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ATF22V10C/CZ/CQZ EPLD RELIABILITY DATA

- 125°C OPERATING LIFE TEST (PLASTIC)
- 150°C RETENTION BAKE (PLASTIC)
- 121°C/15PSG PRESSURE POT TEST
- EXTENDED TEMPERATURE CYCLES
- 131°C/85% RELATIVE HUMIDITY HAST TEST

*This report was generated from ATF22V10C reliability testing.
This data is applicable to the following device types due
to same technology grouping as defined in MIL-M-38535
Appendix A:

ATF22LV10C

AT22LV10CQZ

ATF22LV10CZ

JANUARY 2007

2325 Orchard Parkway San Jose CA. 95131

ATF22V10C/CZ/CQZ
 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>
6B2269	6B9634	139	278.0	0
6D3498-1	6D9811	300	300.0	0
7D3432	7D9847	120	120.0	0
8D1561	8D9904	120	120.0	0
8D1586A	8D9904	300	300.0	0
9A1130-2	9A9923	100	100.0	0
0A3743	0A0025	120	120.0	0
8D0836-6	8D0136	100	100.0	0
2G6332	2G0318	100	100.0	0
4E5963-4	4E0431	100	100.0	0
6F0650C-1	6F0619	90	90.0	0

FAILURE RATE

TOTAL DEVICE HOURS

1,728,000 DEVICE HOURS

BEST ESTIMATE

$\lambda = 0.04\%$ PER 1,000 HOURS

50°C AMBIENT

EXTRAPOLATION TO 50°C VIA ARRHENNIUS
 EQUATION AND ACTIVATION ENERGY OF 0.5eV
 $\lambda = 0.001\%$ PER 1,000 HOURS (14 FITS)

CONFIDENCE ESTIMATE

$\lambda_{60} = 0.002\%$ PER 1,000 HOURS
 60% CONFIDENCE (18 FITS)
 $\lambda_{90} = 0.004\%$ PER 1,000 HOURS
 90% CONFIDENCE (45 FITS)

ATF22V10C/CZ/CQZ
 PLASTIC PACKAGE
150°C RETENTION BAKE

<u>LOT NUMBER</u>	<u>DATE CODE</u>	<u>SAMPLE SIZE</u>	<u>HOUR TO FAILURE</u>			
			<u>24</u>	<u>168</u>	<u>500</u>	<u>1,000</u>
6B2269	6B9634	320	0	0	0	0
6D3498-1	6D9811	100	0	0	0	0
8D1586A	8D9904	50	0	0	0	0
9A1130-2	9A9923	300	0	0	0	0
0A0383-5	0A0035	50	0	0	0	0
8D0836-6	8D0136	50	0	0	0	0
2G6332	2G0318	50	0	0	0	0
4E05963-4	4E0431	50	0	0	0	0
6F0650-1	6F0619	165	0	0	0	0

FAILURE RATE

TOTAL DEVICE HOURS

1,135,000 DEVICE HOURS

BEST ESTIMATE

$\lambda = 0.06\%$ PER 1,000 HOURS

50°C AMBIENT

EXTRAPOLATION TO 50°C VIA ARRHENNIUS
 EQUATION AND ACTIVATION ENERGY OF 0.5eV
 $\lambda = 0.001\%$ PER 1,000 HOURS (9 FITS)

CONFIDENCE ESTIMATE

$\lambda_{60} = 0.001\%$ PER 1,000 HOURS
 60% CONFIDENCE (12 FITS)
 $\lambda_{90} = 0.003\%$ PER 1,000 HOURS
 90% CONFIDENCE (29 FITS)

ATF22V10C/CZ/CQZ

PLASTIC PACKAGE

121°C/15PSG PRESSURE POT TEST

<u>DATE CODE</u>	<u>PACKAGE TYPE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF FAILURES AT INDICATED HOURS</u>			
			<u>24</u>	<u>48</u>	<u>72</u>	<u>96</u>
8D9904	24 PDIP	50	0	0	0	0
9C0006	28 PLCC	49	0	0	0	0
0D0111	20 TSSOP	149	0	0	0	0
0A0035	24 PDIP	50	0	0	0	0
8D0136	24 PDIP	50	0	0	0	0
2G0318	24 PDIP	50	0	0	0	0
4E0431	24 PDIP	50	0	0	0	0

ATF22V10C/CZ/CQZ

PLASTIC PACKAGE

EXTENDED TEMPERATURE CYCLE

-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>
8D9904	24 PDIP	50	1000	0
9C0006	28 PLCC	100	1000	0
0A0035	24 PDIP	50	1000	0
0D0111	20 TSSOP	149	1000	0
2G0318	24 PDIP	50	1000	0
4E0431	24 PDIP	50	1000	0

ATF22V10C/CZ/CQZ

PLASTIC PACKAGE

131°C/85% RELATIVE HUMIDITY HAST TEST

<u>LOT NUMBER</u>	<u>PACKAGE TYPE</u>	<u>DATE CODE</u>	<u>SAMPLE SIZE</u>	<u>NUMBER OF FAILURES AT INDICATED HOURS</u>
				(100)
0A0383-5	24 PDIP	0A0035	50	0
8D0836-6	24 PDIP	8D0136	50	0
2G6332	24 PDIP	2G0318	50	0
4E5963-4	24 PDIP	4E0431	50	0