78.5	8.8	5.1	13010	22299
70	55.3	12.5	7.3	9167	15711
75	39.3	17.5	10.2	6524	11181
80	28.3	24.4	14.2	4688	8035
85	20.5	33.6	19.6	3400	5827
90	15.0	45.9	26.8	2488	4264
95	11.1	62.2	36.3	1836	3146
100	8.2	83.6	48.8	1366	2341
105	6.2	111.5	65.0	1024	1755
110	4.7	147.6	86.1	774	1326
115	3.5	193.9	113.1	589	1009
120	2.7	253.1	147.7	451	773

Process - 0.25 micron w/ embedded flash



Reliability FIT Calculations for temperature acceleration

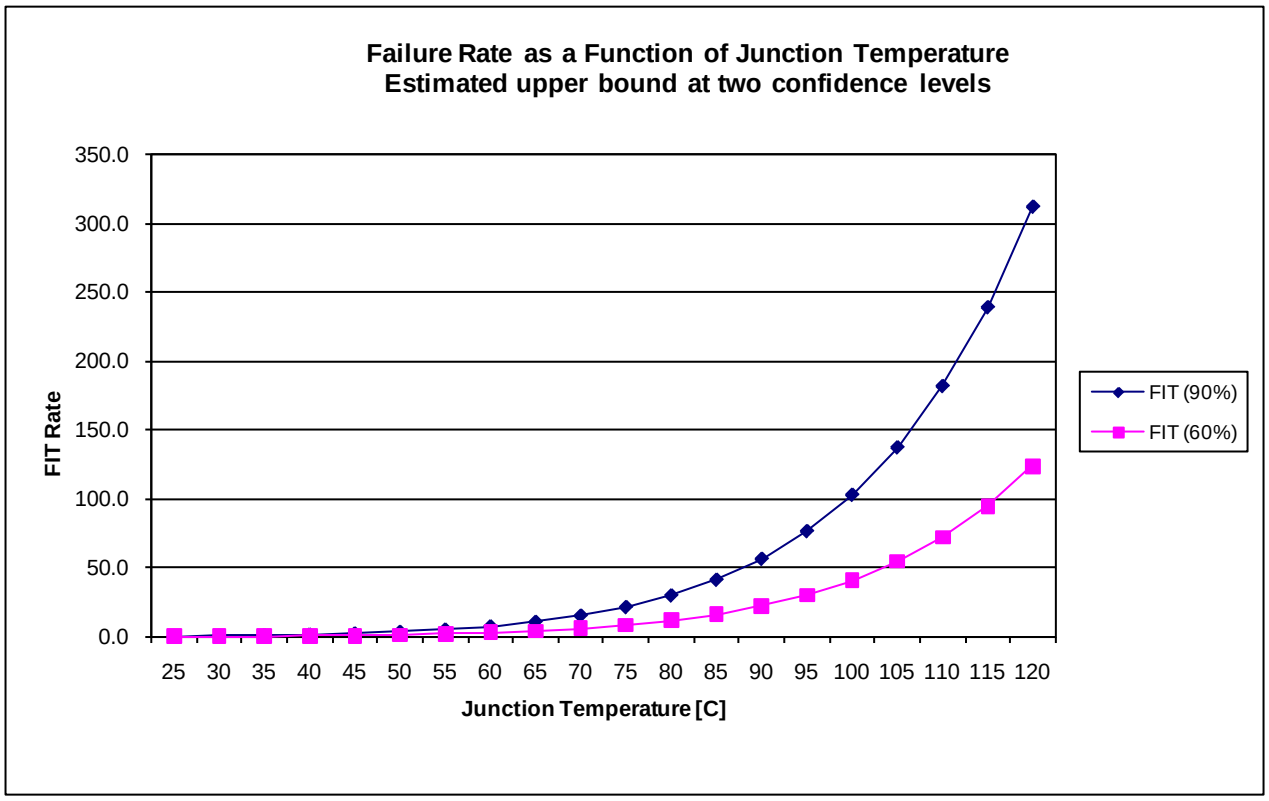
Single Point Calculation for 0.25 micron w/ embedded flash

Variables:	90%	60%	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	957	957	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	957456	957456	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	10.0	4.0	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	1.0E+08	2.5E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	11362.5	28553.3	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.25 micron w/ embedded flash

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	1.2	0.5	93589	235185
30	1257.7	1.9	0.8	59703	150029
35	814.1	3.0	1.2	38645	97113
40	534.4	4.5	1.8	25365	63740
45	355.4	6.8	2.7	16870	42393
50	239.4	10.0	4.0	11362	28553
55	163.2	14.7	5.9	7746	19465
60	112.5	21.4	8.5	5341	13423
65	78.5	30.7	12.2	3724	9358
70	55.3	43.5	17.3	2624	6594
75	39.3	61.1	24.3	1867	4693
80	28.3	85.1	33.9	1342	3372
85	20.5	117.3	46.7	973	2446
90	15.0	160.3	63.8	712	1789
95	11.1	217.3	86.5	525	1320
100	8.2	292.0	116.2	391	982
105	6.2	389.5	155.0	293	737
110	4.7	515.5	205.2	221	556
115	3.5	677.5	269.6	168	423
120	2.7	884.2	351.9	129	324

Process – 0.315 - 0.35 micron



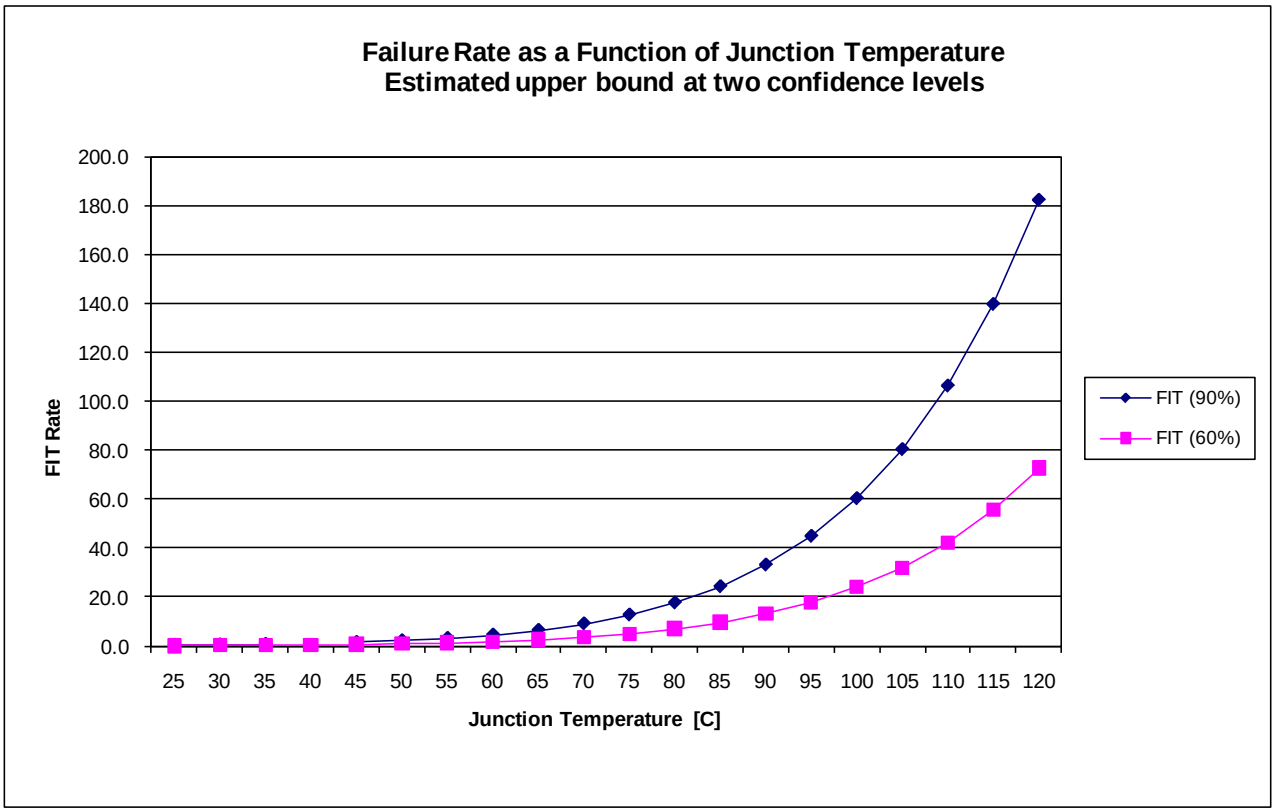
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.315 um - 0.35 um			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	2716	2716	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	2715760	2715760	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	3.5	1.4	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	2.8E+08	7.1E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	32229.0	80989.5	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.315 um - 0.35 um

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.4	0.2	265460	667086
30	1257.7	0.7	0.3	169342	425548
35	814.1	1.0	0.4	109614	275455
40	534.4	1.6	0.6	71945	180794
45	355.4	2.4	0.9	47850	120245
50	239.4	3.5	1.4	32229	80989
55	163.2	5.2	2.1	21970	55211
60	112.5	7.5	3.0	15151	38072
65	78.5	10.8	4.3	10563	26544
70	55.3	15.3	6.1	7442	18702
75	39.3	21.6	8.6	5297	13310
80	28.3	30.0	11.9	3806	9565
85	20.5	41.4	16.5	2760	6937
90	15.0	56.5	22.5	2020	5076
95	11.1	76.6	30.5	1490	3745
100	8.2	103.0	41.0	1109	2786
105	6.2	137.3	54.6	831	2089
110	4.7	181.8	72.3	628	1578
115	3.5	238.9	95.1	478	1201
120	2.7	311.7	124.0	366	920

Process - 0.35 micron



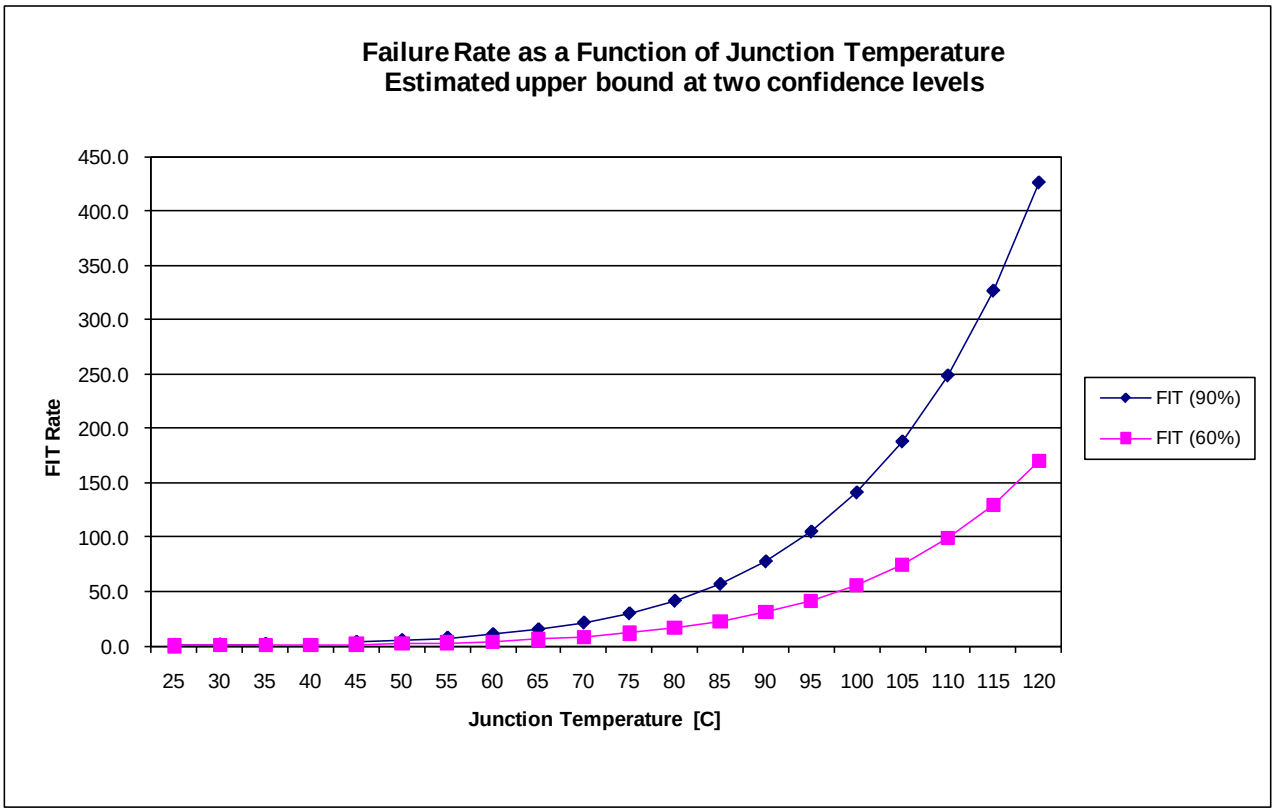
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.35 micron			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	4642	4642	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	4642000.0	4642000.0	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	2.1	0.8	Failures in time [failures / 1xE9 hours]
			=[X2/(2*AF*D*H)*1E9]
MTTF	4.8E+08	1.2E+09	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	55088.4	138433.9	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.35 micron

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.3	0.1	453747	1140239
30	1257.7	0.4	0.2	289454	727381
35	814.1	0.6	0.2	187362	470830
40	534.4	0.9	0.4	122975	309028
45	355.4	1.4	0.6	81789	205532
50	239.4	2.1	0.8	55088	138434
55	163.2	3.0	1.2	37554	94370
60	112.5	4.4	1.8	25897	65076
65	78.5	6.3	2.5	18055	45372
70	55.3	9.0	3.6	12721	31968
75	39.3	12.6	5.0	9054	22751
80	28.3	17.5	7.0	6506	16349
85	20.5	24.2	9.6	4718	11857
90	15.0	33.1	13.2	3452	8675
95	11.1	44.8	17.8	2548	6402
100	8.2	60.2	24.0	1895	4763
105	6.2	80.3	32.0	1421	3571
110	4.7	106.3	42.3	1074	2698
115	3.5	139.7	55.6	817	2053
120	2.7	182.4	72.6	626	1573

Process - 0.35 micron w/ embedded flash



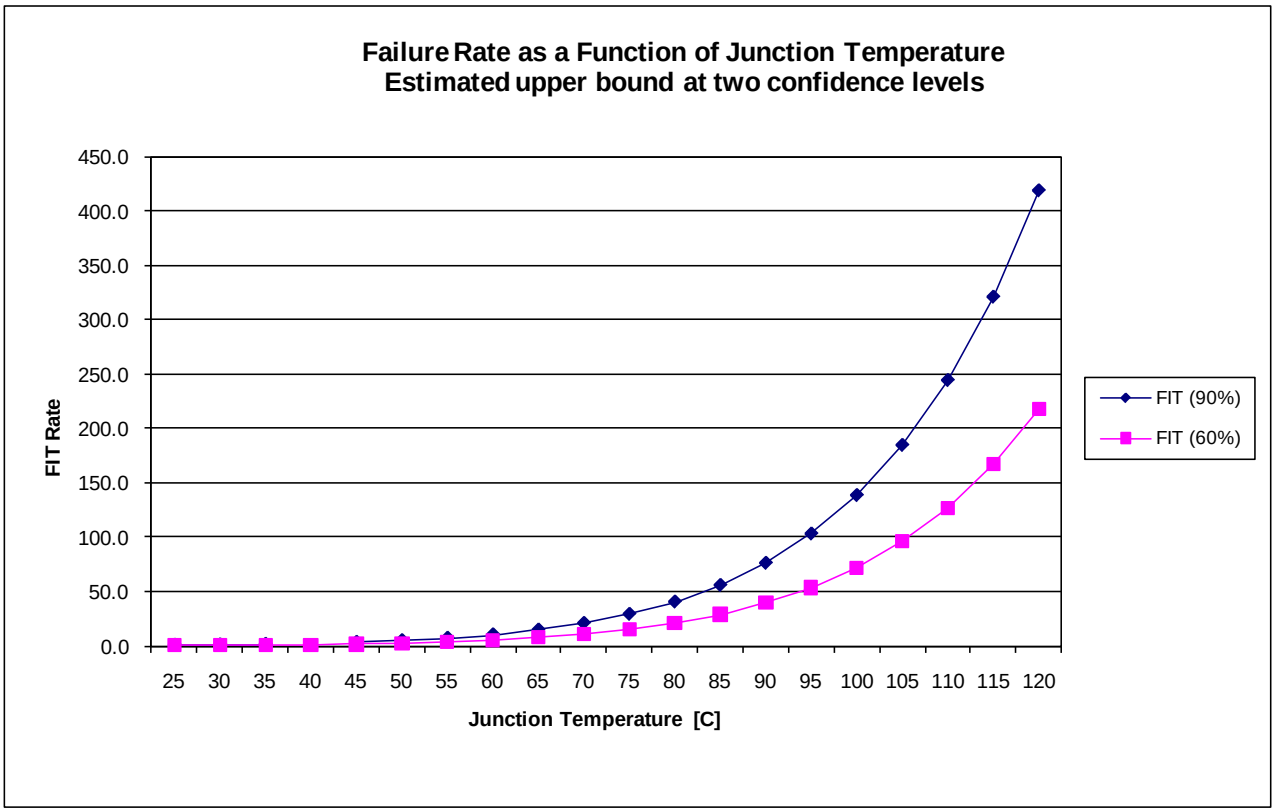
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.35 micron w/ embedded flash			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	1986	1986	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	1986000.0	1986000.0	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	4.8	1.9	Failures in time [failures / 1xE9 hours]
			=[X2/(2*AF*D*H)*1E9]
MTTF	2.1E+08	5.2E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	23568.6	59226.6	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.35 micron w/ embedded flash

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.6	0.2	194128	487832
30	1257.7	0.9	0.4	123838	311197
35	814.1	1.4	0.6	80160	201436
40	534.4	2.2	0.9	52613	132212
45	355.4	3.3	1.3	34992	87933
50	239.4	4.8	1.9	23569	59227
55	163.2	7.1	2.8	16067	40375
60	112.5	10.3	4.1	11079	27842
65	78.5	14.8	5.9	7725	19412
70	55.3	21.0	8.3	5443	13677
75	39.3	29.5	11.7	3873	9734
80	28.3	41.0	16.3	2783	6995
85	20.5	56.6	22.5	2019	5073
90	15.0	77.3	30.8	1477	3712
95	11.1	104.7	41.7	1090	2739
100	8.2	140.8	56.0	811	2038
105	6.2	187.8	74.7	608	1528
110	4.7	248.5	98.9	459	1154
115	3.5	326.6	130.0	349	878
120	2.7	426.3	169.6	268	673

Process - 0.45 - 0.5 um SPTM



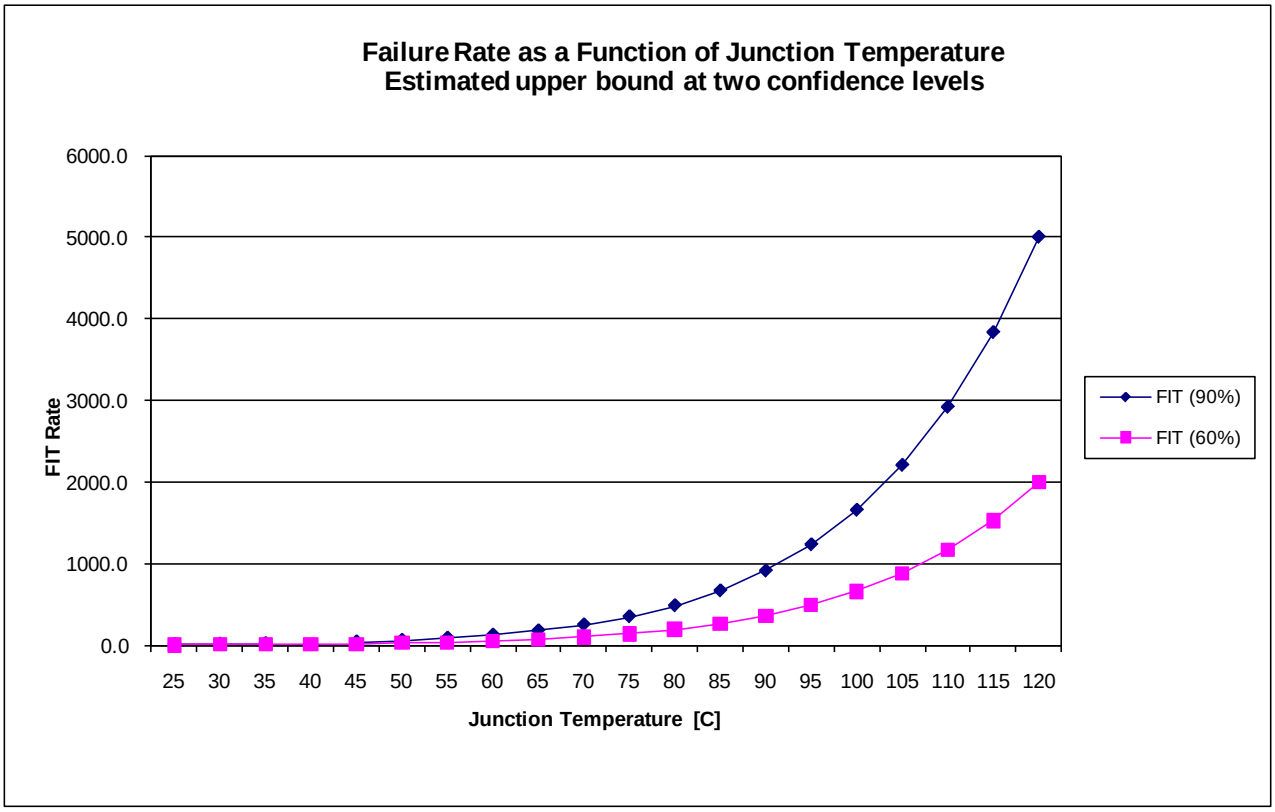
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.45 - 0.5 um SPTM			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	3413	3413	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	1	1	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	4.0	4.0	degrees of freedom [2(F+1)]
DH	3413000.0	3413000.0	Total device hours D*H
X2	7.8	4.0	Chi-Square Distribution Value
FIT	4.8	2.5	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	2.1E+08	4.0E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	23976.7	46116.7	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.45 - 0.5 um SPTM

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	0.6	0.3	197489	379850
30	1257.7	0.9	0.5	125982	242314
35	814.1	1.4	0.7	81547	156848
40	534.4	2.1	1.1	53523	102947
45	355.4	3.2	1.7	35598	68469
50	239.4	4.8	2.5	23977	46117
55	163.2	7.0	3.6	16345	31438
60	112.5	10.1	5.3	11271	21679
65	78.5	14.5	7.6	7858	15115
70	55.3	20.6	10.7	5537	10649
75	39.3	29.0	15.1	3941	7579
80	28.3	40.3	21.0	2832	5446
85	20.5	55.6	28.9	2054	3950
90	15.0	76.0	39.5	1503	2890
95	11.1	103.0	53.5	1109	2133
100	8.2	138.4	71.9	825	1587
105	6.2	184.6	96.0	619	1190
110	4.7	244.3	127.0	467	899
115	3.5	321.1	166.9	356	684
120	2.7	419.0	217.9	272	524

Process - 0.6 - 1.0um



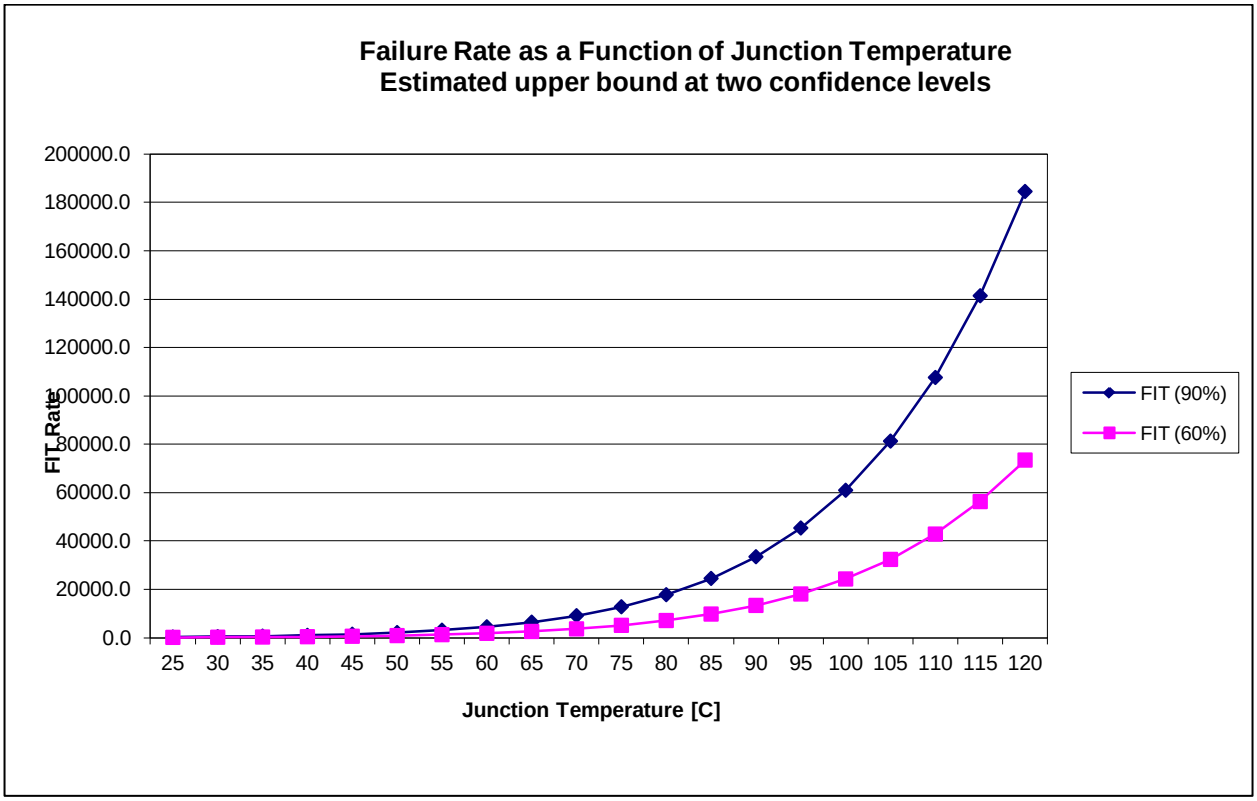
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 0.6 - 1.0um			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	169	169	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	169000.0	169000.0	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	56.9	22.7	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	1.8E+07	4.4E+07	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	2005.6	5039.9	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 0.6 - 1.0um

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	6.9	2.7	16519	41512
30	1257.7	10.8	4.3	10538	26482
35	814.1	16.7	6.7	6821	17141
40	534.4	25.5	10.1	4477	11251
45	355.4	38.3	15.3	2978	7483
50	239.4	56.9	22.7	2006	5040
55	163.2	83.5	33.2	1367	3436
60	112.5	121.1	48.2	943	2369
65	78.5	173.7	69.1	657	1652
70	55.3	246.5	98.1	463	1164
75	39.3	346.3	137.8	330	828
80	28.3	482.0	191.8	237	595
85	20.5	664.6	264.5	172	432
90	15.0	908.2	361.4	126	316
95	11.1	1230.8	489.8	93	233
100	8.2	1654.4	658.4	69	173
105	6.2	2206.5	878.0	52	130
110	4.7	2920.7	1162.3	39	98
115	3.5	3838.3	1527.4	30	75
120	2.7	5009.3	1993.4	23	57

Process – 55 nm



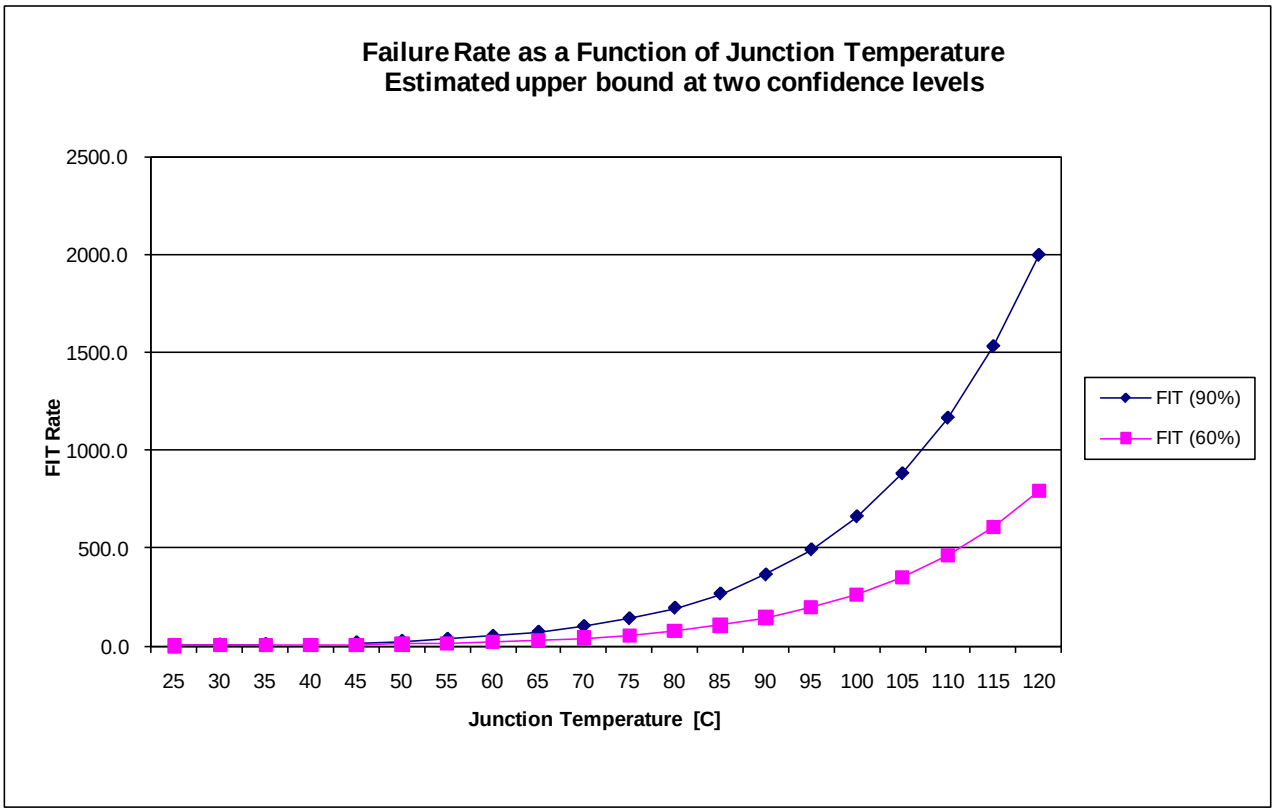
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for 55 nm			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	5	5	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	4588	4588	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	2096.5	834.3	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	4.8E+05	1.2E+06	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	54.5	136.8	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for 55 nm

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	254.5	101.3	448	1127
30	1257.7	399.0	158.8	286	719
35	814.1	616.4	245.3	185	465
40	534.4	939.1	373.7	122	305
45	355.4	1412.1	561.9	81	203
50	239.4	2096.5	834.3	54	137
55	163.2	3075.3	1223.8	37	93
60	112.5	4459.7	1774.7	26	64
65	78.5	6396.5	2545.4	18	45
70	55.3	9078.6	3612.7	13	32
75	39.3	12756.3	5076.2	9	22
80	28.3	17752.0	7064.2	6	16
85	20.5	24477.3	9740.5	5	12
90	15.0	33453.1	13312.3	3	9
95	11.1	45334.1	18040.3	3	6
100	8.2	60936.4	24249.0	2	5
105	6.2	81270.2	32340.7	1	4
110	4.7	107577.7	42809.5	1	3
115	3.5	141375.9	56259.1	1	2
120	2.7	184506.0	73422.3	1	2

Process - Diode



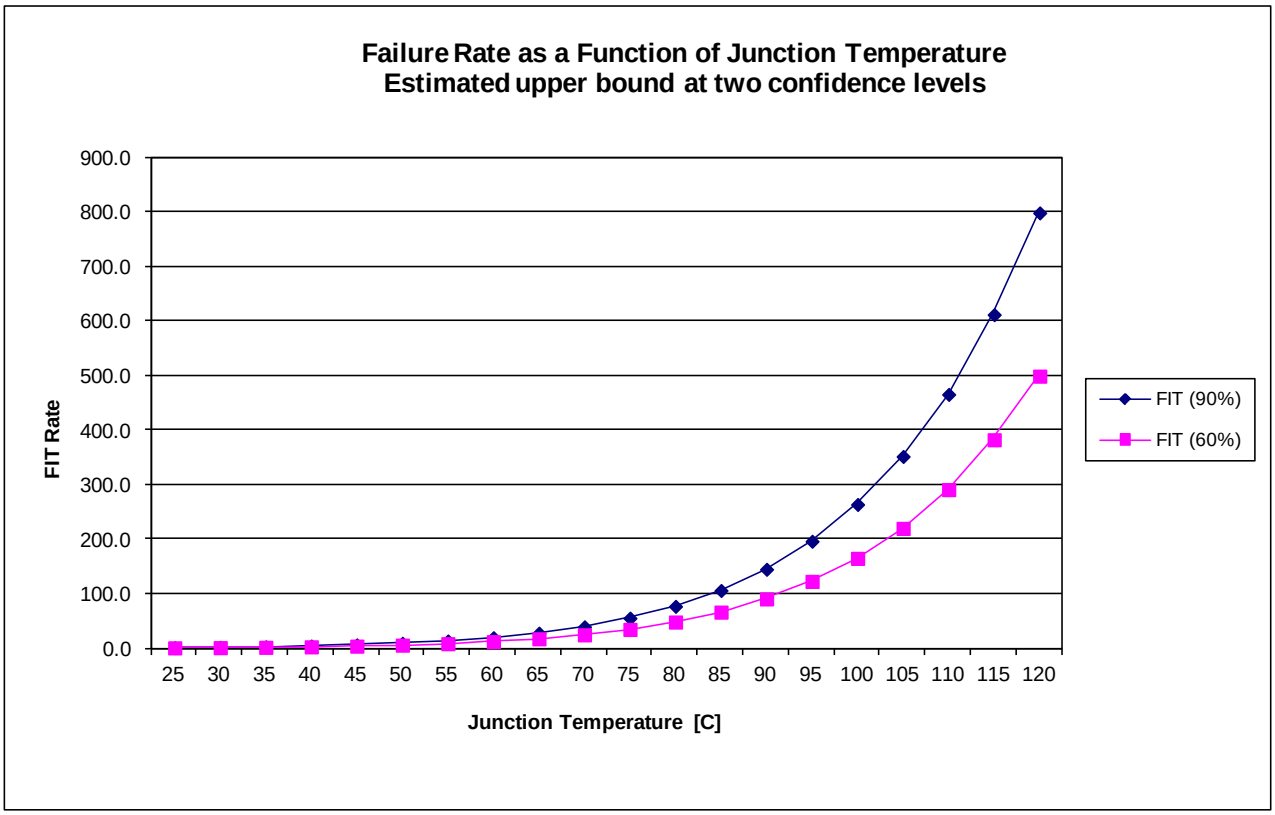
Reliability FIT Calculations for temperature acceleration

Single Point Calculation for Diode			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	513	513	Devices stressed (Typical)
H	1000	1000	Number of hours on stress
F	0	0	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	2.0	2.0	degrees of freedom [2(F+1)]
DH	513172.0	513172.0	Total device hours D*H
X2	4.6	1.8	Chi-Square Distribution Value
FIT	18.7	7.5	Failures in time [failures / 1xE9 hours]
			=[X2/(2*AF*D*H)*1E9]
MTTF	5.3E+07	1.3E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	6090.0	15303.8	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for Diode

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	2.3	0.9	50162	126053
30	1257.7	3.6	1.4	31999	80412
35	814.1	5.5	2.2	20713	52050
40	534.4	8.4	3.3	13595	34163
45	355.4	12.6	5.0	9042	22722
50	239.4	18.7	7.5	6090	15304
55	163.2	27.5	10.9	4152	10433
60	112.5	39.9	15.9	2863	7194
65	78.5	57.2	22.8	1996	5016
70	55.3	81.2	32.3	1406	3534
75	39.3	114.1	45.4	1001	2515
80	28.3	158.7	63.2	719	1807
85	20.5	218.9	87.1	522	1311
90	15.0	299.1	119.0	382	959
95	11.1	405.3	161.3	282	708
100	8.2	544.8	216.8	210	527
105	6.2	726.6	289.2	157	395
110	4.7	961.9	382.8	119	298
115	3.5	1264.1	503.0	90	227
120	2.7	1649.7	656.5	69	174

Process - High Voltage



Single Point Calculation for High Voltage			
Variables:	**90%**	**60%**	Confidence Level
Tja [C]	50	50	Junction Temperature at operating condition
Tsa [C]	125	125	Ambient Temperature at stress
Tjs [C]	140	140	Junction Temperature at stress (assume 15C rise)
Ea	0.7	0.7	Energy Activation
D	3079	3079	Equivalent Devices stressed (Assuming 1000hrs per device)
H	1000	1000	Number of hours on stress
F	3	3	Number of failures
P	0.1	0.4	Confidence Level [.1 = 90%; .4 = 60%]
Constants:			
k	8.61E-05	8.61E-05	Boltzman's constant [eV/K]
Calculated Values:			
Af	239.4	239.4	Acceleration Factor: [exp(Ea/k*(1/(Tja + 273.15) - (1/(Tjs + 273.15))]
v	8.0	8.0	degrees of freedom [2(F+1)]
DH	3078720	3078720	Total device hours D*H
X2	13.4	8.4	Chi-Square Distribution Value
FIT	9.1	5.7	Failures in time [failures / 1xE9 hours] =[X2/(2*AF*D*H)*1E9]
MTTF	1.1E+08	1.8E+08	Mean Time To Failure [hours] (Note: MTTF is 1/FIT)
MTTF	12592.5	20149.2	Mean Time To Failure [years] (Note: MTTF is 1/FIT)

FIT Estimation Curves for High Voltage

Tja	Af	FIT (90%)	FIT (60%)	MTTF 90% (yrs)	MTTF 60% (yrs)
25	1971.6	1.1	0.7	103721	165963
30	1257.7	1.7	1.1	66166	105871
35	814.1	2.7	1.7	42829	68530
40	534.4	4.1	2.5	28111	44979
45	355.4	6.1	3.8	18696	29915
50	239.4	9.1	5.7	12593	20149
55	163.2	13.3	8.3	8584	13736
60	112.5	19.3	12.1	5920	9472
65	78.5	27.7	17.3	4127	6604
70	55.3	39.3	24.5	2908	4653
75	39.3	55.2	34.5	2070	3311
80	28.3	76.8	48.0	1487	2380
85	20.5	105.8	66.1	1079	1726
90	15.0	144.7	90.4	789	1263
95	11.1	196.0	122.5	582	932
100	8.2	263.5	164.7	433	693
105	6.2	351.4	219.6	325	520
110	4.7	465.2	290.7	245	393
115	3.5	611.3	382.1	187	299
120	2.7	797.8	498.6	143	229

Part Numbers by Fab Technology

PN	Technology
5XX	0.13 um
BCXX	0.11 um
C8051F0XX	0.35 um, embed flash
C8051F1XX	0.35 um, embed flash
C8051F2XX	0.35 um, embed flash
C8051F3XX	0.35 um, embed flash
C8051F4XX	0.25 um, embed flash
C8051F5XX	0.25 um, embed flash
C8051F7XX	0.18 um, embed flash
C8051F8XX	0.18 um, embed flash
C8051F96x	0.18 um, embed flash
C8051F9XX	0.18 um, embed flash
C8051T3XX	0.18 um, OTP
C8051T6XX	0.18 um, OTP
CF0XX	0.35 um, embed flash
CF1XX	0.35 um, embed flash
CF2XX	0.35 um, embed flash
CF3XX	0.35 um, embed flash
CF4XX	0.25 um, embed flash
CF5XX	0.25 um, embed flash
CF7XX	0.18 um, embed flash
CF8XX	0.18 um, embed flash
CF9XX	0.18 um, embed flash
CP2101	0.35 um, embed flash
CP2102	0.35 um, embed flash
CP2103	0.35 um, embed flash
CP2104	0.18 um, OTP
CP2105	0.18 um, OTP
CP211X	0.18 um, OTP
CP2120	0.35 um, embed flash
CP22XX	0.35 um, embed flash
CP240X	0.18 um
CP25XX	0.35 um, embed flash
CP3XXX	0.18 um, OTP
CT3XX	0.18 um, OTP
CT6XX	0.18 um, OTP
CY2277	0.6 um- 1.0 um
CY2831	0.45 um- 0.5 um
CY2832	0.45 um- 0.5 um
CY2834	0.18 um, RF
CY2835	0.18 um, RF
CY2835	0.25 um
CY2840	0.25 um
CY2841	0.25 um
CY2844	0.25 um
CY2854	0.25 um
CY2855	0.25 um
CY2880	0.25 um
CY28SR	0.25 um
CY2SST	0.18 um, RF

PN	Technology
CY505Y	0.25 um
CYI953	0.18 um, RF
CYI983	0.18 um, RF
CYW134	0.45 um- 0.5 um
CYW150	0.45 um- 0.5 um
CYW173	0.45 um- 0.5 um
CYW256	0.45 um- 0.5 um
CYW305	0.45 um- 0.5 um
CYW320	0.45 um- 0.5 um
IA10XX	Diode
IA11XX	0.6 um- 0.8 umBiCMOS
IA12XX	0.6 um- 0.8 umBiCMOS
IA13XX	0.6 um- 0.8 umBiCMOS
IA14XX	0.6 um- 0.8 umBiCMOS
IA21XX	0.6 um- 0.8 umBiCMOS
IA32XX	0.6 um- 0.8 umBiCMOS
IA35XX	0.315 um- 0.35 um
IAP24X	0.6 um- 0.8 umBiCMOS
IAP32X	0.6 um- 0.8 umBiCMOS
IAP38X	0.6 um- 1.0 um
IAP4XX	0.6 um- 0.8 umBiCMOS
IAP5XX	0.6 um- 0.8 umBiCMOS
IAP6XX	0.6 um- 1.0 um
IAP7XX	0.6 um- 1.0 um
IAP8XX	0.6 um- 0.8 umBiCMOS
IAP90X	0.6 um- 1.0 um
IAP91X	0.6 um- 0.8 umBiCMOS
IAP93X	0.6 um- 1.0 um
Si100X	0.18 um, embed flash
Si100X	0.18 um, RF
Si101X	0.18 um, embed flash
Si101X	0.18 um, RF
SI102x	0.18 um, embed flash
SI103x	0.18 um, embed flash
Si1102	Diode
Si1120	Diode
Si114X	0.18 um, OTP
Si210X	0.13 um
Si2115	High Voltage
SI211x	0.11 um
Si211X	0.13 um
Si213X	0.11 um
Si214X	0.11 um
Si215X	0.11 um
Si216X	0.11 um
Si217X	0.11 um
SI218x	0.11 um
Si220X	0.315 um- 0.35 um
Si221X	0.25 um
Si2400	0.45 um- 0.5 um

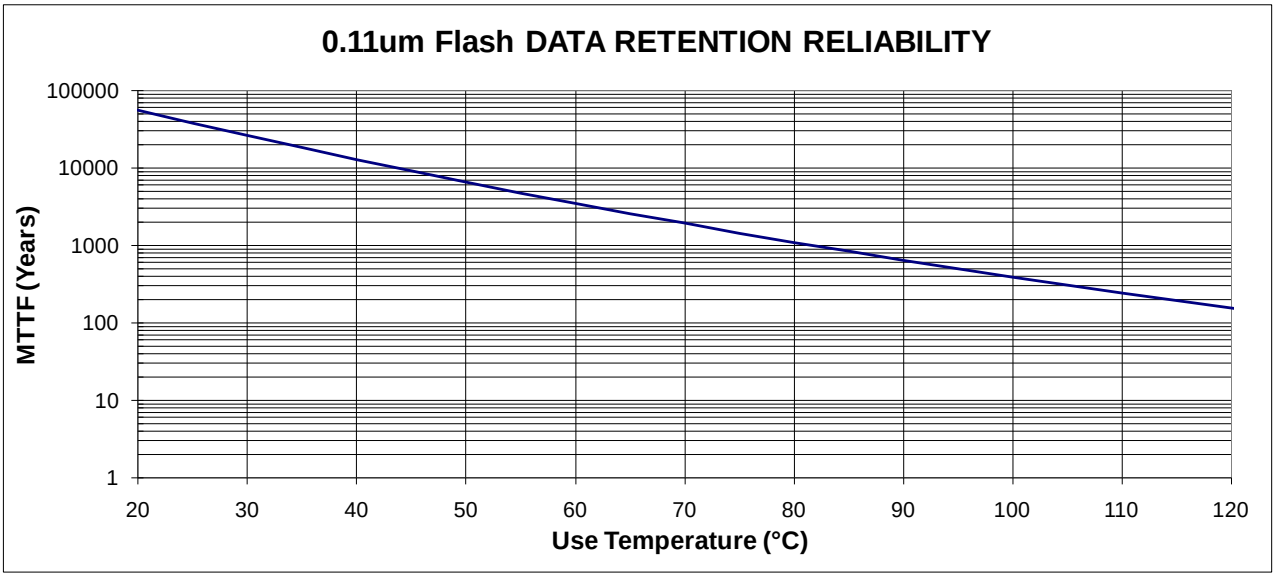
PN	Technology
Si24XX	0.18 um
Si24XX-D	0.11 um
Si27XX	0.11 um
Si3000	0.45 um- 0.5 um
Si3005	0.25 um
Si3006	0.25 um
Si3007	0.25 um
Si3008	0.25 um
Si3009	0.25 um
Si3010	0.25 um
Si3011	0.25 um
Si3012	0.45 um- 0.5 um
Si3014	0.45 um- 0.5 um
Si3015	0.45 um- 0.5 um
Si3016	0.45 um- 0.5 um
Si3017	0.25 um
Si3018	0.25 um
Si3019	0.25 um
Si302X	0.45 um- 0.5 um
Si3050-E	0.18 um
Si305X	0.25 um
Si306X	0.25 um
Si307X	0.25 um
Si308X	0.25 um
Si31XX	0.25 um
Si320X	High Voltage
Si3217	0.18 um
Si3217X	0.18 um
Si3217X	High Voltage
Si321X	0.45 um- 0.5 um
Si3220	0.45 um- 0.5 um
Si3225	0.45 um- 0.5 um
Si3226	0.18 um
Si3226X	0.18 um
Si3226X	High Voltage
Si3227	0.18 um
Si3230	0.45 um- 0.5 um
Si3232	0.45 um- 0.5 um
Si3233	0.45 um- 0.5 um
Si3238	High Voltage
Si3239	High Voltage
Si324X	0.18 um
Si3291X	0.25 um
Si340X	High Voltage
Si3450	0.18 um
Si3452	0.18 um, OTP
Si3453	0.18 um, OTP
Si3455	High Voltage
Si3456	High Voltage
Si3461	0.18 um, OTP

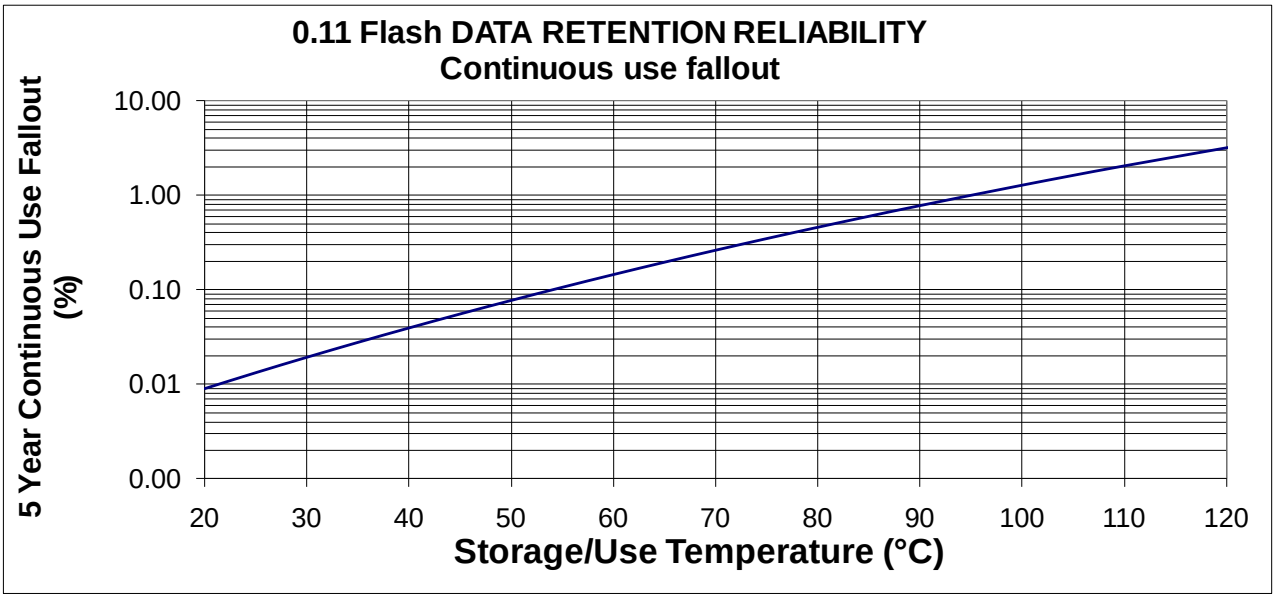
PN	Technology
Si346X	0.18 um, OTP
Si348X	0.35 um, embed flash
Si35XX	High Voltage
Si401X	0.13 um
Si402X	0.6 um- 0.8 umBiCMOS
Si403X	0.18 um, RF
Si41XX	0.315 um- 0.35 um
Si431X	0.13 um
Si432X	0.6 um- 0.8 umBiCMOS
Si433X	0.18 um, RF
Si442X	0.6 um- 0.8 umBiCMOS
Si443X	0.18 um, RF
Si4705	0.11 um
Si4708-B	0.11 um
Si4708-C	0.11 um
Si470X	0.13 um
Si471X	0.13 um
Si472X	0.13 um
Si473X	0.13 um
Si474X	0.13 um
Si476X	0.11 um
Si4780	0.35 um, embed flash
Si4784	0.13 um
Si4785	0.13 um
Si47XX-C19	0.11 um
Si47XX-DXX	0.11 um
Si483X	0.13 um
Si48XX	0.11 um
Si49XX	0.6 um- 0.8 umBiCMOS
Si501X	0.25 um
Si502X	0.25 um
Si504X	0.13 um
Si51XX	0.15 um
Si530X	0.13 um
Si5310	0.25 um
Si5315	0.13 um
Si5316	0.13 um
Si5317	0.13 um
Si5319	0.13 um
Si5320	0.25 um
Si5321	0.25 um
Si5322	0.13 um
Si5323	0.13 um
Si5324	0.13 um
Si5325	0.13 um
Si5326	0.13 um
Si5327	0.13 um
Si533X	0.13 um
Si535X	0.13 um
Si5364	0.25 um

PN	Technology
Si5365	0.13 um
Si5366	0.13 um
Si5367	0.13 um
Si5368	0.13 um
Si5369	0.13 um
Si5374	0.13 um
Si5375	0.13 um
Si823X	High Voltage
Si8250	0.35 um, embed flash
Si825X	0.25 um, embed flash
Si82XX	0.25 um
Si83XX	0.6 um- 1.0 um
Si84XX	0.25 um
Si850X	0.315 um- 0.35 um
Si851X	0.315 um- 0.35 um
Si854X	0.6 um- 1.0 um
Si86XX	0.25 um
Si890X	0.18 um, OTP
SL1510	0.35 um, embed flash
SL1530	0.18 um, RF
SL1530	0.35 um, embed flash
SL1601	0.18 um, RF
SL1889	0.18 um, RF
SL2304	0.18 um, RF
SL2305	0.18 um, RF
SL2309	0.18 um, RF
SL23EP	0.18 um, RF
SL2850	0.25 um
SL2854	0.25 um
SL2861	0.18 um, RF
SL2874	0.18 um
SL2877	0.18 um
SL2877	0.18 um, RF
SL28DB	0.25 um
SL28EB	0.18 um
SL28PC	0.18 um
SL28PC	0.18 um, RF
SL28SR	0.18 um
SL3800	0.18 um, RF
SL3800	0.35 um, embed flash
SL38020	0.18 um, OTP
SL3816	0.18 um, RF
W149H	0.45 um- 0.5 um
W158HT	0.45 um- 0.5 um

0.11um Flash Reliability Summary

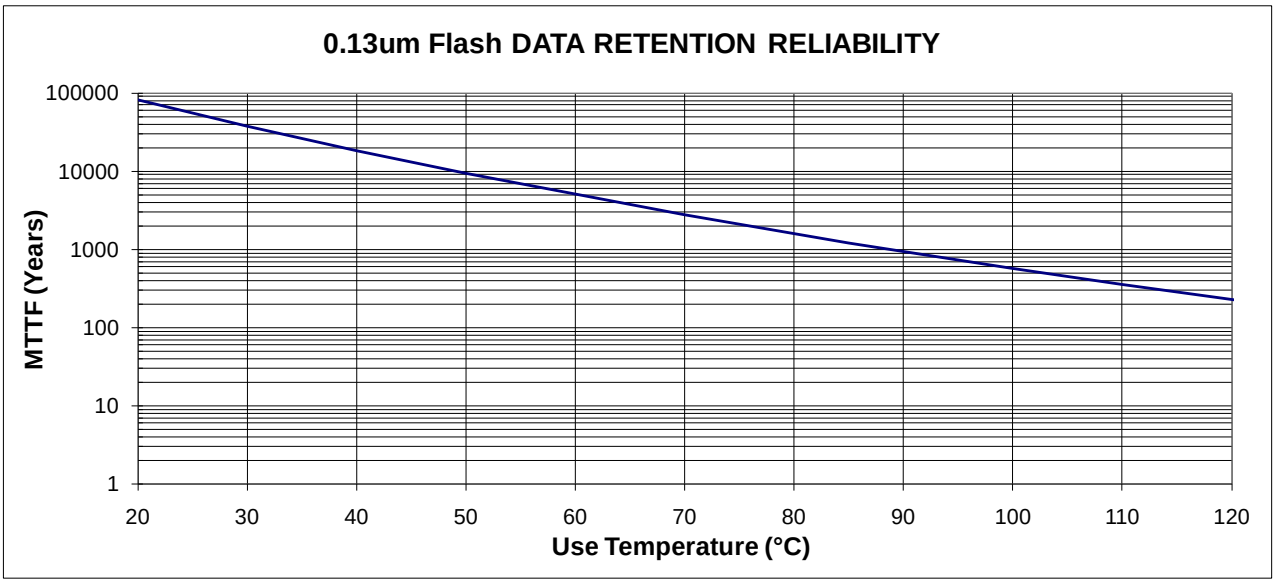
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Charge-able Failures	**TYPICAL CASE**: Predicted Fit Rate @Ta=50°C, 60% UCL	**10 Year** Predicted Failure Rate @Ta=50°C, 60% UCL	**WORST-CASE:** Predicted Fit Rate @Ta=85°C, 60% UCL	**10 Year** Predicted Failure Rate @Ta=85°C, 60% UCL
TSMC	150	1000	366	0	17.5	0.15%	136.4	1.19%
CUM			**366**	**0**	**17.5**	**0.15%**	**136**	**1.19%**

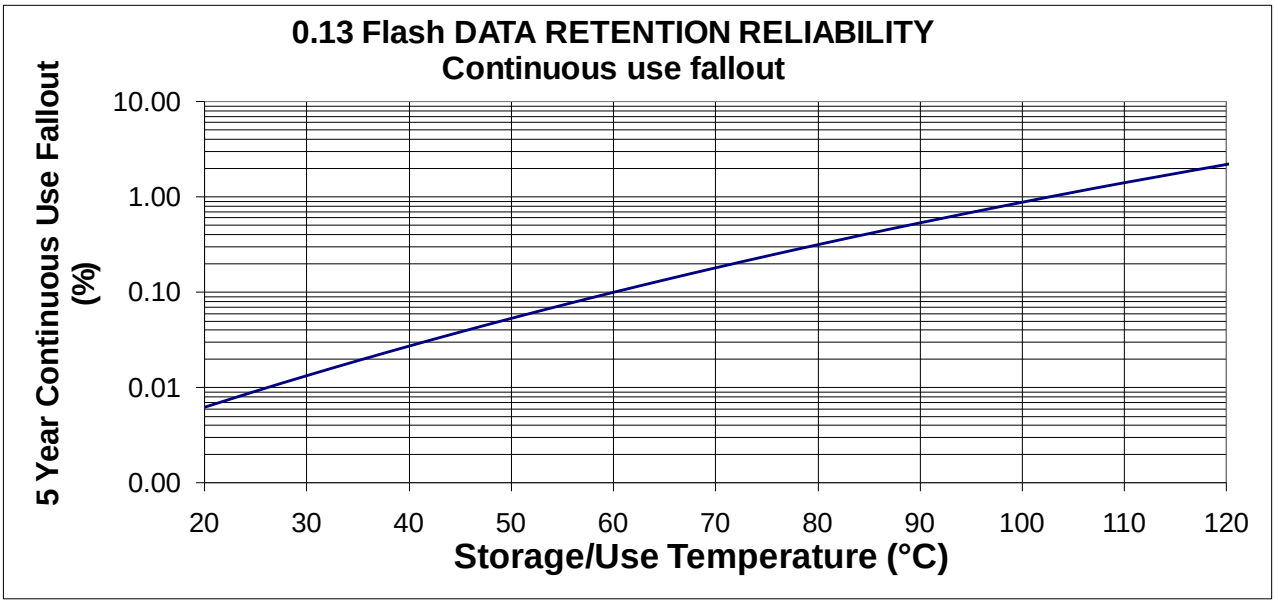




0.13um Flash Reliability Summary

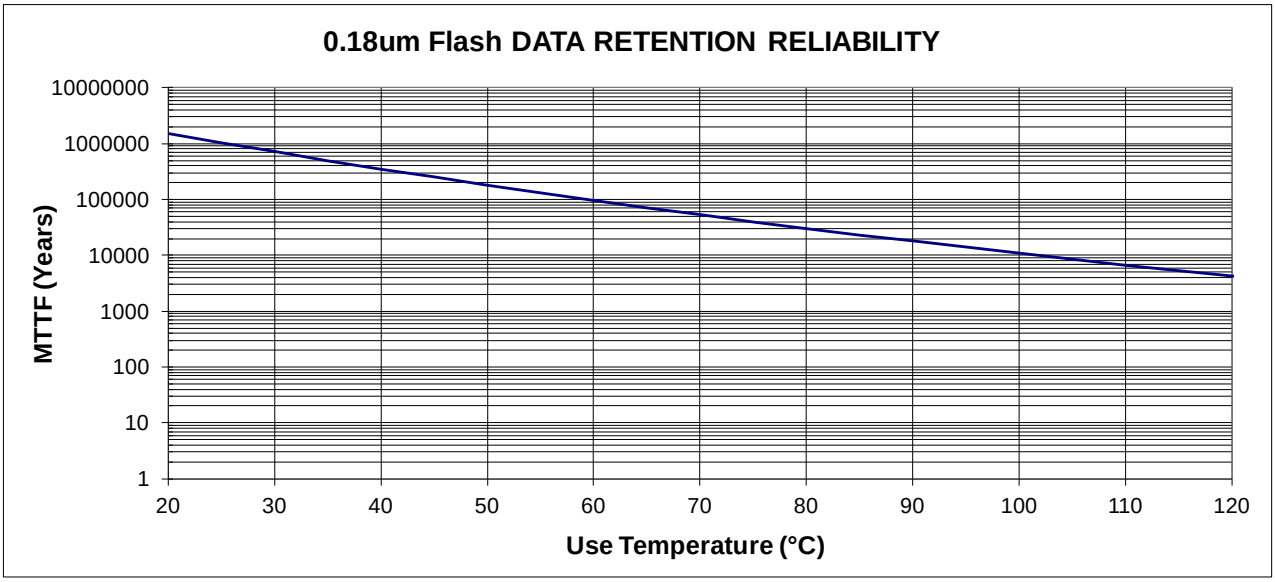
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Charge-able Failures	TYPICAL CASE: Predicted Fit Rate @Ta=50°C, 60% UCL	10 Year Predicted Failure Rate @Ta=50°C, 60% UCL	WORST-CASE: Predicted Fit Rate @Ta=85°C, 60% UCL	10 Year Predicted Failure Rate @Ta=85°C, 60% UCL
TSMC	150	1000	531	0	12.1	0.11%	94.0	0.82%
CUM			**531**	**0**	**12.1**	**0.11%**	**94**	**0.82%**

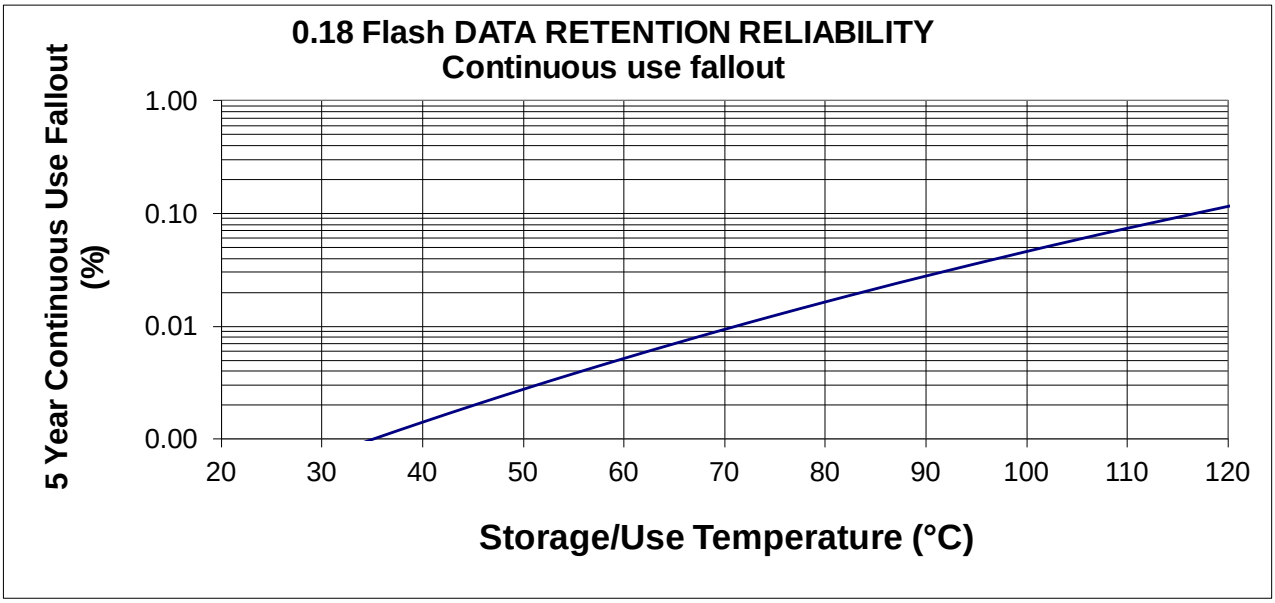




0.18um Flash Reliability Summary

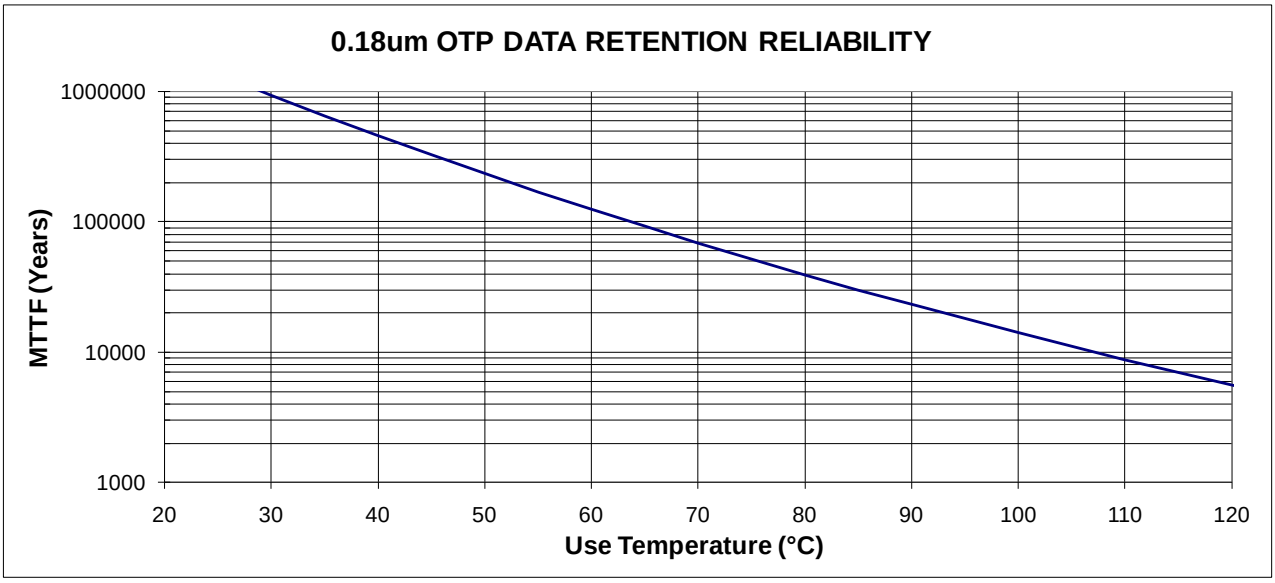
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Chargeable Failures	TYPICAL CASE: Predicted Fit Rate @Ta=50°C, 60% UCL	10 Year Predicted Failure Rate @Ta=50°C, 60% UCL	WORST-CASE: Predicted Fit Rate @Ta=85°C, 60% UCL	10 Year Predicted Failure Rate @Ta=85°C, 60% UCL
TSMC	150	12000	798	0	0.7	0.01%	5.2	0.05%
TSMC - Current	150	1000	90	0	71.3	0.62%	554.8	4.74%
GSMC	150	1000	449	0	14.3	0.13%	111.2	0.97%
CUM			**1337**	**0**	**0.6**	**0.01%**	**5**	**0.04%**

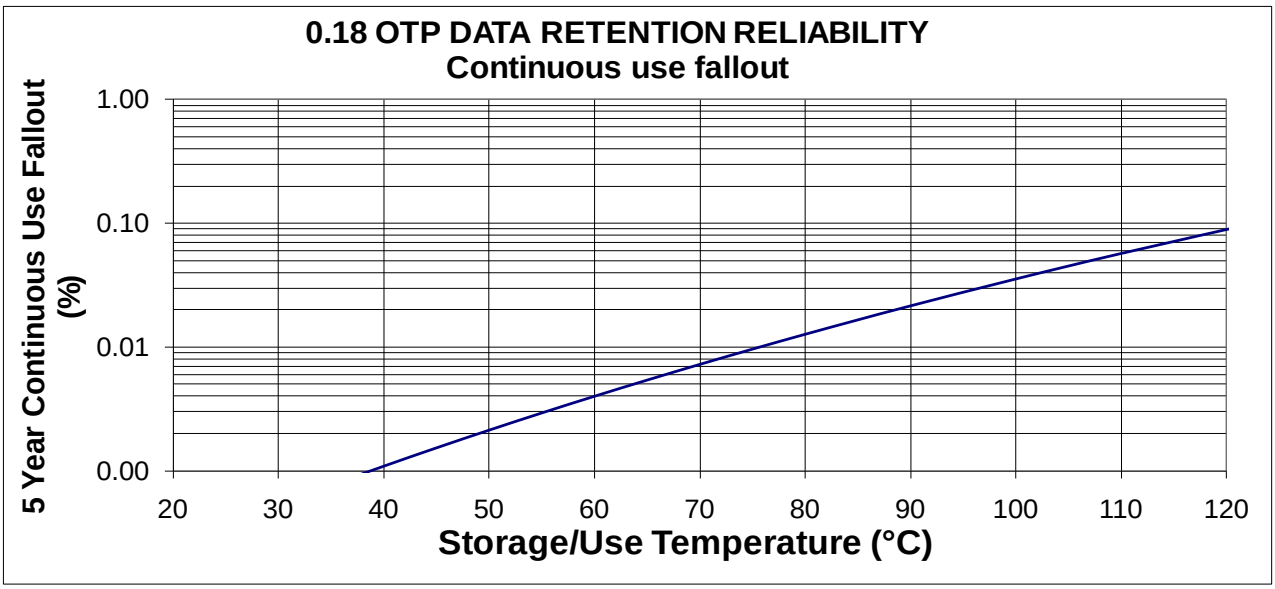




0.18um OTP Reliability Summary

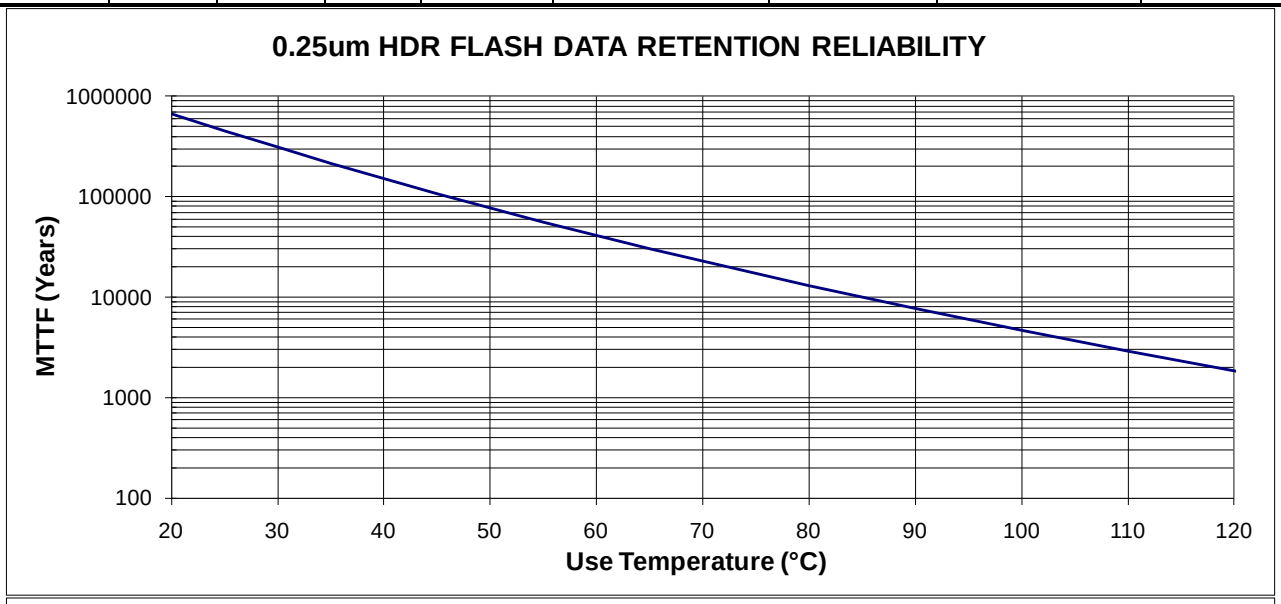
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Charge-able Failures	**TYPICAL CASE**: Predicted Fit Rate @Ta=50°C, 60% UCL	**10 Year** Predicted Failure Rate @Ta=50°C, 60% UCL	**WORST-CASE:** Predicted Fit Rate @Ta=85°C, 60% UCL	**10 Year** Predicted Failure Rate @Ta=85°C, 60% UCL
Fab	200	4032	462	0	0.6	0.01%	4.9	0.04%
Fab	150	1000	298	0	21.5	0.19%	167.6	1.46%
T600	150	1000	2015	0	3.2	0.03%	24.8	0.22%
T606/10/30	150	1000	720	0	8.9	0.08%	69.4	0.61%
CUM			**3495**	**0**	**0.5**	**0.00%**	**4**	**0.03%**

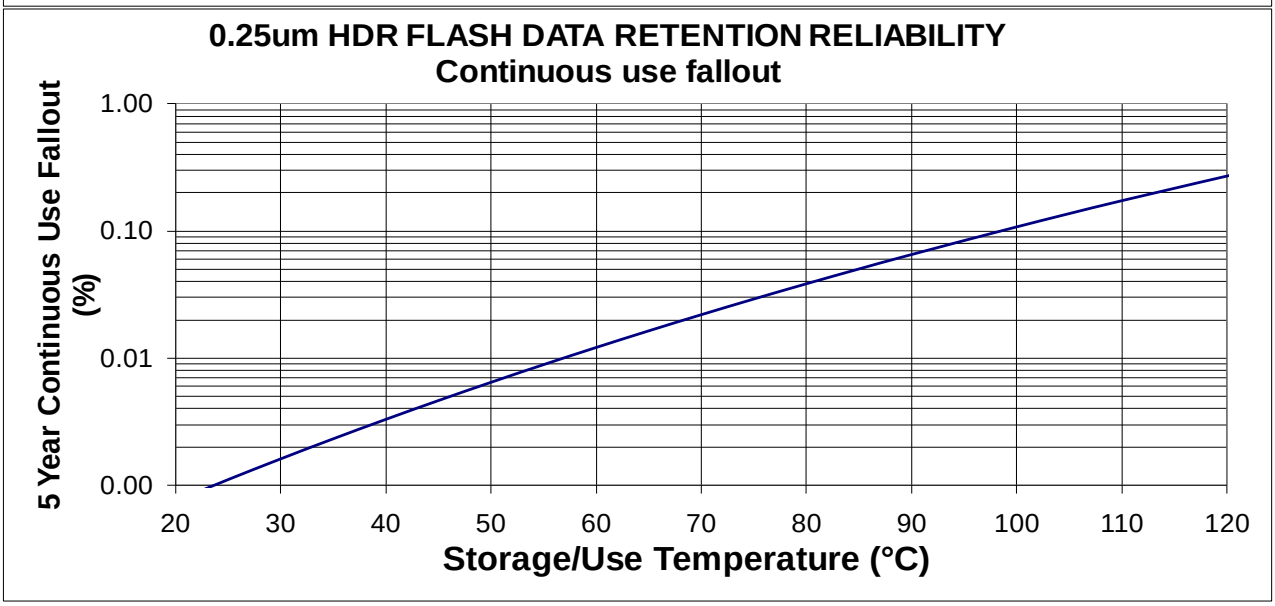




0.25um Automotive Flash Reliability Summary

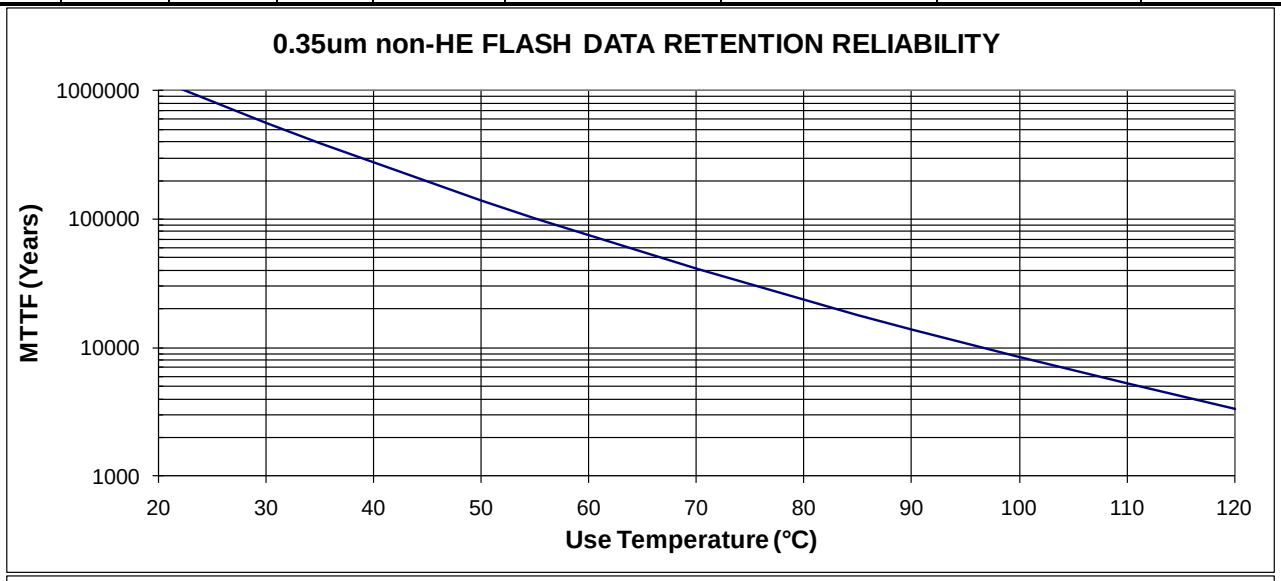
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Charge-able Failures	TYPICAL CASE: Predicted Fit Rate @Ta=50°C, 60% UCL	10 Year Predicted Failure Rate @Ta=50°C, 60% UCL	WORST-CASE: Predicted Fit Rate @Ta=85°C, 60% UCL	10 Year Predicted Failure Rate @Ta=85°C, 60% UCL
F250/410	150	2008	160	0	20.0	0.17%	155.4	1.35%
Si8250	150	5002	66	0	19.4	0.17%	151.3	1.32%
Auto MCU	150	1000	2537	0	2.5	0.02%	19.7	0.17%
Fab	150	5000	231	0	5.6	0.05%	43.2	0.38%
CUM			**2994**	**0**	**1.5**	**0.01%**	**11**	**0.10%**

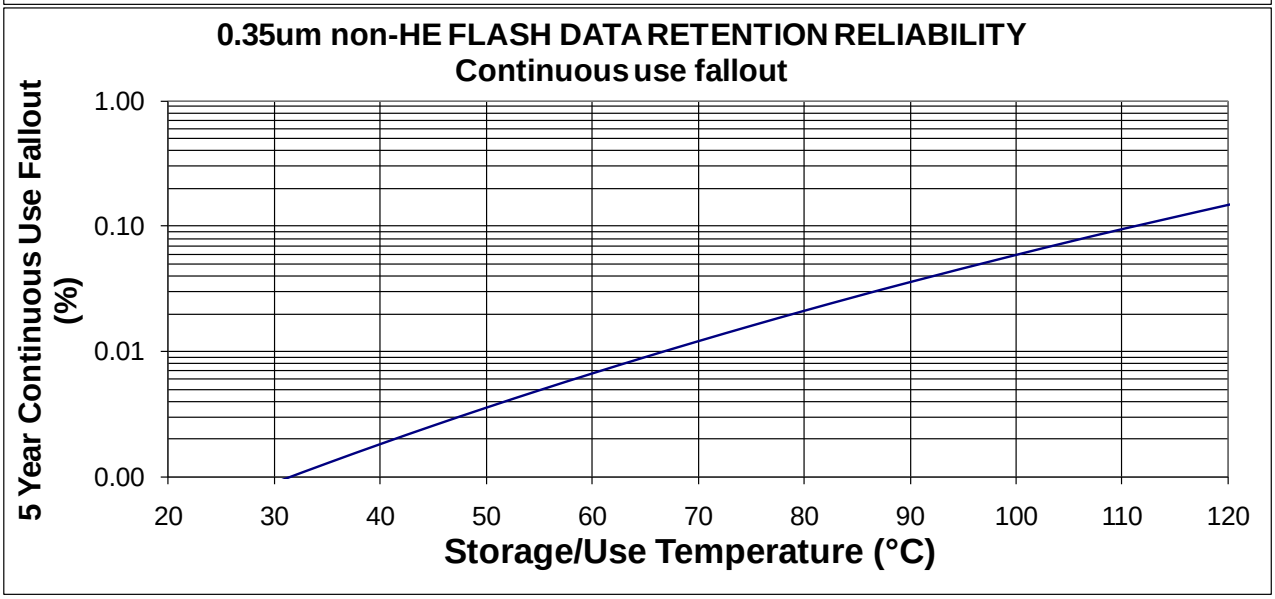




0.35um Flash Reliability Summary

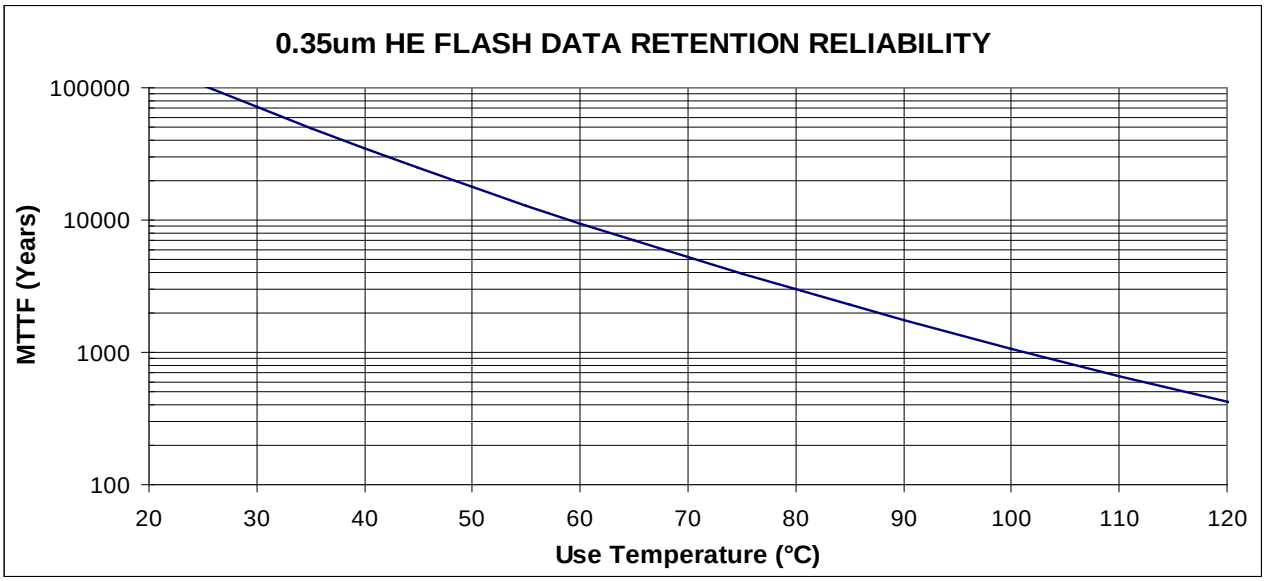
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Charge-able Failures	TYPICAL CASE: Predicted Fit Rate @Ta=50°C, 60% UCL	10 Year Predicted Failure Rate @Ta=50°C, 60% UCL	WORST-CASE: Predicted Fit Rate @Ta=85°C, 60% UCL	10 Year Predicted Failure Rate @Ta=85°C, 60% UCL
Fab	250	576	216	0	2.4	0.02%	18.7	0.16%
Fab	150	1000	230	0	27.9	0.24%	217.1	1.88%
SST	150	2000	462	0	6.9	0.06%	54.0	0.47%
SiLabs	150	1000	4064	0	1.6	0.01%	12.3	0.11%
CUM			**4972**	**0**	**0.8**	**0.01%**	**6**	**0.06%**

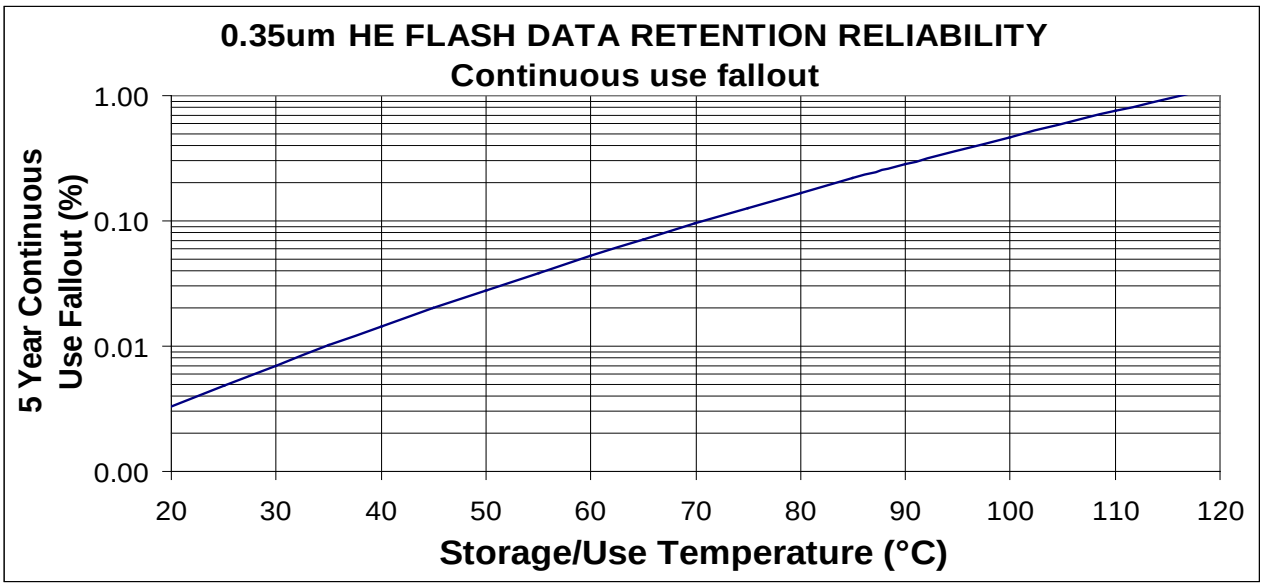




0.35um High Endurance Flash Reliability Summary

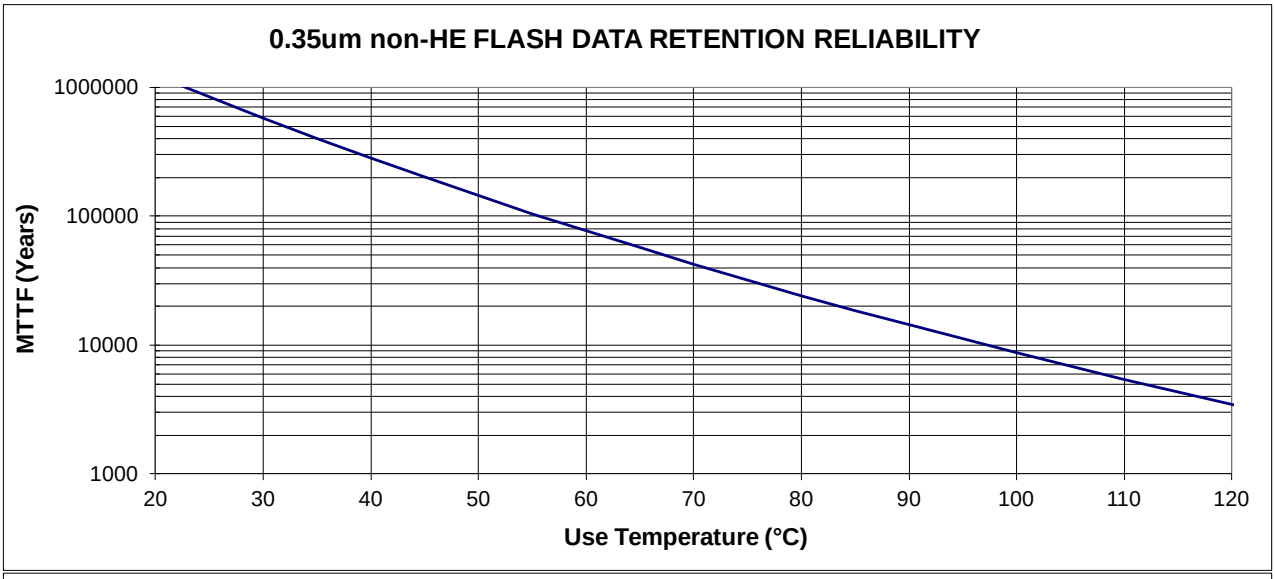
Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Charge-able Failures	TYPICAL CASE: Predicted Fit Rate @Ta=50°C, 60% UCL	10 Year Predicted Failure Rate @Ta=50°C, 60% UCL	WORST-CASE: Predicted Fit Rate @Ta=85°C, 60% UCL	10 Year Predicted Failure Rate @Ta=85°C, 60% UCL
Fab	150	1000	231	0	27.8	0.24%	216.2	1.88%
F360	150	1000	269	0	23.9	0.21%	185.6	1.61%
F336	150	1000	500	0	12.8	0.11%	99.9	0.87%
CUM			**1000**	**0**	**6.4**	**0.06%**	**50**	**0.44%**

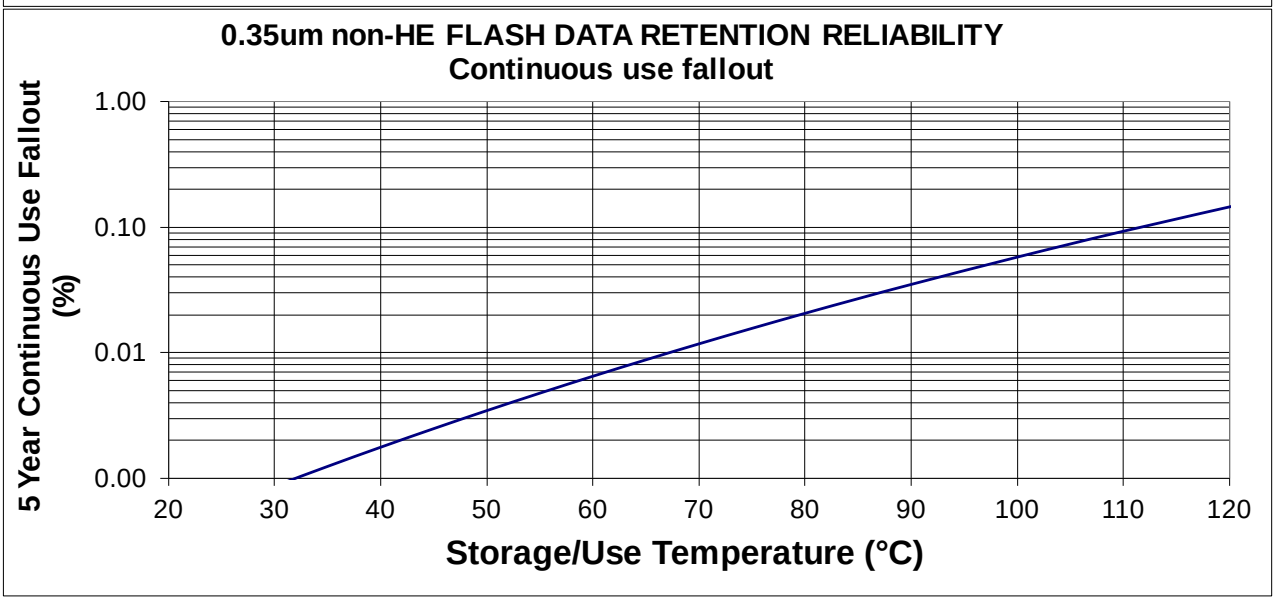




0.35um Non High Endurance Flash Reliability Summary

Study	Bake Stress Temp (°C)	Bake Stress Hours	Qty	Chargeable Failures	TYPICAL CASE: Predicted Fit Rate @Ta=50°C, 60% UCL	10 Year Predicted Failure Rate @Ta=50°C, 60% UCL	WORST-CASE: Predicted Fit Rate @Ta=85°C, 60% UCL	10 Year Predicted Failure Rate @Ta=85°C, 60% UCL
Fab Study	250	576	216	0	2.4	0.02%	18.7	0.16%
Fab Study	150	1000	230	0	27.9	0.24%	217.1	1.88%
SST Study	150	2000	462	0	6.9	0.06%	54.0	0.47%
SiLabs' Studies	150	1000	4304	0	1.5	0.01%	11.6	0.10%
CUM			**5212**	**0**	**0.8**	**0.01%**	**6**	**0.05%**





Reliability Monitor Program

Overview

Once a product is qualified, we verify continued product reliability with a reliability monitor program. The monitor program is scheduled to periodically sample device families, wafer fab technologies and package technologies. The results are published in this report. Any failures are used to drive corrective action and product and process improvement.

Stress Descriptions

Silicon Laboratories follows JEDEC as the preferred industry standard. The most common reliability tests and conditions are listed in the following table. The specific JEDEC documents are available on the Internet at www.jedec.org.

Reliability Tests, Procedures and Conditions Table

Symbol	Stress Name	Stress Procedure	Standard Conditions
DR	Data Retention Bake	AEC_Q100	150°C (pkg form); 250C (wafer)
ELFR	Early Life Failure Rate	JEDEC JESD22-A108	125°C; Max operating voltage
HAST	Highly-Accelerated Temperature and Humidity Stress Test	JEDEC JESD22-A110	130°C; 85%rh; 22.2 psia; biased
HTB	High Temperature Bake	JEDEC JESD22-A103	150°C
LTOL	Low Temperature Operating Life	JEDEC JESD22-A108	-10°C; Max operating voltage
HTOL	High Temperature Operating Life	JEDEC JESD22-A108	125°C; Max operating voltage
PC	Preconditioning	JEDEC JESD22-A113	According to MSL level prior to package stresses (listed below)
AU	Autoclave	JEDEC JESD22-A102	121°C; 100%rh; 205kPa
TC	Temperature Cycle	JEDEC JESD22-A104	Condition C: -65 to 150°C
U-HAST	Unbiased HAST	JEDEC JESD22-A118	130°C; 85%rh
THB	Temperature Humidity Bias	JEDEC JESD22-A101	85°C; 85%RH; Max operating voltage
Qualification Guideline	Stress Test Driven Qualification of Integrated Circuits; EIA / JEDEC EIA/JESD47 / AEC-Q100		

Silicon Reliability Test Method and Conditions

Early Life Failure Rate (ELFR)

The purpose of this test is to simulate the user operation over the first portion of the product lifetime, also called early life. Silicon Laboratories typically uses dynamic conditions, meaning the device is powered up, and the inputs are toggled to exercise a maximum number of transistors and circuit area. Reliability acceleration is accomplished primarily by temperature and secondarily by voltage.

High Temperature Operating Life (HTOL)

The purpose of this test is to simulate the user part operation over the expected life of the product. We typically use dynamic conditions, meaning the device is powered up, and the inputs are toggled to exercise a maximum number of transistors and circuit area. Reliability acceleration is accomplished primarily by temperature and secondarily by voltage.

High Temperature Storage Life (HTSL) / High Temperature Bake (HTB)

The purpose of this test is to determine the effect of storage at elevated temperature. This is performed to assess the stability of semiconductor device materials and interfaces.

Low Temperature Operating Life (LTOL)

The purpose of this test is to simulate the user operation at low temperature. This is a specialized test to address specific fab failure mechanisms, such as hot-carrier injection. Wafer level reliability tests are more effective for this characterization and are the primary qualification method. Silicon Laboratories typically uses dynamic conditions, meaning the device is powered up, and the inputs are toggled to exercise a maximum number of transistors and circuit area.

Nonvolatile Memory Data Retention (DR)

The purpose of this test is to measure the ability of a nonvolatile memory cell to retain its charge state at elevated temperature in the absence of applied external bias. This test can be done either in wafer form or on packaged units.

Reliability Monitor Report – Silicon Stresses

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
29940	BAKE	0.11 um	03-Jan-11	33	1000	0	150
30170	BAKE	0.11 um	10-Jan-11	80	1000	0	150
29703	HTOL	0.11 um	12-Jan-11	80	1050	0	65
29817	BAKE	0.11 um	19-Jan-11	28	2000	0	150
29825	BAKE	0.11 um	19-Jan-11	28	2000	0	150
29833	BAKE	0.11 um	19-Jan-11	28	2000	0	150
29992	ELFR	0.11 um	21-Jan-11	824	51	0	70
30053	BAKE	0.11 um	03-Feb-11	80	1000	0	150
30241	ELFR	0.11 um	03-Feb-11	506	48	0	125
30057	BAKE	0.11 um	04-Feb-11	80	1000	0	150
30079	HTOL	0.11 um	04-Feb-11	83	1000	0	125
30314	ELFR	0.11 um	11-Feb-11	811	48	0	70
30532	ELFR	0.11 um	14-Feb-11	504	48	0	90
30316	ELFR	0.11 um	17-Feb-11	500	48	0	125
30333	ELFR	0.11 um	22-Feb-11	825	51	0	70
30234	BAKE	0.11 um	08-Mar-11	27	1000	0	150
30315	HTOL	0.11 um	29-Mar-11	79	1000	0	125
30530	ELFR	0.11 um	05-Apr-11	250	48	0	90
30304	HTOL	0.11 um	07-Apr-11	80	1000	0	90
30550	ELFR	0.11 um	07-Apr-11	254	48	0	90
30414	HTOL	0.11 um	11-Apr-11	80	1000	0	125
30428	BAKE	0.11 um	12-Apr-11	27	1000	0	150
30468	BAKE	0.11 um	15-Apr-11	28	1000	0	150
30599	ELFR	0.11 um	17-Apr-11	288	48	0	90
30441	BAKE	0.11 um	18-Apr-11	30	1000	0	150
30454	HTOL	0.11 um	20-Apr-11	80	1000	0	125
30552	ELFR	0.11 um	20-Apr-11	512	48	0	125
30884	BAKE	0.11 um	22-Apr-11	28	1000	0	150
30888	BAKE	0.11 um	22-Apr-11	28	1000	0	150
30892	BAKE	0.11 um	22-Apr-11	28	1000	0	150
30473	LTOL	0.11 um	26-Apr-11	35	1000	0	-10
30487	BAKE	0.11 um	26-Apr-11	27	1000	0	150
30490	BAKE	0.11 um	26-Apr-11	27	1000	0	150
30622	ELFR	0.11 um	26-Apr-11	512	48	0	125
30601	HTOL	0.11 um	03-May-11	220	336	0	65
30670	ELFR	0.11 um	10-May-11	512	144	0	90
30475	HTOL	0.11 um	11-May-11	80	1000	0	90
30526	HTOL	0.11 um	20-May-11	80	1000	0	90
30614	BAKE	0.11 um	27-May-11	30	1000	0	125
30615	BAKE	0.11 um	27-May-11	28	1000	0	125
30899	ELFR	0.11 um	07-Jun-11	448	48	0	90
30902	ELFR	0.11 um	15-Jun-11	1470	48	0	90
30911	ELFR	0.11 um	27-Jun-11	500	48	0	125
30965	ELFR	0.11 um	28-Jun-11	440	48	0	90
30923	ELFR	0.11 um	30-Jun-11	824	48	0	70

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
30813	HTOL	0.11 um	02-Jul-11	160	1030	0	90
30794	BAKE	0.11 um	07-Jul-11	28	1000	0	150
31085	ELFR	0.11 um	18-Jul-11	512	48	0	90
30901	HTOL	0.11 um	19-Jul-11	160	1068	0	90
31062	ELFR	0.11 um	21-Jul-11	1588	48	0	90
31084	ELFR	0.11 um	25-Jul-11	511	48	0	90
30944	BAKE	0.11 um	27-Jul-11	30	1000	0	150
31108	ELFR	0.11 um	27-Jul-11	512	144	0	125
31173	HTOL	0.11 um	03-Aug-11	100	1000	0	125
30922	HTOL	0.11 um	16-Aug-11	87	1000	0	70
31187	ELFR	0.11 um	21-Aug-11	509	48	0	90
31452	BAKE	0.11 um	26-Aug-11	25	1000	0	150
31460	BAKE	0.11 um	26-Aug-11	25	1000	0	150
31468	BAKE	0.11 um	26-Aug-11	25	1000	0	150
31175	ELFR	0.11 um	02-Sep-11	820	53	0	70
31261	ELFR	0.11 um	02-Sep-11	512	144	0	90
31197	ELFR	0.11 um	08-Sep-11	504	48	0	125
31323	ELFR	0.11 um	13-Sep-11	210	53	0	70
31130	BAKE	0.11 um	14-Sep-11	28	1000	0	150
31156	BAKE	0.11 um	19-Sep-11	30	1000	0	150
31365	ELFR	0.11 um	27-Sep-11	512	48	0	125
31357	ELFR	0.11 um	28-Sep-11	511	48	0	90
31038	BAKE	0.11 um	04-Oct-11	30	2000	0	150
31043	BAKE	0.11 um	04-Oct-11	30	2000	0	150
31248	BAKE	0.11 um	11-Oct-11	30	1000	0	150
31247	HTOL	0.11 um	14-Oct-11	80	1000	0	125
31506	ELFR	0.11 um	18-Oct-11	511	48	0	90
31114	BAKE	0.11 um	24-Oct-11	30	2000	0	150
31536	ELFR	0.11 um	25-Oct-11	509	48	0	125
31349	BAKE	0.11 um	26-Oct-11	30	1000	0	150
31137	BAKE	0.11 um	27-Oct-11	24	2000	0	150
31146	BAKE	0.11 um	27-Oct-11	30	2000	0	150
31347	HTOL	0.11 um	29-Oct-11	160	1030	0	90
31618	ELFR	0.11 um	07-Nov-11	519	48	0	125
31412	BAKE	0.11 um	13-Nov-11	30	1000	0	150
31475	BAKE	0.11 um	18-Nov-11	30	1000	0	150
29763	ELFR	0.11 um	19-Nov-11	825	48	0	70
31651	ELFR	0.11 um	21-Nov-11	508	48	0	125
31502	BAKE	0.11 um	28-Nov-11	30	1000	0	150
31605	ELFR	0.11 um	01-Dec-11	819	53	0	70
31527	HTOL	0.11 um	02-Dec-11	80	1000	0	90
31528	HTOL	0.11 um	02-Dec-11	79	1000	0	90
31563	BAKE	0.11 um	16-Dec-11	30	1000	0	150
29745	HTOL	0.13 um	03-Jan-11	78	1000	0	110
29726	ELFR	0.13 um	10-Jan-11	510	48	0	110

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
30174	BAKE	0.13 um	10-Jan-11	80	1000	0	150
30232	BAKE	0.13 um	24-Jan-11	25	1000	0	150
30050	HTOL	0.13 um	09-Feb-11	85	1000	0	125
30048	HTOL	0.13 um	13-Feb-11	87	1000	0	125
30296	ELFR	0.13 um	19-Feb-11	510	48	0	110
30430	ELFR	0.13 um	05-Mar-11	810	48	0	125
30433	ELFR	0.13 um	07-Mar-11	502	48	0	70
30244	BAKE	0.13 um	11-Mar-11	28	1000	0	150
30293	BAKE	0.13 um	21-Mar-11	25	1000	0	125
30295	HTOL	0.13 um	25-Mar-11	80	1000	0	110
30319	HTOL	0.13 um	25-Mar-11	80	1000	0	125
30320	HTOL	0.13 um	27-Mar-11	80	1000	0	125
30432	ELFR	0.13 um	29-Mar-11	800	48	0	125
30049	HTOL	0.13 um	04-Apr-11	79	1000	0	125
30542	ELFR	0.13 um	04-Apr-11	810	48	0	125
30431	ELFR	0.13 um	06-Apr-11	800	48	0	125
30553	ELFR	0.13 um	09-Apr-11	806	48	0	125
30818	BAKE	0.13 um	13-Apr-11	30	1000	0	150
30823	BAKE	0.13 um	13-Apr-11	30	1000	0	150
30828	BAKE	0.13 um	13-Apr-11	30	1000	0	150
30833	BAKE	0.13 um	13-Apr-11	30	1000	0	150
30838	BAKE	0.13 um	13-Apr-11	30	1000	0	150
30843	BAKE	0.13 um	13-Apr-11	30	1000	0	150
30627	BAKE	0.13 um	20-Apr-11	80	1000	0	150
31070	BAKE	0.13 um	20-Apr-11	80	1000	0	150
30474	HTOL	0.13 um	21-Apr-11	80	1000	0	70
30500	BAKE	0.13 um	12-May-11	25	1000	0	125
30872	BAKE	0.13 um	20-May-11	28	1000	0	150
30876	BAKE	0.13 um	20-May-11	28	1000	0	150
30880	BAKE	0.13 um	20-May-11	28	1000	0	150
30759	HTOL	0.13 um	06-Jun-11	80	1000	0	125
30903	HTOL	0.13 um	20-Jun-11	110	1000	0	110
31089	BAKE	0.13 um	15-Jul-11	80	1000	0	150
31048	ELFR	0.13 um	18-Jul-11	510	48	0	110
31428	BAKE	0.13 um	26-Aug-11	25	1000	0	150
31436	BAKE	0.13 um	26-Aug-11	25	1000	0	150
31444	BAKE	0.13 um	26-Aug-11	25	1000	0	150
31047	HTOL	0.13 um	28-Aug-11	80	1000	0	110
31159	BAKE	0.13 um	19-Sep-11	27	1000	0	150
31486	BAKE	0.13 um	22-Sep-11	80	1000	0	150
31262	HTOL	0.13 um	26-Sep-11	58	239	0	110
31257	BAKE	0.13 um	06-Oct-11	25	1000	0	125
31283	BAKE	0.13 um	12-Oct-11	27	1000	0	150
31516	HTOL	0.13 um	25-Oct-11	24	265	0	110
31554	ELFR	0.13 um	01-Nov-11	510	48	0	110

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
31405	BAKE	0.13 um	10-Nov-11	25	1000	0	125
31622	ELFR	0.13 um	15-Nov-11	504	48	0	125
31553	HTOL	0.13 um	15-Dec-11	80	1000	0	110
30034	LTOL	0.18 um	01-Feb-11	35	1000	0	-10
30701	ELFR	0.18 um	22-Mar-11	543	48	0	110
30791	ELFR	0.18 um	22-Mar-11	541	48	0	110
29013	ELFR	0.18 um	01-Apr-11	1178	48	0	25
30461	HTOL	0.18 um	01-May-11	80	1000	0	110
30462	HTOL	0.18 um	01-May-11	80	1000	0	125
30515	BAKE	0.18 um	03-May-11	30	1000	0	150
30518	BAKE	0.18 um	03-May-11	30	1000	0	150
31112	ELFR	0.18 um	11-Aug-11	510	48	0	90
31190	BAKE	0.18 um	27-Sep-11	28	1000	0	150
31192	BAKE	0.18 um	27-Sep-11	30	1000	0	150
31233	HTOL	0.18 um	06-Oct-11	80	1000	0	90
31535	ELFR	0.18 um	09-Nov-11	510	48	0	125
29254	BAKE	0.18 um, embed flash	05-Jan-11	76	1000	0	150
29762	HTOL	0.18 um, embed flash	09-Feb-11	76	1000	0	125
30239	BAKE	0.18 um, embed flash	05-Apr-11	80	1000	0	150
30472	BAKE	0.18 um, embed flash	22-Apr-11	83	1000	0	150
30480	BAKE	0.18 um, embed flash	22-Apr-11	103	1000	0	150
30548	BAKE	0.18 um, embed flash	11-May-11	53	1000	0	150
30680	ELFR	0.18 um, embed flash	11-May-11	540	48	0	125
30561	BAKE	0.18 um, embed flash	17-May-11	30	1000	0	150
30785	ELFR	0.18 um, embed flash	17-May-11	520	48	0	125
30968	ELFR	0.18 um, embed flash	24-Jun-11	820	48	0	125
30782	HTOL	0.18 um, embed flash	05-Jul-11	103	1000	0	125
31010	ELFR	0.18 um, embed flash	11-Jul-11	820	48	0	125
30676	BAKE	0.18 um, embed flash	14-Jul-11	71	1000	0	150
31030	ELFR	0.18 um, embed flash	15-Jul-11	504	48	0	125
30633	BAKE	0.18 um, embed flash	10-Aug-11	77	1000	0	150
30638	BAKE	0.18 um, embed flash	10-Aug-11	79	1000	0	150
30643	BAKE	0.18 um, embed flash	10-Aug-11	72	1000	0	150
30969	HTOL	0.18 um, embed flash	25-Aug-11	77	1000	0	125
31242	ELFR	0.18 um, embed flash	15-Sep-11	520	48	0	125
31232	HTOL	0.18 um, embed flash	06-Oct-11	80	1000	0	90
31356	BAKE	0.18 um, embed flash	31-Oct-11	37	1000	0	150
31354	BAKE	0.18 um, embed flash	01-Nov-11	30	1000	0	150
31355	BAKE	0.18 um, embed flash	01-Nov-11	30	1000	0	150
31241	HTOL	0.18 um, embed flash	02-Nov-11	80	1000	0	125
31523	BAKE	0.18 um, embed flash	14-Nov-11	37	1000	0	150
31576	BAKE	0.18 um, embed flash	14-Dec-11	35	1000	0	150
30246	ELFR	0.18 um, OTP	04-Feb-11	525	48	0	125
30090	BAKE	0.18 um, OTP	17-Feb-11	30	1000	0	100
30093	BAKE	0.18 um, OTP	17-Feb-11	30	1000	0	100

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
30278	BAKE	0.18 um, OTP	11-Mar-11	33	1000	0	100
31119	BAKE	0.18 um, OTP	23-Aug-11	30	500	0	175
31141	BAKE	0.18 um, OTP	15-Sep-11	27	1000	0	100
31144	BAKE	0.18 um, OTP	15-Sep-11	28	1000	0	100
31319	BAKE	0.18 um, OTP	30-Sep-11	30	500	0	175
31212	BAKE	0.18 um, RF	18-Nov-11	50	1000	0	150
31213	BAKE	0.18 um, RF	18-Nov-11	50	1000	0	150
29929	BAKE	0.25 um	03-Jan-11	80	1000	0	150
30084	BAKE	0.25 um	03-Jan-11	80	1000	0	150
30088	BAKE	0.25 um	03-Jan-11	80	1000	0	150
30155	BAKE	0.25 um	07-Jan-11	80	1000	0	150
29885	HTOL	0.25 um	10-Jan-11	80	1000	0	125
29479	BAKE	0.25 um	22-Jan-11	80	1000	0	150
30060	BAKE	0.25 um	22-Jan-11	80	500	0	175
30062	BAKE	0.25 um	22-Jan-11	80	500	0	175
30064	BAKE	0.25 um	22-Jan-11	79	500	0	175
30066	BAKE	0.25 um	22-Jan-11	80	500	0	175
30074	BAKE	0.25 um	22-Jan-11	80	500	0	175
30065	BAKE	0.25 um	01-Feb-11	79	1000	0	152
30075	BAKE	0.25 um	02-Feb-11	80	1000	0	152
30067	BAKE	0.25 um	03-Feb-11	80	1000	0	152
30068	BAKE	0.25 um	03-Feb-11	80	500	0	175
30061	BAKE	0.25 um	04-Feb-11	80	1000	0	152
30063	BAKE	0.25 um	04-Feb-11	80	1000	0	152
30070	BAKE	0.25 um	04-Feb-11	80	500	0	175
30072	BAKE	0.25 um	04-Feb-11	80	500	0	175
30165	BAKE	0.25 um	14-Feb-11	80	500	0	175
30157	BAKE	0.25 um	15-Feb-11	80	500	0	175
30161	BAKE	0.25 um	15-Feb-11	80	500	0	175
30286	ELFR	0.25 um	17-Feb-11	816	48	0	125
30069	BAKE	0.25 um	22-Feb-11	80	1000	0	152
30073	BAKE	0.25 um	22-Feb-11	80	1000	0	152
30159	BAKE	0.25 um	22-Feb-11	80	500	0	175
30287	ELFR	0.25 um	22-Feb-11	816	48	0	125
30071	BAKE	0.25 um	23-Feb-11	80	1000	0	152
30339	ELFR	0.25 um	23-Feb-11	816	48	0	125
30164	HTOL	0.25 um	24-Feb-11	80	1000	0	125
30158	BAKE	0.25 um	07-Mar-11	80	1000	0	150
30166	BAKE	0.25 um	07-Mar-11	80	1000	0	152
30463	ELFR	0.25 um	11-Mar-11	828	48	0	125
30160	BAKE	0.25 um	15-Mar-11	77	1000	0	150
30457	BAKE	0.25 um	24-Mar-11	80	500	0	175
30809	ELFR	0.25 um	26-May-11	805	48	0	125
30805	ELFR	0.25 um	31-May-11	805	48	0	125
30807	ELFR	0.25 um	01-Jun-11	805	48	0	125

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
30941	BAKE	0.25 um	02-Jun-11	80	1000	0	150
30852	BAKE	0.25 um	14-Jun-11	80	500	0	175
30855	BAKE	0.25 um	14-Jun-11	80	500	0	175
30991	BAKE	0.25 um	27-Jun-11	80	1000	0	150
30995	BAKE	0.25 um	27-Jun-11	80	1000	0	150
31015	BAKE	0.25 um	27-Jun-11	80	1000	0	150
30919	BAKE	0.25 um	30-Jun-11	80	500	0	175
30949	BAKE	0.25 um	15-Jul-11	80	500	0	175
30952	BAKE	0.25 um	15-Jul-11	80	500	0	175
31008	BAKE	0.25 um	23-Jul-11	80	500	0	175
31312	BAKE	0.25 um	28-Sep-11	80	500	0	175
31596	BAKE	0.25 um	02-Nov-11	80	1000	0	150
31749	BAKE	0.25 um	07-Dec-11	80	1000	0	150
30300	ELFR	0.25 um, embed flash	14-Feb-11	420	48	0	125
30032	HTOL	0.25 um, embed flash	15-Feb-11	108	1000	0	125
30306	ELFR	0.25 um, embed flash	15-Feb-11	417	48	0	125
30323	HTOL	0.25 um, embed flash	28-Mar-11	106	1000	0	125
30332	HTOL	0.25 um, embed flash	30-Mar-11	84	1000	0	125
30539	ELFR	0.25 um, embed flash	10-Apr-11	860	48	0	125
30348	ELFR	0.315 um - 0.35 um	18-Mar-11	805	48	0	125
30344	ELFR	0.315 um - 0.35 um	25-Mar-11	805	48	0	125
30346	ELFR	0.315 um - 0.35 um	03-Apr-11	805	48	0	125
30381	BAKE	0.315 um - 0.35 um	02-May-11	50	1000	0	150
30386	BAKE	0.315 um - 0.35 um	02-May-11	50	1000	0	150
30343	HTOL	0.315 um - 0.35 um	21-May-11	80	1000	0	125
30345	HTOL	0.315 um - 0.35 um	21-May-11	80	1000	0	125
30347	HTOL	0.315 um - 0.35 um	21-May-11	80	1000	0	125
30383	BAKE	0.315 um - 0.35 um	24-May-11	50	1000	0	150
31011	ELFR	0.35 um, embed flash	18-Apr-11	512	48	0	125
30933	BAKE	0.35 um, embed flash	10-Jun-11	80	1000	0	150
30937	BAKE	0.35 um, embed flash	10-Jun-11	80	1000	0	150
30999	BAKE	0.35 um, embed flash	24-Jun-11	80	1000	0	150
31023	BAKE	0.35 um, embed flash	04-Jul-11	80	1000	0	150
31745	BAKE	0.35 um, embed flash	08-Nov-11	80	1000	0	150
31019	BAKE	0.45 um - 0.5 um	30-May-11	80	1000	0	150
31600	BAKE	0.45 um - 0.5 um	02-Nov-11	80	1000	0	150
31604	BAKE	0.45 um - 0.5 um	02-Nov-11	80	1000	0	150
31310	ELFR	55 nm	05-Sep-11	504	48	0	95
30505	BAKE	High Voltage	30-Apr-11	25	1000	0	150
30849	BAKE	High Voltage	16-May-11	80	1000	0	150
31066	ELFR	High Voltage	26-Jul-11	503	48	0	70
30970	BAKE	High Voltage	05-Aug-11	25	1000	0	150
31490	BAKE	High Voltage	30-Sep-11	80	500	0	150
31494	BAKE	High Voltage	30-Sep-11	80	500	0	150
31498	BAKE	High Voltage	30-Sep-11	80	500	0	150

QLotNum	Stress	FabProcess	ReadDate	SampleSize	ReadPt	Fails	ºC
31473	ELFR	High Voltage	13-Oct-11	503	48	0	125
31375	ELFR	High Voltage	21-Oct-11	500	48	0	80
31398	BAKE	High Voltage	11-Nov-11	25	1000	0	150

Package Reliability Test Method and Conditions

Preconditioning (PC)

This test method is performed to simulate the various shipping conditions, the end use environment and customer board mounting process for a given packaging system. Preconditioning is an industry standard flow for non-hermetic (plastic) integrated circuit packages that is representative of a typical industry solder reflow operation. The test parts are subject to bake, moisture soak and three reflow cycles prior to being submitted to package reliability testing.

Temperature Cycling (TC)

This test evaluates potential reliability degradation due to thermal cycling effects. Devices are placed in a chamber using forced air to cycle devices between the specified temperature extremes. This test is conducted to determine the ability of components and solder interconnects to withstand mechanical stresses induced by alternating high and low temperature extremes. Permanent changes in electrical and/or physical characteristics can result from these mechanical stresses.

Temperature Humidity and Bias (THB)

This test evaluates the reliability of non-hermetic packaged integrated circuits in humid environments. It employs severe conditions of temperature, humidity and bias to accelerate the penetration of moisture through the external protective material (encapsulant) or along the interface between the external protective material and the metallic conductors passing through it. This test is less accelerated than autoclave and unbiased HAST and takes longer to complete. It provides more realistic results in line with actual field performance. The dominant failure mechanism is aluminum corrosion accelerated by moisture, bias and contamination.

Highly-Accelerated Temperature and Humidity Stress Test (HAST)

This test evaluates the reliability of non-hermetic packaged integrated circuits in humid environments. It employs severe conditions of temperature, humidity, and bias which accelerate the penetration of moisture through the external protective material (encapsulant or seal) or along the interface between the external protective material and the metallic conductors which pass through it. The stress usually activates the same failure mechanisms as the “85/85” Temperature Humidity and Bias (THB) test.

Pressure, Temperature and Humidity (PTH)/Pressure Cooker Test (PCT)/Autoclave (Au)

Autoclave testing is performed to evaluate the reliability of non-hermetic packaged integrated circuits in humid environments. It employs severe conditions of temperature, humidity and pressure to accelerate the penetration of moisture through the external protective material (encapsulant) or along the interface between the external protective material and the metallic conductors passing through it. The dominant failure mechanism is corrosion of internal materials.

Unbiased Highly-Accelerated Stress Test (U-HAST)

This test is performed to evaluate the reliability of non-hermetic packaged integrated circuits in humid environments. It is an alternate to Autoclave and tests for the same failure mechanisms. It employs severe conditions of temperature, humidity, and pressure to accelerate the penetration of moisture through the external protective material (encapsulant) or along the interface between the external protective material and the metallic conductors passing through it. UHAST is preferred over the autoclave stress method due to the reduction in artifacts induced by the 100%rh environment of autoclave, such as lead corrosion or contamination transfer by liquid water. The dominant failure mechanism is corrosion of internal materials.

Reflow Profile and Moisture Sensitivity Level

Overview

Non-hermetic (plastic) integrated circuit packages are classified by moisture sensitivity level according to IPC/JEDEC J-Std-020. It is critical for final product quality that the board assembly process account for package moisture sensitivity, especially the peak reflow temperature and the maximum manufacturing expose time (MET).

Reflow Profile

Non-hermetic integrated circuit SMD (surface mount devices) are qualified in compliance to the applicable reflow profiles provided in IPC/JEDEC J-Std-020. The board assembler should not exceed the limits defined in the reflow profile tables of IPC/JEDEC J-Std-020.

Moisture Sensitivity Level

The Moisture Sensitivity Level (MSL) and peak reflow temperature are indicated on each product packing label.

Reliability Monitor Report – Package Stresses

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
31403	TEMPCYCLE	4-CLCC-5X7	01-Nov-11	25	1000	0
30498	TEMPCYCLE	6-CLCC-5X3.2	09-Apr-11	25	300	0
31255	TEMPCYCLE	6-CLCC-5X3.2	16-Oct-11	25	1000	0
30291	TEMPCYCLE	6-CLCC-5X7-LF	17-Mar-11	25	1000	0
30087	UHAST	8-ESOIC-150-LF	03-Jan-11	80	96	0
30089	TEMPCYCLE	8-ESOIC-150-LF	03-Jan-11	80	500	0
30989	UHAST	8-ESOIC-150-LF	27-Jun-11	80	96	0
30990	TEMPCYCLE	8-ESOIC-150-LF	27-Jun-11	80	500	0
30094	TEMPCYCLE	8-ODFN-3X3-LF	14-Feb-11	30	1500	0
30095	THB	8-ODFN-3X3-LF	24-Feb-11	30	1000	0
30226	HAST	8-SOIC-150-LF	28-Jan-11	79	96	0
30227	HAST	8-SOIC-150-LF	28-Jan-11	79	96	0
30228	HAST	8-SOIC-150-LF	28-Jan-11	80	96	0
30175	TEMPCYCLE	8-SOIC-150-LF	04-Feb-11	80	500	0
30176	TEMPCYCLE	8-SOIC-150-LF	04-Feb-11	80	500	0
30177	TEMPCYCLE	8-SOIC-150-LF	04-Feb-11	80	500	0
30920	HAST	8-SOIC-150-LF	15-Jun-11	80	96	0
30918	TEMPCYCLE	8-SOIC-150-LF	17-Jun-11	80	500	0
30245	TEMPCYCLE	10-MSOP-3.0-LF	08-Feb-11	28	500	0
30993	UHAST	10-MSOP-3.0-LF	27-Jun-11	80	96	0
30994	TEMPCYCLE	10-MSOP-3.0-LF	27-Jun-11	80	500	0
30091	TEMPCYCLE	10-OQFN-2X2-LF	14-Feb-11	30	1500	0
30092	THB	10-OQFN-2X2-LF	24-Feb-11	30	1000	0
30277	TEMPCYCLE	10-OQFN-2X2-LF	15-Mar-11	32	1500	0
30276	THB	10-OQFN-2X2-LF	18-Mar-11	33	1000	0
31139	THB	10-OQFN-2X2-LF	29-Sep-11	30	1000	0
31142	THB	10-OQFN-2X2-LF	29-Sep-11	30	1000	0
30385	TEMPCYCLE	12-QFN-4X4-LF	16-Apr-11	80	500	0
30380	TEMPCYCLE	12-QFN-4X4-LF	17-Apr-11	80	500	0
30382	TEMPCYCLE	12-QFN-4X4-LF	17-Apr-11	80	500	0
30388	HAST	12-QFN-4X4-LF	17-Apr-11	72	96	0
30384	HAST	12-QFN-4X4-LF	28-Apr-11	80	96	0
30705	HAST	12-QFN-4X4-LF	29-May-11	80	96	0
30707	HAST	12-QFN-4X4-LF	04-Jun-11	80	96	0
31311	TEMPCYCLE	14-LGA-5X5-LF	26-Sep-11	90	500	0
31313	HAST	14-LGA-5X5-LF	28-Sep-11	90	96	0
30223	HAST	16-QSOP-150-LF	30-Jan-11	80	96	0
30178	TEMPCYCLE	16-QSOP-150-LF	02-Feb-11	80	500	0
30225	HAST	16-QSOP-150-LF	02-Feb-11	79	96	0
30180	TEMPCYCLE	16-QSOP-150-LF	04-Feb-11	80	500	0
30179	TEMPCYCLE	16-QSOP-150-LF	09-Feb-11	80	500	0
30288	TEMPCYCLE	16-QSOP-150-LF	15-Feb-11	79	500	0
30224	HAST	16-QSOP-150-LF	22-Feb-11	79	96	0
30289	HAST	16-QSOP-150-LF	27-Feb-11	80	96	0
30186	TEMPCYCLE	16-SOIC-150-LF	02-Feb-11	80	500	0
30219	HAST	16-SOIC-150-LF	02-Feb-11	78	96	0
30184	TEMPCYCLE	16-SOIC-150-LF	03-Feb-11	80	500	0
30185	TEMPCYCLE	16-SOIC-150-LF	03-Feb-11	80	500	0
30218	HAST	16-SOIC-150-LF	08-Feb-11	80	96	0

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
30217	HAST	16-SOIC-150-LF	22-Feb-11	60	96	0
30975	TEMPCYCLE	16-SOIC-150-LF	06-Jul-11	30	500	0
30220	HAST	16-SOIC-300-LF	28-Jan-11	80	96	0
30221	HAST	16-SOIC-300-LF	28-Jan-11	80	96	0
30222	HAST	16-SOIC-300-LF	01-Feb-11	78	96	0
30181	TEMPCYCLE	16-SOIC-300-LF	02-Feb-11	78	500	0
30182	TEMPCYCLE	16-SOIC-300-LF	03-Feb-11	82	500	0
30183	TEMPCYCLE	16-SOIC-300-LF	03-Feb-11	81	500	0
30458	HAST	16-SOIC-300-LF	18-Mar-11	80	96	0
30456	TEMPCYCLE	16-SOIC-300-LF	19-Mar-11	80	500	0
30853	HAST	16-SOIC-300-LF	07-Jun-11	80	96	0
30856	HAST	16-SOIC-300-LF	07-Jun-11	80	96	0
31013	UHAST	16-SOIC-300-LF	27-Jun-11	80	96	0
31014	TEMPCYCLE	16-SOIC-300-LF	27-Jun-11	80	500	0
30950	TEMPCYCLE	16-SOIC-300-LF	30-Jun-11	80	500	0
30973	TEMPCYCLE	16-SOIC-300-LF	07-Jul-11	80	500	0
30974	TEMPCYCLE	16-SOIC-300-LF	07-Jul-11	80	500	0
31009	HAST	16-SOIC-300-LF	07-Jul-11	80	96	0
30948	HAST	16-SOIC-300-LF	18-Jul-11	80	96	0
30951	HAST	16-SOIC-300-LF	19-Jul-11	80	96	0
31174	TEMPCYCLE	16-SOIC-300-LF	17-Aug-11	28	500	0
31182	HAST	16-SOIC-300-LF	19-Aug-11	30	96	0
31228	TEMPCYCLE	16-SOIC-300-LF	29-Aug-11	30	500	0
31229	TEMPCYCLE	16-SOIC-300-LF	06-Sep-11	30	500	0
31320	HAST	16-SOIC-300-LF	15-Sep-11	30	96	0
31411	TEMPCYCLE	16-SOIC-300-LF	11-Oct-11	80	500	0
31594	UHAST	16-SOIC-300-LF	02-Nov-11	80	96	0
31595	TEMPCYCLE	16-SOIC-300-LF	02-Nov-11	80	500	0
30210	HAST	16-UQFN-2.5X2.5-LF	14-Feb-11	30	96	0
30211	HAST	16-UQFN-2.5X2.5-LF	14-Feb-11	30	96	0
30212	HAST	16-UQFN-2.5X2.5-LF	21-Feb-11	29	96	0
30213	HAST	16-UQFN-2.5X2.5-LF	21-Feb-11	29	96	0
30214	HAST	16-UQFN-2.5X2.5-LF	24-Feb-11	30	96	0
30215	HAST	16-UQFN-2.5X2.5-LF	24-Feb-11	30	96	0
29818	TEMPCYCLE	20-QFN-3X3-LF	03-Jan-11	26	2000	0
29826	TEMPCYCLE	20-QFN-3X3-LF	03-Jan-11	26	2000	0
29834	TEMPCYCLE	20-QFN-3X3-LF	03-Jan-11	26	2000	0
30351	TEMPCYCLE	20-QFN-3X3-LF	23-Jan-11	80	500	0
30359	TEMPCYCLE	20-QFN-3X3-LF	23-Jan-11	80	500	0
30367	TEMPCYCLE	20-QFN-3X3-LF	23-Jan-11	80	500	0
30822	HAST	20-QFN-3X3-LF	11-Mar-11	30	96	0
30827	HAST	20-QFN-3X3-LF	11-Mar-11	30	96	0
30837	HAST	20-QFN-3X3-LF	11-Mar-11	30	96	0
30842	HAST	20-QFN-3X3-LF	11-Mar-11	30	96	0
30868	TEMPCYCLE	20-QFN-3X3-LF	25-Mar-11	30	500	0
30819	TEMPCYCLE	20-QFN-3X3-LF	28-Mar-11	30	500	0
30824	TEMPCYCLE	20-QFN-3X3-LF	28-Mar-11	30	500	0
30829	TEMPCYCLE	20-QFN-3X3-LF	28-Mar-11	30	500	0
30834	TEMPCYCLE	20-QFN-3X3-LF	28-Mar-11	30	500	0

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
30839	TEMPCYCLE	20-QFN-3X3-LF	28-Mar-11	30	500	0
30844	TEMPCYCLE	20-QFN-3X3-LF	28-Mar-11	30	500	0
30830	HAST	20-QFN-3X3-LF	30-Apr-11	30	96	0
30825	HAST	20-QFN-3X3-LF	07-May-11	30	96	0
30083	UHAST	20-QFN-4X4-LF	03-Jan-11	80	96	0
30085	TEMPCYCLE	20-QFN-4X4-LF	03-Jan-11	80	500	0
30617	TEMPCYCLE	20-QFN-4X4-LF	13-May-11	30	500	0
30618	TEMPCYCLE	20-QFN-4X4-LF	13-May-11	30	500	0
30939	UHAST	20-QFN-4X4-LF	02-Jun-11	80	96	0
30940	TEMPCYCLE	20-QFN-4X4-LF	02-Jun-11	80	500	0
30997	UHAST	20-QFN-4X4-LF	24-Jun-11	80	96	0
30998	TEMPCYCLE	20-QFN-4X4-LF	24-Jun-11	80	500	0
31154	HAST	20-QFN-4X4-LF	15-Aug-11	30	96	0
31155	TEMPCYCLE	20-QFN-4X4-LF	16-Aug-11	30	500	0
31200	TEMPCYCLE	20-QFN-4X4-LF	20-Aug-11	80	500	0
31201	TEMPCYCLE	20-QFN-4X4-LF	20-Aug-11	78	500	0
31202	TEMPCYCLE	20-QFN-4X4-LF	20-Aug-11	80	500	0
31203	TEMPCYCLE	20-QFN-4X4-LF	20-Aug-11	80	500	0
31204	TEMPCYCLE	20-QFN-4X4-LF	20-Aug-11	79	500	0
31205	TEMPCYCLE	20-QFN-4X4-LF	20-Aug-11	80	500	0
31216	HAST	20-QFN-4X4-LF	28-Oct-11	80	96	0
31564	HAST	20-QFN-4X4-LF	17-Nov-11	79	96	0
31214	HAST	20-QFN-4X4-LF	18-Nov-11	80	96	0
31219	HAST	20-QFN-4X4-LF	24-Nov-11	80	96	0
31217	HAST	20-QFN-4X4-LF	01-Dec-11	80	96	0
31747	UHAST	20-QFN-4X4-LF	07-Dec-11	80	96	0
31748	TEMPCYCLE	20-QFN-4X4-LF	07-Dec-11	78	500	0
31215	HAST	20-QFN-4X4-LF	08-Dec-11	80	96	0
30429	TEMPCYCLE	20-UQFN-3X3-LF	07-Mar-11	27	500	0
30427	HAST	20-UQFN-3X3-LF	14-Mar-11	26	96	0
30883	TEMPCYCLE	20-UQFN-3X3-LF	04-Apr-11	28	500	0
30887	TEMPCYCLE	20-UQFN-3X3-LF	04-Apr-11	28	500	0
30891	TEMPCYCLE	20-UQFN-3X3-LF	04-Apr-11	28	500	0
30695	UHAST	20-UQFN-3X3-LF	16-Apr-11	25	96	0
30696	TEMPCYCLE	20-UQFN-3X3-LF	06-May-11	25	500	0
30745	UHAST	20-UQFN-3X3-LF	06-May-11	25	96	0
30746	TEMPCYCLE	20-UQFN-3X3-LF	06-May-11	25	500	0
30751	UHAST	20-UQFN-3X3-LF	06-May-11	25	96	0
30752	TEMPCYCLE	20-UQFN-3X3-LF	06-May-11	25	500	0
30871	TEMPCYCLE	20-UQFN-3X3-LF	12-May-11	28	500	0
30875	TEMPCYCLE	20-UQFN-3X3-LF	12-May-11	28	500	0
30879	TEMPCYCLE	20-UQFN-3X3-LF	12-May-11	28	500	0
30882	HAST	20-UQFN-3X3-LF	07-Jun-11	26	96	0
30886	HAST	20-UQFN-3X3-LF	07-Jun-11	26	96	0
30890	HAST	20-UQFN-3X3-LF	07-Jun-11	26	96	0
30874	HAST	20-UQFN-3X3-LF	22-Jun-11	30	96	0
30878	HAST	20-UQFN-3X3-LF	22-Jun-11	30	96	0
30870	HAST	20-UQFN-3X3-LF	27-Jun-11	29	96	0
30172	UHAST	24-QFN-4X4-LF	10-Jan-11	80	96	0

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
30173	TEMPCYCLE	24-QFN-4X4-LF	10-Jan-11	80	500	0
30507	TEMPCYCLE	24-QFN-4X4-LF	04-Apr-11	30	500	0
30625	UHAST	24-QFN-4X4-LF	20-Apr-11	80	96	0
30626	TEMPCYCLE	24-QFN-4X4-LF	20-Apr-11	80	500	0
31068	UHAST	24-QFN-4X4-LF	20-Apr-11	80	96	0
31069	TEMPCYCLE	24-QFN-4X4-LF	20-Apr-11	80	500	0
30771	TEMPCYCLE	24-QFN-4X4-LF	05-May-11	77	500	0
30757	UHAST	24-QFN-4X4-LF	06-May-11	77	96	0
30758	TEMPCYCLE	24-QFN-4X4-LF	06-May-11	77	500	0
30764	UHAST	24-QFN-4X4-LF	06-May-11	77	96	0
30765	TEMPCYCLE	24-QFN-4X4-LF	06-May-11	77	500	0
30770	UHAST	24-QFN-4X4-LF	06-May-11	77	96	0
31087	UHAST	24-QFN-4X4-LF	15-Jul-11	80	500	0
31088	TEMPCYCLE	24-QFN-4X4-LF	15-Jul-11	80	1000	0
31484	UHAST	24-QFN-4X4-LF	22-Sep-11	80	96	0
31485	TEMPCYCLE	24-QFN-4X4-LF	22-Sep-11	80	500	0
30235	HAST	24-QSOP-150-LF	01-Feb-11	27	96	0
30233	TEMPCYCLE	24-QSOP-150-LF	17-Feb-11	27	500	0
30486	HAST	24-QSOP-150-LF	17-Mar-11	27	96	0
30489	HAST	24-QSOP-150-LF	17-Mar-11	27	96	0
30485	TEMPCYCLE	24-QSOP-150-LF	29-Mar-11	27	500	0
30488	TEMPCYCLE	24-QSOP-150-LF	29-Mar-11	27	500	0
31426	HAST	24-QSOP-150-LF	16-Jul-11	25	96	0
31434	HAST	24-QSOP-150-LF	16-Jul-11	25	96	0
31442	HAST	24-QSOP-150-LF	16-Jul-11	25	96	0
31450	HAST	24-QSOP-150-LF	16-Jul-11	24	96	0
31458	HAST	24-QSOP-150-LF	16-Jul-11	24	96	0
31466	HAST	24-QSOP-150-LF	16-Jul-11	25	96	0
31427	TEMPCYCLE	24-QSOP-150-LF	20-Jul-11	25	500	0
31435	TEMPCYCLE	24-QSOP-150-LF	20-Jul-11	25	500	0
31443	TEMPCYCLE	24-QSOP-150-LF	20-Jul-11	24	500	0
31451	TEMPCYCLE	24-QSOP-150-LF	20-Jul-11	24	500	0
31459	TEMPCYCLE	24-QSOP-150-LF	20-Jul-11	25	500	0
31467	TEMPCYCLE	24-QSOP-150-LF	20-Jul-11	25	500	0
31734	HAST	24-QSOP-150-LF	16-Dec-11	27	96	0
30467	TEMPCYCLE	24-TSSOP-4.4-LF	14-Apr-11	28	500	0
30596	HAST	24-TSSOP-4.4-LF	20-Apr-11	30	96	0
30935	UHAST	29-LGA-3.5X5.5-LF	10-Jun-11	80	96	0
30936	TEMPCYCLE	29-LGA-3.5X5.5-LF	10-Jun-11	80	500	0
30055	UHAST	32-QFN-5X5-LF	13-Jan-11	80	96	0
30054	TEMPCYCLE	32-QFN-5X5-LF	16-Jan-11	78	500	0
30052	HAST	32-QFN-5X5-LF	17-Jan-11	80	96	0
30251	TEMPCYCLE	32-QFN-5X5-LF	07-Feb-11	5	500	0
30252	TEMPCYCLE	32-QFN-5X5-LF	07-Feb-11	5	500	0
30216	TEMPCYCLE	32-QFN-5X5-LF	11-Feb-11	32	500	0
30236	UHAST	32-QFN-5X5-LF	25-Feb-11	80	96	0
30240	HAST	32-QFN-5X5-LF	08-Mar-11	80	96	0
30237	TEMPCYCLE	32-QFN-5X5-LF	10-Mar-11	79	500	0
30439	TEMPCYCLE	32-QFN-5X5-LF	15-Mar-11	30	500	0

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
30442	HAST	32-QFN-5X5-LF	18-Mar-11	27	96	0
30440	LTSL	32-QFN-5X5-LF	27-Apr-11	30	1000	0
30795	HAST	32-QFN-5X5-LF	26-May-11	30	96	0
30792	TEMPCYCLE	32-QFN-5X5-LF	31-May-11	30	500	0
30793	LTSL	32-QFN-5X5-LF	30-Jun-11	30	1000	0
31039	HAST	32-QFN-5X5-LF	27-Jul-11	80	192	0
31041	TEMPCYCLE	32-QFN-5X5-LF	10-Aug-11	30	1000	0
31037	LTSL	32-QFN-5X5-LF	19-Aug-11	30	1000	0
31042	LTSL	32-QFN-5X5-LF	19-Aug-11	30	1000	0
31149	TEMPCYCLE	32-QFN-5X5-LF	22-Aug-11	30	1000	0
31132	TEMPCYCLE	32-QFN-5X5-LF	23-Aug-11	30	1000	0
31115	LTSL	32-QFN-5X5-LF	13-Sep-11	30	1000	0
31129	LTSL	32-QFN-5X5-LF	13-Sep-11	30	1000	0
31136	LTSL	32-QFN-5X5-LF	13-Sep-11	30	1000	0
31150	LTSL	32-QFN-5X5-LF	16-Sep-11	30	1000	0
31342	TEMPCYCLE	32-QFN-5X5-LF	04-Oct-11	30	1000	0
31416	TEMPCYCLE	32-QFN-5X5-LF	12-Oct-11	30	500	0
31361	TEMPCYCLE	32-QFN-5X5-LF	14-Oct-11	30	1000	0
31477	HAST	32-QFN-5X5-LF	19-Oct-11	79	96	0
31344	LTSL	32-QFN-5X5-LF	26-Oct-11	30	1000	0
31362	LTSL	32-QFN-5X5-LF	03-Nov-11	29	1000	0
31360	THB	32-QFN-5X5-LF	04-Nov-11	30	1000	0
31518	TEMPCYCLE	32-QFN-5X5-LF	07-Nov-11	30	1000	0
31520	TEMPCYCLE	32-QFN-5X5-LF	07-Nov-11	29	1000	0
31419	HAST	32-QFN-5X5-LF	09-Nov-11	79	192	0
31415	THB	32-QFN-5X5-LF	16-Nov-11	30	1000	0
31417	LTSL	32-QFN-5X5-LF	16-Nov-11	30	1000	0
31519	HAST	32-QFN-5X5-LF	18-Nov-11	80	192	0
31489	UHAST	36-SSOP-300-LF	26-Aug-11	80	96	0
31493	UHAST	36-SSOP-300-LF	26-Aug-11	80	96	0
31497	UHAST	36-SSOP-300-LF	26-Aug-11	80	96	0
31488	TEMPCYCLE	36-SSOP-300-LF	23-Sep-11	80	500	0
31492	TEMPCYCLE	36-SSOP-300-LF	23-Sep-11	80	500	0
31496	TEMPCYCLE	36-SSOP-300-LF	23-Sep-11	80	500	0
30595	TEMPCYCLE	38-MLP-5X7-LF	28-Apr-11	30	500	0
30597	HAST	38-MLP-5X7-LF	28-Apr-11	30	96	0
31017	UHAST	38-TSSOP-4.4-LF	07-Apr-11	80	96	0
31018	TEMPCYCLE	38-TSSOP-4.4-LF	07-Apr-11	80	500	0
31598	UHAST	38-TSSOP-4.4-LF	02-Nov-11	80	96	0
31599	TEMPCYCLE	38-TSSOP-4.4-LF	02-Nov-11	80	500	0
30059	UHAST	40-QFN-6X6-LF	13-Jan-11	77	96	0
30058	TEMPCYCLE	40-QFN-6X6-LF	15-Jan-11	78	500	0
30056	HAST	40-QFN-6X6-LF	18-Jan-11	80	96	0
30254	TEMPCYCLE	40-QFN-6X6-LF	03-Feb-11	6	500	0
30253	TEMPCYCLE	40-QFN-6X6-LF	04-Feb-11	6	500	0
30255	TEMPCYCLE	40-QFN-6X6-LF	04-Feb-11	6	500	0
30390	HAST	40-QFN-6X6-LF	27-Feb-11	28	96	0
30377	TEMPCYCLE	40-QFN-6X6-LF	01-Mar-11	30	500	0
30378	TEMPCYCLE	40-QFN-6X6-LF	01-Mar-11	28	500	0

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
30389	HAST	40-QFN-6X6-LF	02-Mar-11	30	96	0
30013	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30015	LTSL	40-QFN-6X6-LF	22-Mar-11	28	1000	0
30017	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30019	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30021	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30023	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30025	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30027	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30029	LTSL	40-QFN-6X6-LF	22-Mar-11	20	1000	0
30031	LTSL	40-QFN-6X6-LF	22-Mar-11	30	1000	0
30692	TEMPCYCLE	40-QFN-6X6-LF	06-May-11	25	500	0
30698	UHAST	40-QFN-6X6-LF	06-May-11	25	96	0
30699	TEMPCYCLE	40-QFN-6X6-LF	06-May-11	25	500	0
30715	UHAST	40-QFN-6X6-LF	06-May-11	25	96	0
30716	TEMPCYCLE	40-QFN-6X6-LF	06-May-11	25	500	0
30721	UHAST	40-QFN-6X6-LF	06-May-11	25	96	0
30722	TEMPCYCLE	40-QFN-6X6-LF	06-May-11	25	500	0
30730	UHAST	40-QFN-6X6-LF	06-May-11	25	96	0
30731	TEMPCYCLE	40-QFN-6X6-LF	06-May-11	25	500	0
30736	UHAST	40-QFN-6X6-LF	06-May-11	25	96	0
30737	TEMPCYCLE	40-QFN-6X6-LF	06-May-11	25	500	0
30674	UHAST	40-QFN-6X6-LF	08-Jun-11	90	96	0
30675	TEMPCYCLE	40-QFN-6X6-LF	15-Jun-11	90	500	0
31236	TEMPCYCLE	40-QFN-6X6-LF	07-Sep-11	122	500	0
31249	HAST	40-QFN-6X6-LF	14-Sep-11	80	192	0
31351	TEMPCYCLE	40-QFN-6X6-LF	23-Sep-11	30	500	0
31350	HAST	40-QFN-6X6-LF	11-Oct-11	80	96	0
31414	TEMPCYCLE	40-QFN-6X6-LF	11-Oct-11	30	500	0
31476	TEMPCYCLE	40-QFN-6X6-LF	18-Oct-11	30	500	0
31562	TEMPCYCLE	40-QFN-6X6-LF	07-Nov-11	30	500	0
31413	HAST	40-QFN-6X6-LF	09-Nov-11	80	192	0
30847	UHAST	48-ETQFP-7X7-LF	16-May-11	80	96	0
30848	TEMPCYCLE	48-ETQFP-7X7-LF	16-May-11	80	500	0
30630	UHAST	48-QFN-6X6-LF	13-Jun-11	80	96	0
30635	UHAST	48-QFN-6X6-LF	13-Jun-11	80	96	0
30640	UHAST	48-QFN-6X6-LF	13-Jun-11	80	96	0
30631	TEMPCYCLE	48-QFN-6X6-LF	13-Jul-11	80	750	0
30634	HAST	48-QFN-6X6-LF	13-Jul-11	80	96	0
30636	TEMPCYCLE	48-QFN-6X6-LF	13-Jul-11	80	750	0
30639	HAST	48-QFN-6X6-LF	13-Jul-11	80	96	0
30641	TEMPCYCLE	48-QFN-6X6-LF	13-Jul-11	79	750	0
30644	HAST	48-QFN-6X6-LF	13-Jul-11	80	96	0
30168	UHAST	48-QFN-7X7-LF	10-Jan-11	80	96	0
30169	TEMPCYCLE	48-QFN-7X7-LF	10-Jan-11	80	500	0
30506	HAST	48-QFN-7X7-LF	28-Mar-11	24	96	0
30503	TEMPCYCLE	48-QFN-7X7-LF	01-Apr-11	25	500	0
30395	LTSL	48-QFN-7X7-LF	18-Apr-11	35	1000	0
30397	LTSL	48-QFN-7X7-LF	18-Apr-11	35	1000	0

QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
30399	LTSL	48-QFN-7X7-LF	18-Apr-11	35	1000	0
30897	HAST	48-QFN-7X7-LF	08-Jun-11	30	96	0
30894	TEMPCYCLE	48-QFN-7X7-LF	10-Jun-11	30	500	0
30945	HAST	48-QFN-7X7-LF	23-Jun-11	30	96	0
30942	TEMPCYCLE	48-QFN-7X7-LF	28-Jun-11	30	500	0
30972	HAST	48-QFN-7X7-LF	07-Jul-11	25	96	0
30971	TEMPCYCLE	48-QFN-7X7-LF	15-Jul-11	25	500	0
30895	LTSL	48-QFN-7X7-LF	21-Jul-11	29	1000	0
30943	LTSL	48-QFN-7X7-LF	03-Aug-11	29	1000	0
31397	TEMPCYCLE	48-QFN-7X7-LF	09-Oct-11	25	500	0
30470	TEMPCYCLE	48-TQFP-7X7-LF	15-Mar-11	33	500	0
30481	HAST	48-TQFP-7X7-LF	18-Mar-11	40	96	0
30479	TEMPCYCLE	48-TQFP-7X7-LF	20-Mar-11	82	500	0
30547	TEMPCYCLE	48-TQFP-7X7-LF	16-Apr-11	60	500	0
30912	TEMPCYCLE	48-TQFP-7X7-LF	08-Jun-11	36	500	0
30931	UHAST	48-TQFP-7X7-LF	10-Jun-11	80	96	0
30932	TEMPCYCLE	48-TQFP-7X7-LF	10-Jun-11	80	500	0
30913	HAST	48-TQFP-7X7-LF	15-Jun-11	35	96	0
30914	TEMPCYCLE	48-TQFP-7X7-LF	17-Jun-11	36	500	0
30915	HAST	48-TQFP-7X7-LF	23-Jun-11	36	96	0
31021	UHAST	48-TQFP-7X7-LF	04-Jul-11	80	96	0
31022	TEMPCYCLE	48-TQFP-7X7-LF	04-Jul-11	80	500	0
31743	UHAST	48-TQFP-7X7-LF	08-Nov-11	80	96	0
31744	TEMPCYCLE	48-TQFP-7X7-LF	08-Nov-11	80	500	0
31359	TEMPCYCLE	50-LGA-6X8-LF	29-Sep-11	30	500	0
31610	HAST	50-LGA-6X8-LF	15-Nov-11	27	96	0
31045	TEMPCYCLE	50-QFN-6X8-LF	17-Jul-11	30	500	0
31539	TEMPCYCLE	56-SSOP-300-LF	28-Sep-11	25	500	0
31545	TEMPCYCLE	56-SSOP-300-LF	28-Sep-11	25	500	0
31189	TEMPCYCLE	60-LGA-8X8-LF	25-Aug-11	30	500	0
31191	TEMPCYCLE	60-LGA-8X8-LF	25-Aug-11	28	500	0
31195	TEMPCYCLE	60-LGA-8X8-LF	25-Aug-11	30	500	0
31669	HAST	60-LGA-8X8-LF	03-Dec-11	26	96	0
31689	HAST	60-LGA-8X8-LF	09-Dec-11	27	96	0
30516	HAST	60-QFN-8X8-LF	30-Mar-11	30	96	0
30514	TEMPCYCLE	60-QFN-8X8-LF	31-Mar-11	30	500	0
30517	TEMPCYCLE	60-QFN-8X8-LF	31-Mar-11	30	500	0
30519	HAST	60-QFN-8X8-LF	05-Apr-11	29	96	0
30154	UHAST	64-ETQFP-10X10-LF	07-Jan-11	80	96	0
30156	TEMPCYCLE	64-ETQFP-10X10-LF	07-Jan-11	80	500	0
31602	UHAST	64-ETQFP-10X10-LF	02-Nov-11	80	96	0
31603	TEMPCYCLE	64-ETQFP-10X10-LF	02-Nov-11	80	500	0
30562	HAST	76-LGA-6X6-LF	24-May-11	32	96	0
31369	HAST	76-LGA-6X6-LF	27-Sep-11	30	96	0
31368	TEMPCYCLE	76-LGA-6X6-LF	30-Sep-11	37	500	0
30044	TEMPCYCLE	80-PBGA-10X10-LF	05-Jan-11	27	714	0
30046	HAST	80-PBGA-10X10-LF	16-Feb-11	27	96	0
31157	UHAST	80-PBGA-10X10-LF	16-Aug-11	27	96	0
31160	HAST	80-PBGA-10X10-LF	08-Sep-11	28	264	0

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QLotNum	Stress	PkgType	Read Date	Sample Size	Read Point	Fails
31281	UHAST	80-PBGA-10X10-LF	08-Sep-11	27	96	0
31282	TEMPCYCLE	80-PBGA-10X10-LF	15-Sep-11	27	714	0
31284	HAST	80-PBGA-10X10-LF	23-Sep-11	14	264	0
31577	HAST	80-TQFP-12X12-LF	09-Nov-11	40	96	0
31574	HAST	80-TQFP-12X12-LF	10-Nov-11	44	96	0
31572	TEMPCYCLE	80-TQFP-12X12-LF	14-Nov-11	40	500	0
31575	TEMPCYCLE	80-TQFP-12X12-LF	14-Nov-11	40	500	0
31366	TEMPCYCLE	85-LGA-6X8-LF	01-Oct-11	39	500	0
31367	TEMPCYCLE	85-LGA-6X8-LF	01-Oct-11	40	500	0
31378	HAST	85-LGA-6X8-LF	12-Oct-11	40	96	0
31379	HAST	85-LGA-6X8-LF	12-Oct-11	96	96	0
31522	TEMPCYCLE	85-LGA-6X8-LF	27-Oct-11	37	500	0
31524	HAST	85-LGA-6X8-LF	28-Oct-11	35	96	0
31690	TEMPCYCLE	92-LGA-7X7-LF	16-Dec-11	31	500	0

Revision History

Rev No	Description	Effective Date
01	Original	23-Jan-2012

