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MPC106ARX RELIABILITY DATA SUMMARY

Note: Only Rev 4 (MPC106ARX___CG and MPC106ARX___TG) are MC qualified.
Rev 3 (XPC106ARX___CE) will remain XC qualified

MPC106ARX___G Information

Fab: MOS13, Austin, TX
Mask: 0H38N
Process: HiP1.4, 0.42μ
Package: 303 pin CBGA
Assy: BAT-1, Austin, TX

XPC106ARX___E Information

Fab: MOS11, Austin, TX
Mask: 0H10F
Process: HiP1.3, 0.5μ
Package: 303 pin CBGA
Assy: BAT-1, Austin, TX

TECHNOLOGY: HiP1.X, Data Summary for 1Q97-1Q99

DYNAMIC LIFETEST (4.25V, 125°C ambient)			
168 HRS	504 HRS	1008 HRS	2016 HRS
1 / 2234	0 / 536	1 / 490	/

Failure Summary:
168 hrs: functional failure, not analyzable
1008 hrs: leakage on one pin, hot test only. Suspect EOS/ESD but not confirmed.

ESD (HBM) Old Methodology		ESD (HBM) New Methodology	
1KV	2KV	1KV	2KV
/	0 / 15	0 / 5	5 / 5

ESD (MM) Old Methodology		ESD (MM) New Methodology	
100V	200V	100V	200V
/	0 / 15	0 / 5	5 / 5

ESD (CDM)	
500V	1KV
0 / 15	0 / 5

LATCHUP	
150 mA	200 mA
0 / 9	0 / 9

Note: Our ESD testing methodology for Human Body Model (HBM) and Machine Model (MM) changed between the design and the MC qualification of the 106. Although the 106 meets the criteria in place at the time of design, it does not meet the current criteria. It has been MC qualified with an ESD waiver to our current criteria.

Old methodology:
Based on MIL-STD 883C
Zap I/O pins, not powers and grounds, with respect to grouped powers and grounds

New methodology
Based on MIL-STD 883D
Zap all pins, including powers and grounds with respect to each power and ground

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TECHNOLOGY FAILURE RATES - HiP1.X

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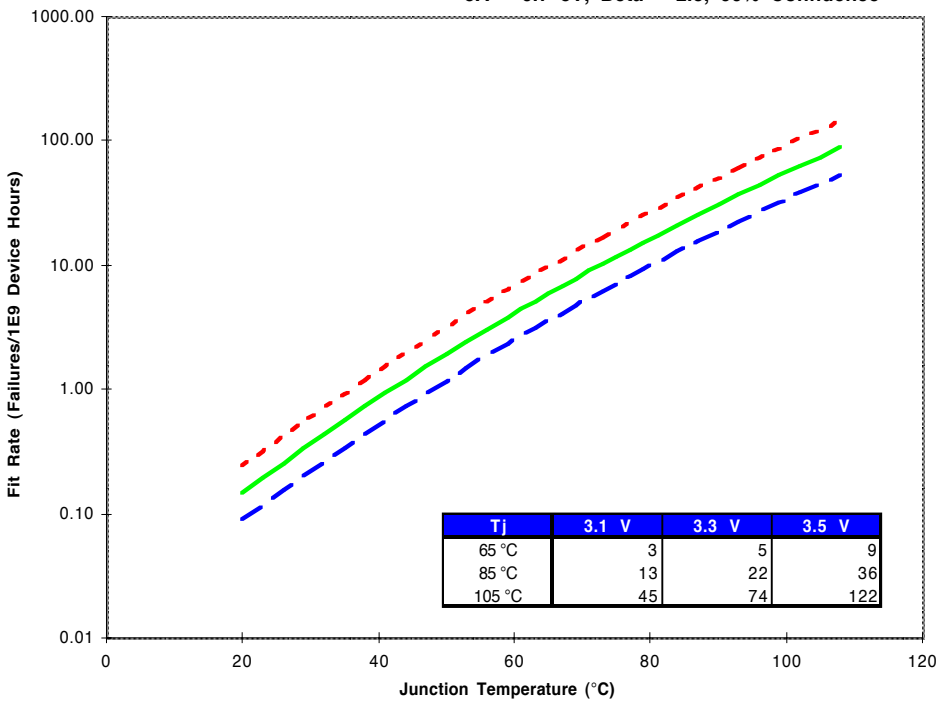
FITs vs Junction Temperature: HiP1.X Process
Thermal and Voltage Acceleration
eA = 0.7 eV, Beta = 2.5, 60% Confidence



Tj	3.1 V	3.3 V	3.5 V
65 °C	3	5	9
85 °C	13	22	36
105 °C	45	74	122

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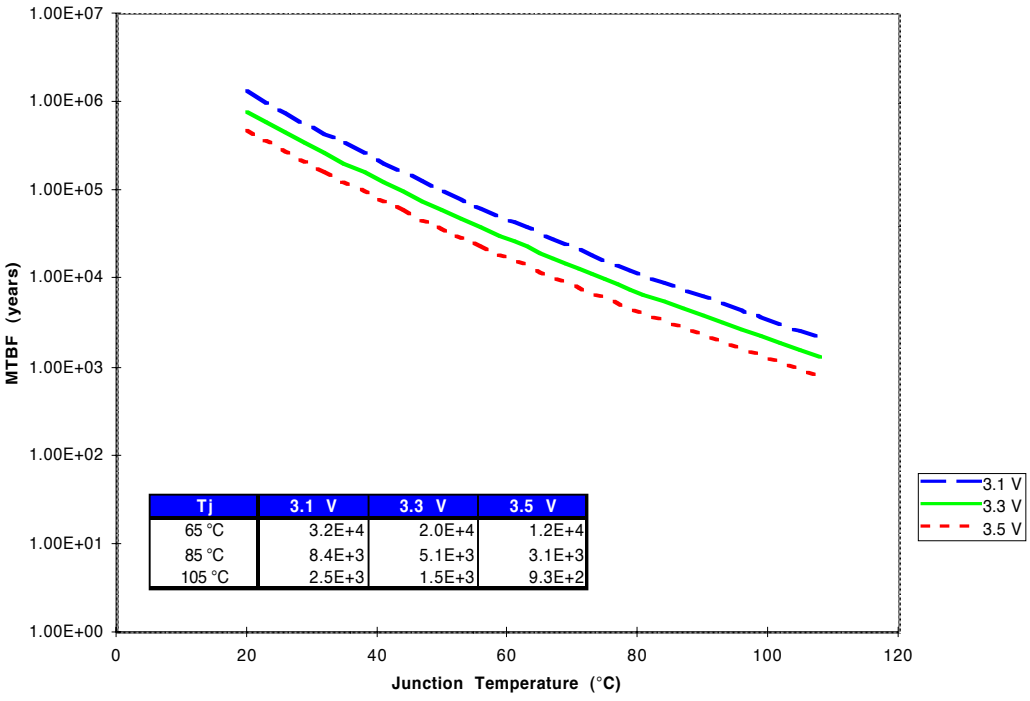
MTBF vs Junction Temperature: HiP1.X Process
Thermal and Voltage Acceleration
eA = 0.7 eV, Beta = 2.5, 90% Confidence



Tj	3.1 V	3.3 V	3.5 V
65 °C	3.2E+4	2.0E+4	1.2E+4
85 °C	8.4E+3	5.1E+3	3.1E+3
105 °C	2.5E+3	1.5E+3	9.3E+2

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MPC106ARX RELIABILITY DATA SUMMARY

PACKAGE: 303 Pin 21 x 25mm CBGA
Data Summary 1Q97 - 1Q99

MOISTURE CZ
PRECOND MSL1
0 / 15

TEMPERATURE CYCLING (-55°C/+125°C)			
PRECOND MSL1	100 CYC	500 CYC	1000 CYC
0 / 132	0 / 132	0 / 132	0 / 132

THERMAL SHOCK (-55°C/+125°C)			
PRECOND MSL1	100 CYC	500 CYC	1000 CYC
0 / 375	0 / 375	0 / 345	0 / 240

AUTOCLAVE (+121°C, 15 PSIG)		
PRECOND MSL1	48 HRS	144 HRS
0 / 206	0 / 206	0 / 202

THB (+85°C/85% RH/3.3V)			
PRECOND MSL1	168 HRS	504 HRS	1008 HRS
0 / 97	0 / 97	0 / 75	0 / 75

BAKE (150°C)			
	168 HRS	504 HRS	1008 HRS
	0 / 201	0 / 201	0 / 201

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