ATMEL CORPORATION
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AT-89S8252 FLASH RELIABILITY DATA

- 125°C DYNAMIC LIFETEST (PLASTIC)
- 150°C RETENTION BAKE (PLASTIC)
- 121°C/15PSG PRESSSURE POT TEST
- EXTENDED TEMPERATURE CYCLE

JULY 2003

2325 Orchard Parkway San Jose CA. 95131

AT-89S8252

PLASTIC PACKAGE

125°C DYNAMIC LIFETEST

LOT NUMBER	DATE CODE	SAMPLE SIZE	TOTAL NUMBER HOURS (K)	NUMBER OF FAILURES
8A1867-1	8A9841	100	100.0	0
9B0070	9B9925	100	100.0	0

FAILURE RATE

TOTAL DEVICE HOURS		200,000 DEVICE HOURS
BEST ESTIMATE	λ	= 0.4% PER 1,000 HOURS
50°C AMBIENT		EXTRAPOLATION TO 50°C VIA ARRHENNIUS EQUATION AND ACTIVATION ENERGY OF 0.5eV
	λ	= 0.01% PER 1,000 HOURS (111 FITS)
CONFIDENCE ESTIMATE	λ	60 = 0.01% PER 1,000 HOURS 60% CONFIDENCE (154 FITS)
	λ	90 = 0.04% PER 1,000 HOURS 90% CONFIDENCE (390 FITS)

AT-89S8252

PLASTIC PACKAGE

150°C RETENTION BAKE

LOT NUMBER	DATE CODE	SAMPLE SIZE	TOTAL NUMBER HOURS (K)	NUMBER OF FAILURES
8A1867-1	8A9841	100	100.0	0
9B0070	9B9925	50	50.0	0

FAILURE RATE

TOTAL DEVICE HOURS		150,000 DEVICE HOURS
BEST ESTIMATE	λ	= 0.7% PER 1,000 HOURS
50°C AMBIENT		EXTRAPOLATION TO 50°C VIA ARRHENNIUS EQUATION AND ACTIVATION ENERGY OF 0.5eV
	λ	= 0.01% PER 1,000 HOURS (98 FITS)
CONFIDENCE ESTIMATE	λ	60 = 0.01% PER 1,000 HOURS 60% CONFIDENCE (131 FITS)
	λ	90 = 0.03% PER 1,000 HOURS 90% CONFIDENCE (326 FITS)

AT-89S8252

PLASTIC PACKAGE

121°C/15PSG PRESSURE POT TEST

DATE CODE	PACKAGE TYPE	SAMPLE SIZE	NUMBER OF FAILURES AT INDICATED HOURS			
			(24)	(48)	(72)	(96)
9B9925	44 PLCC	50	0	0	0	0

AT-89S8252

PLASTIC PACKAGE

EXTENDED TEMPERATURE CYCLE

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

DATE CODE	PACKAGE TYPE	SAMPLE SIZE	NUMBER OF CYCLES	NUMBER OF FAILURES
8A9841	44 PLCC	50	1000	0
9A9925	44 PLCC	50	1000	0