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AT-27BV256 EPROM RELIABILITY DATA

- 125°C OPERATING LIFE TEST (PLASTIC)
- 150°C RETENTION BAKE (PLASTIC)
- 15 PSIG PRESSURE POT
- EXTENDED TEMPERATURE CYCLING
- EXTENDED THERMAL SHOCK

\* This report was generated from AT-27BV256 reliability testing. This data is applicable to the following device types due to same technology grouping as defined in MIL-M-38535 Appendix A:

AT-27BV010

AT-27BV020

JULY 2003

2325 Orchard Parkway San Jose CA. 95131

AT-27BV256

PLASTIC PACKAGE

125°C DYNAMIC OPERATING LIFE TEST

<u>LOT NUMBER</u>	<u>DATE CODE</u>	<u>SAMPLE SIZE</u>	<u>TOTAL CKT-HRS (K)</u>	<u>NUMBER OF FAILURES</u>
5B1402	5B9552	240	240.0	0
7D3024B	7D9813	250	250.0	0
8B1150	8B9825	250	250.0	0

FAILURE RATE

<u>TOTAL DEVICE HOURS</u>		740,000 DEVICE HOURS
<u>BEST ESTIMATE</u>	$\lambda$	= 0.09% PER 1000 HOURS
<u>50°C AMBIENT</u>		EXTRAPOLATION TO 50°C VIA ARRHENNIUS EQUATION AND ACTIVATION ENERGY OF 0.5eV
	$\lambda$	= 0.003% PER 1,000 HOURS (32 FITS)
<u>CONFIDENCE ESTIMATE</u>	$\lambda$	60 = 0.004% PER 1000 HOURS 60% CONFIDENCE (42 FITS)
	$\lambda$	90 = 0.01% PER 1000 HOURS 90% CONFIDENCE (105 FITS)

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PLASTIC PACKAGE

150°C RETENTION BAKE

<u>LOT NUMBER</u>	<u>DATE CODE</u>	<u>SAMPLE SIZE</u>	<u>HOURS TO FAILURES</u>		
			<u>168</u>	<u>500</u>	<u>1000</u>
5B1440	5B9552	273	0	0	0
7D3024B	7D9813	250	0	0	0
8B1150	8B9906	250	0	0	0
1C0534	1C0149	250	0	0	0

FAILURE RATETOTAL DEVICE HOURS

1,023,000 DEVICE HOURS

BEST ESTIMATE $\lambda = 0.07\%$  PER 1,000 HOURS50°C AMBIENT

EXTRAPOLATION TO 50°C VIA  
ARRHENNIUS EQUATION AND  
ACTIVATION ENERGY OF 0.5eV  
 $\lambda = 0.001\%$  PER 1,000 HOURS (10  
FITS)

CONFIDENCE ESTIMATE $\lambda$  60 = 0.001% PER 1,000 HOURS  
60% CONFIDENCE (14 FITS) $\lambda$  90 = 0.003% PER 1,000 HOURS  
90% CONFIDENCE (32 FITS)

AT27BV256

PLASTIC PACKAGE

PRESSURE POT TEST

<u>DATE CODE</u>	<u>PACKAGE TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF FAILURE AT INDICATED HOURS</u>			
			(24	(48)	(72)	(96)
5B9552	28 TSOP	90	0	0	0	0
5B9552	32 PLCC	122	0	0	0	0
5B9552	32 SOIC	89	0	0	0	0
7D9813	32 PLCC	100	0	0	0	0
7D9815	28 TSOP	100	0	0	0	0
8B9906	32 PLCC	100	0	0	0	0
1C0149	32 PLCC	100	0	0	0	0

AT-27BV256

PLASTIC PACKAGE

EXTENDED TEMPERATURE CYCLING

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

<u>DATE CODE</u>	<u>PACKAGE TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF CYCLES</u>	<u>NUMBER OF FAILURES</u>
5B9552	32 PLCC	77	1000	0
5B9552	28 SOIC	77	1000	0
5B9552	28 TSOP	77	1000	0
7D9815	28 TSOP	100	1000	0
7D9813	32 PLCC	100	1000	0
8B9906	32 PLCC	100	1000	0
1C0149	32 PLCC	100	1000	0

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PLASTIC PACKAGE

EXTENDED THERMAL SHOCK

-55°C TO +125°C

<u>DATE CODE</u>	<u>PACKAGE TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF CYCLE</u>	<u>NUMBER OF FAILURES</u>
5B9552	28 TSOP	77	1000	0
5B9552	32 PLCC	77	1000	0
5A9552	28 SOIC	77	1000	0

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