603ev Reliability & Qualification Data

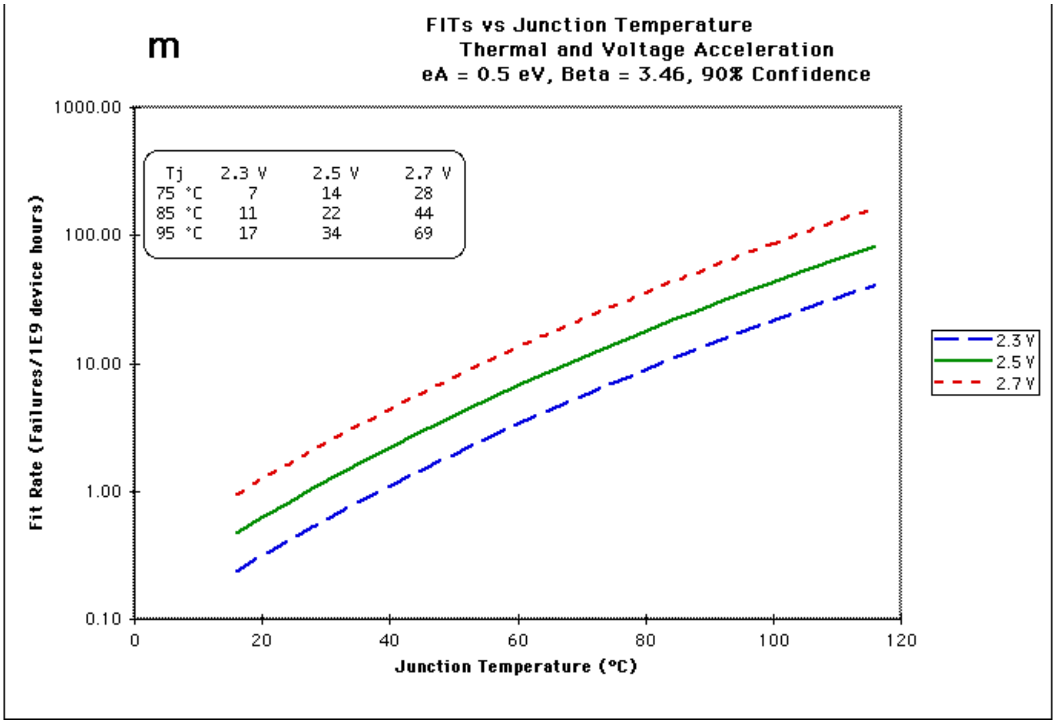
This is the reliability & qualification data for the PowerPC 603ev microprocessor.

The FIT and MTBF graphs for this device are located at the bottom of this page.

Stress	Results
Lifetest EFR (3.3V,125°C)	2/7716 =0.04% @ 168 hours (data from 34 lots)
Lifetest (3.3V,125°C)	2/3216 @ 504 hours, 1/2391 @ 1008 hours
ESD:	
Human Body Model	0/9: Pass 2000V
Charged Device Model	0/9: Pass 500V
Machine Model	0/9: Pass 150V
Latchup	0/9: Pass +/-200mA, No Latchup Observed

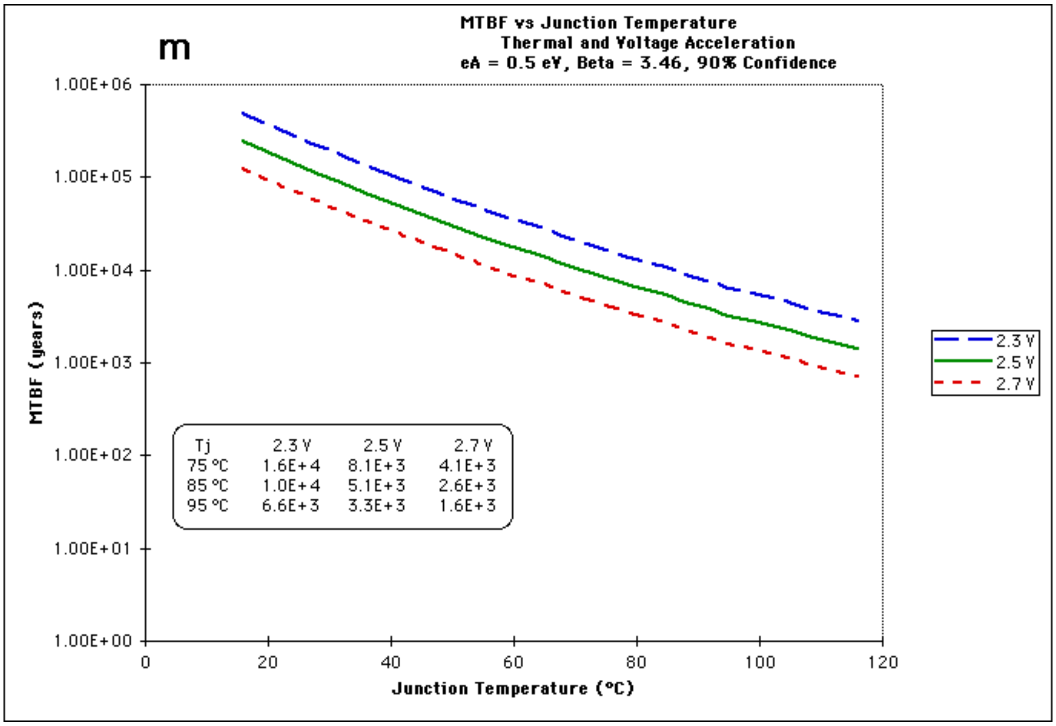
240 LEAD CQFP PACKAGE	
Stress	**Results**
Temperature Cycle -65°C/150°C	0/243 @ 1000 cycles, all pass hermeticity post stress
Thermal Shock -65°C/150°C (1995)	0/230 @ 1000 cicles, all pass hermeticity post stress
Resistance to Solvents 1995	0/36
Resistance to Solder Heat 1995	0/30
Residual Gas Analysis 1995	0/15
Solderability 1995	0/15

256 LEAD (21mm) CBGA PACKAGE	
Moisture Characterization	0/15, Level 1 Package - No Drypack Required
Temp Cycle 0°C/100°C (21x21mm 603/604 data)	0/315 @ 100 cyc, 0/315 @ 500 cyc
Temp Cycle -55°C/125°C (21x21mm 603/604 data)	0/824 @ 100 cyc, 0/814 @ 500 cyc 0/154 @ 1000 cyc
Thermal Shock -55°C/125°C (21x21mm 603/604 data)	0/283 @ 100 cyc, 1/223 @ 500 cyc 0/193 @ 1000 cyc
Autoclave (21x21mm 603/604 data)	0/293 @ 144 hrs
Bake 150°C (21x25mm 105 data, 1995)	0/231 @ 1008 hrs



FITs vs Junction Temperature
Thermal and Voltage Acceleration
eA = 0.5 eV, Beta = 3.46, 90% Confidence

Tj	2.3 V	2.5 V	2.7 V
75 °C	7	14	28
85 °C	11	22	44
95 °C	17	34	69



MTBF vs Junction Temperature
Thermal and Voltage Acceleration
eA = 0.5 eV, Beta = 3.46, 90% Confidence

Tj	2.3 V	2.5 V	2.7 V
75 °C	1.6E+4	8.1E+3	4.1E+3
85 °C	1.0E+4	5.1E+3	2.6E+3
95 °C	6.6E+3	3.3E+3	1.6E+3

last update:30May1997