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ATF16V8C/16V8CZ/16LV8C EPLD RELIABILITY DATA *

- 125°C DYNAMIC OPERATING LIFE TEST (PLASTIC)
- 150°C RETENTION BAKE (PLASTIC)
- 15PSIG PRESSURE POT
- EXTENDED TEMPERATURE CYCLING
- 131C/85% RELATIVE HUMIDITY HAST TEST
- EXTENDED THERMAL SHOCK

*This report was generated from ATF16V8C reliability testing. This data is applicable to the following device type due to same technology grouping as defined in MIL-M-38535 Appendix A:

ATF20V8C

JULY 2007

2325 Orchard Parkway San Jose CA. 95131

ATF16V8C/16V8CZ/16LV8C

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>
5C2066-20	5C9613	114	114.0	0
6C2564-6	6C9646	115	115.0	0
6D1354-2	6D9702	120	120.0	0
6C0179B	6C9752	100	100.0	0
8D1152A	8D9904	120	120.0	0
9A0392A	9A9925	100	100.0	0
1A1895-1	1A0114	150	150.0	0
1A3940-1	1A0127	150	150.0	0
4G4082	4G0448	150	150.0	0

FAILURE RATETOTAL DEVICE HOURS

1,119,000 DEVICE HOURS

BEST ESTIMATE $\lambda = 0.06\%$ PER 1,000 HOURS50°C AMBIENT

EXTRAPOLATION TO 50°C VIA ARRHENNIUS

EQUATION AND ACTIVATION ENERGY OF 0.5eV

 $\lambda = 0.002\%$ PER 1,000 HOURS (21 FITS)CONFIDENCE ESTIMATE λ 60 = 0.003% PER 1,000 HOURS
60% CONFIDENCE (28 FITS) λ 90 = 0.007% PER 1,000 HOURS
90% CONFIDENCE (70 FITS)

ATF16V8C/16V8CZ/16LV8C

PLASTIC PACKAGE

150°C RETENTION BAKE

<u>LOT</u> <u>NUMBER</u>	<u>DATE</u> <u>CODE</u>	<u>SAMPLE</u> <u>SIZE</u>	<u>HOURS TO FAILURES</u>		
			<u>168</u>	<u>500</u>	<u>1000</u>
5C2066-20	5C9613	50	0	0	0
6D1354-2	6D9818	100	0	0	0
6C0179B	6C9752	99	0	0	0
8C3242	8C9847	49	0	0	0
9A0392A	9A9925	50	0	0	0
1A1895-1	1A0114	150	0	0	0
1A3940-1	1A0127	150	0	0	0
4H5555-1	4H0501	50	0	0	0
6H4711-1	6H0718	100	0	0	0

FAILURE RATETOTAL DEVICE HOURS

798,000 DEVICE HOURS

BEST ESTIMATE
50°C AMBIENT

$\lambda = 0.08\%$ PER 1,000 HOURS
 EXTRAPOLATION TO 50°C VIA ARRHENNIUS
 EQUATION AND ACTIVATION ENERGY OF 0.5eV
 $\lambda = 0.001\%$ PER 1,000 HOURS (13 FITS)

CONFIDENCE ESTIMATE

$\lambda_{60} = 0.002\%$ PER 1,000 HOURS
 60% CONFIDENCE (17 FITS)
 $\lambda_{90} = 0.004\%$ PER 1,000 HOURS
 90% CONFIDENCE (41 FITS)

ATF16V8C/16V8CZ/16LV8C

PLASTIC PACKAGE

PRESSURE POT TEST

<u>DATE</u> <u>CODE</u>	<u>PACKAGE</u> <u>TYPE</u>	<u>SAMPLE</u> <u>SIZE</u>	<u>NUMBER OF FAILURES</u> <u>AT INDICATED HOURS</u>			
			(24)	(48)	(72)	(96)
5C9535	20 PDIP	48	0	0	0	0
6C9752	20 PDIP	50	0	0	0	0
8C9847	20 PLCC	50	0	0	0	0
9A0109	20 TSSOP	300	0	0	0	0
1A0114	20 PDIP	50	0	0	0	0
4H0501	20 PDIP	50	0	0	0	0

ATF16V8C/16V8CZ/16LV8C

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>
5C9535	20 PDIP	48	1000	0
6C9752	20 PDIP	50	1000	0
8C9847	20 PLCC	50	1000	0
9A9925	20 PDIP	50	1000	0
9A0109	20 TSSOP	300	1000	0
1A0114	20 PDIP	50	1000	0
5H0501	20 PDIP	50	1000	0

ATF16V8C/16V8CZ/16LV8C

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 CYCLES</u>	<u>NUMBER OF FAILURES</u>
5C9535	20 PDIP	48	1000	0

ATF16V8C/16V8CZ/16LV8C

PLASTIC PACKAGE

131°C/85% RELATIVE HUMIDITY HAST TEST

<u>LOT NUMBER</u>	<u>DATE CODE</u>	<u>PACKAGE TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF HOURS</u>	<u>NUMBER OF FAILIURES</u>
6B2864B	6B9837	20 PLCC	50	100	0
6D1357	6D9834	20 PLCC	50	100	0
6C0179B	6C9752	20 PLCC	100	100	0
9A0392A	9A9925	20 PDIP	29	199	0
1A1895-1	1A0114	20 PDIP	40	50	0