



ATMEL CORPORATION

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AT-27BV1024 CMOS EPROM RELIABILITY DATA

- 150°C RETENTION BAKE (PLASTIC)
- 125°C DYNAMIC LIFETEST (PLASTIC)
- EXTENDED TEMPERATURE CYCLE

JULY 2003

2325 Orchard Parkway San Jose CA. 95131

AT-27BV1024

PLASTIC PACKAGE

150°C RETENTION BAKE

<u>LOT NUMBER</u>	<u>DATE CODE</u>	<u>PKG TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF FAILURES AT INDICATED HOURS</u>		
				(168)	(500)	(1000)
7D1192-1	7D9812	44 VSOP	243	0	0	0
9E0214B2	9E9926	44 PLCC	100	0	0	0
9G0315	9G9945	44 PLCC	250	0	0	0
9G0314-2	9G0023	44 PLCC	100	0	0	0
0D1438	0D0102	44 PLCC	250	0	0	0
1C1096	1C0202	40 VSOP	250	0	0	0
2E5397	2E0238	44 PLCC	500	0	0	0

FAILURE RATE

<u>TOTAL DEVICE HOURS</u>		1,693,000 DEVICE HOURS
<u>BEST ESTIMATE</u>	λ	= 0.04% PER 1,000 HOURS
<u>50°C AMBIENT</u>		EXTRAPOLATION TO 50°C VIA ARRHENNIUS EQUATION AND ACTIVATION ENERGY OF 0.5eV
	λ	= 0.0006% PER 1,000 HOURS (6 FITS)
<u>CONFIDENCE ESTIMATE</u>	λ	60 = 0.0008% PER 1,000 HOURS 60% CONFIDENCE (8 FITS)
	λ	90 = 0.002% PER 1,000 HOURS 90% CONFIDENCE (19 FITS)

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PLASTIC PACKAGE

125°C DYNAMIC LIFETEST

<u>LOT NUMBER</u>	<u>DATE CODE</u>	<u>PKG TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF FAILURES AT INDICATED HOURS</u>		
				(168)	(500)	(1000)
9G0315	9G9926	44 PLCC	250	0	0	0
9G0314-2	9G0023	44 PLCC	200	0	0	0
0D1438	0D0102	44 PLCC	250	0	0	0
1C1096	1C0202	40 VSOP	249	0	0	0
2E5397	2E0238	44 PLCC	250	0	0	0

FAILURE RATE

<u>TOTAL DEVICE HOURS</u>		1,199,000 DEVICE HOURS
<u>BEST ESTIMATE</u>	λ	= 0.06% PER 1,000 HOURS
<u>50°C AMBIENT</u>		EXTRAPOLATION TO 50°C VIA ARRHENNIUS EQUATION AND ACTIVATION ENERGY OF 0.5eV
	λ	= 0.002% PER 1,000 HOURS (19 FITS)
<u>CONFIDENCE ESTIMATE</u>	λ	60 = 0.002% PER 1,000 HOURS 60% CONFIDENCE (26 FITS)
	λ	90 = 0.006% PER 1,000 HOURS 90% CONFIDENCE (65 FITS)

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PLASTIC PACKAGE

EXTENDED TEMPERATURE CYCLE

-55°C to +125°C CBGA
-65°C to +150°C PLCC/TSOP/SOIC/PDIP

<u>DATE</u> <u>CODE</u>	<u>PKG</u> <u>TYPE</u>	<u>SAMPLE</u> <u>SIZE</u>	<u>NUMBER</u> <u>OF CYCLES</u>	<u>NUMBER</u> <u>OF FAILURES</u>
7D9812	44 VSOP	100	1000	0
9E9926	44 PLCC	50	1000	0
9G0023	44 PLCC	50	1000	0
0D0102	44 PLCC	100	1000	0
1C0202	40 VSOP	100	1000	0
2E0238	44 PLCC	100	1000	0