



**XPC107 PCI Bridge/Memory Controller  
MOS-13 HiP3  
Rev 1.4  
Qualification Report**

Device No./Rev.: XPC107, Rev 1.4		Report Rev.: 0
Description: XPC107 PCI Bridge/Memory Controller		Revision date: 9/10/03
Technology: MOS13 HiP3	Package: 503PBGA	Page 1 of 6



### XPC107 Product Information:

Product / Technology / Fab / Package Description	
Package	503 FC-PBGA (ZP), 33 x 33 mm
Device	XPC107
Mask Set	2K21S
Die Size	50 mm <sup>2</sup>
Name/Location of Die Fab Facility	MOS-13 / Austin TX
Process Technology	0.29µm HiP3
Poly / Metal layers	1P / 5M
Assembly Location	Motorola, KLM / Kuala Lumpur, Malaysia
Solder Ball Material / Diameter	62% Sn, 36% Pb, 2% Ag / 0.60-0.90 mm
Moisture Sensitivity Level	MSL3

### XPC107 Product Reliability Data Summary:

HTOL / 3.3V, 125°C					
Mask Set	168 Hours	504 Hours	1008 Hours		
J82X / Rev 1.1 & 1.2	0 / 231	0 / 231	0 / 231		
2K21S / Rev 1.4	0 / 96				
Totals	0 / 327	0 / 231	0 / 231		
Failure Comments					

Note: Commercial-tier qualification readpoint for 5 years operation at 2.5V and 105°C Tj is 211 hours.  
 Industrial-tier qualification readpoint for 10 years operation at 2.5V at 105°C Tj is 422 hours.  
 The 1 year usage readpoint in 2.5V, 105°C Tj operation is 42 hours.

ESD / Latch-up					
Mask Set	HBM	MM	CDM	Latch-up	
J82X / Rev 1.1 & 1.2	0 / 9 @ 2KV	0 / 6 @ 75V	0 / 6 @ 1KV	0 / 6 @ 200mA	
J82X / Rev 1.1 & 1.2		6 / 6 @ 100V			
Failure Comments					

Note: All pins on part pass 100V MM except the AVDD pin which passes up to 75V. Improving MM performance of the AVDD supply has high probability of impacting functionality, therefore corrective action would be high risk/low benefit.

### 503 FC-PBGA Package Reliability Data:

Moisture Sensitivity Level Characterization	

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PRECOND MSL3				
0 / 248				

Temperature Cycling / -40°C +125°C Air-to-Air				
PRECOND MSL3	100 CYC	500 CYC	1000 CYC	
0 / 231	0 / 231	0 / 231	0 / 231	

Temperature Cycling / 0°C +125°C Air-to-Air				
PRECOND MSL3	500 CYC	1000 CYC	2000 CYC	
0 / 231	0 / 231	0 / 231	0 / 231	

Autoclave / +121°C, 100% RH, 2 atm				
PRECOND MSL3	48 HRS			
0 / 231	0 / 231			

THB / +85°C, 85% RH, 1.8V				
PRECOND MSL3	168 HRS	504 HRS	1008 HRS	
0 / 231	0 / 231	0 / 231	0 / 231	

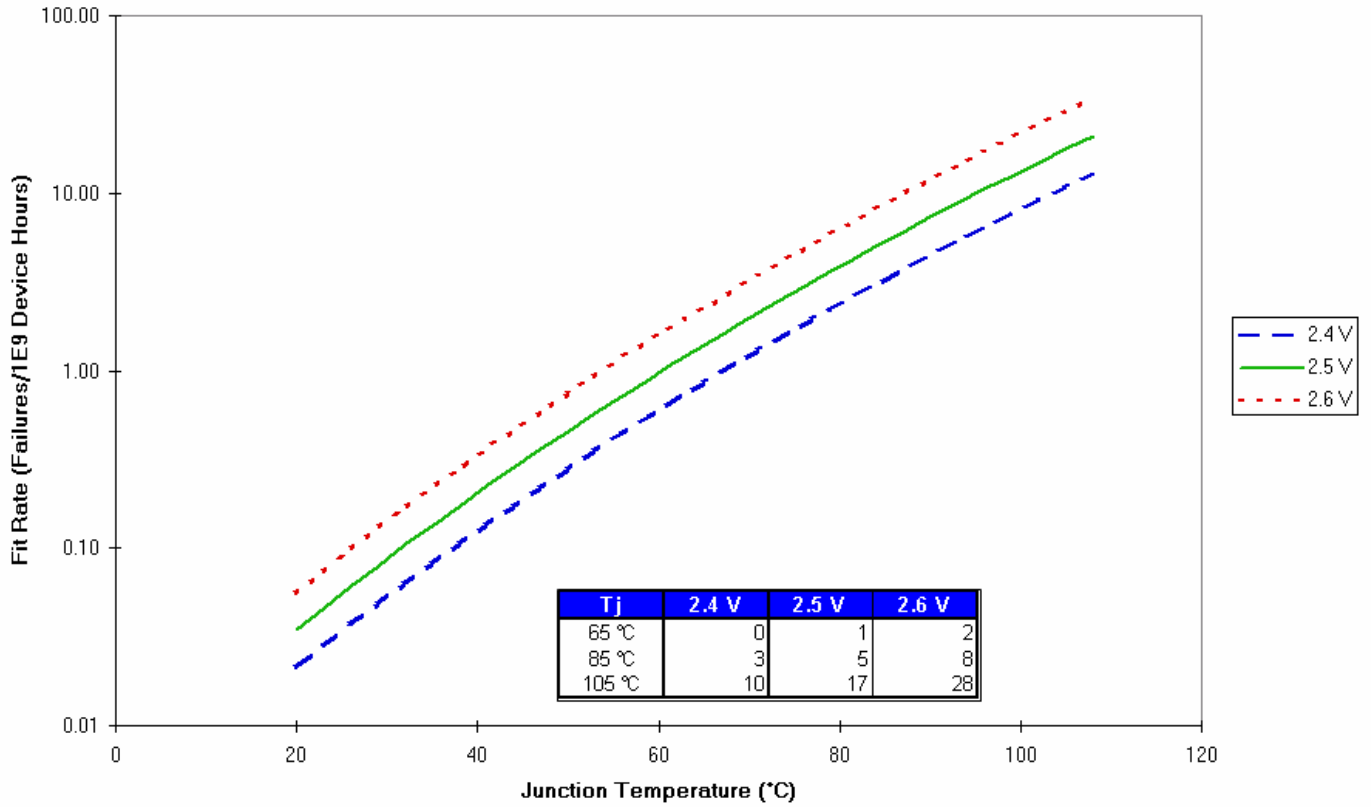
High Temperature Bake / 175°C				
168 HRS	504 HRS			
0 / 231	0 / 231			

### XPC107 Product FIT Rate and MTBF Derated Curves:

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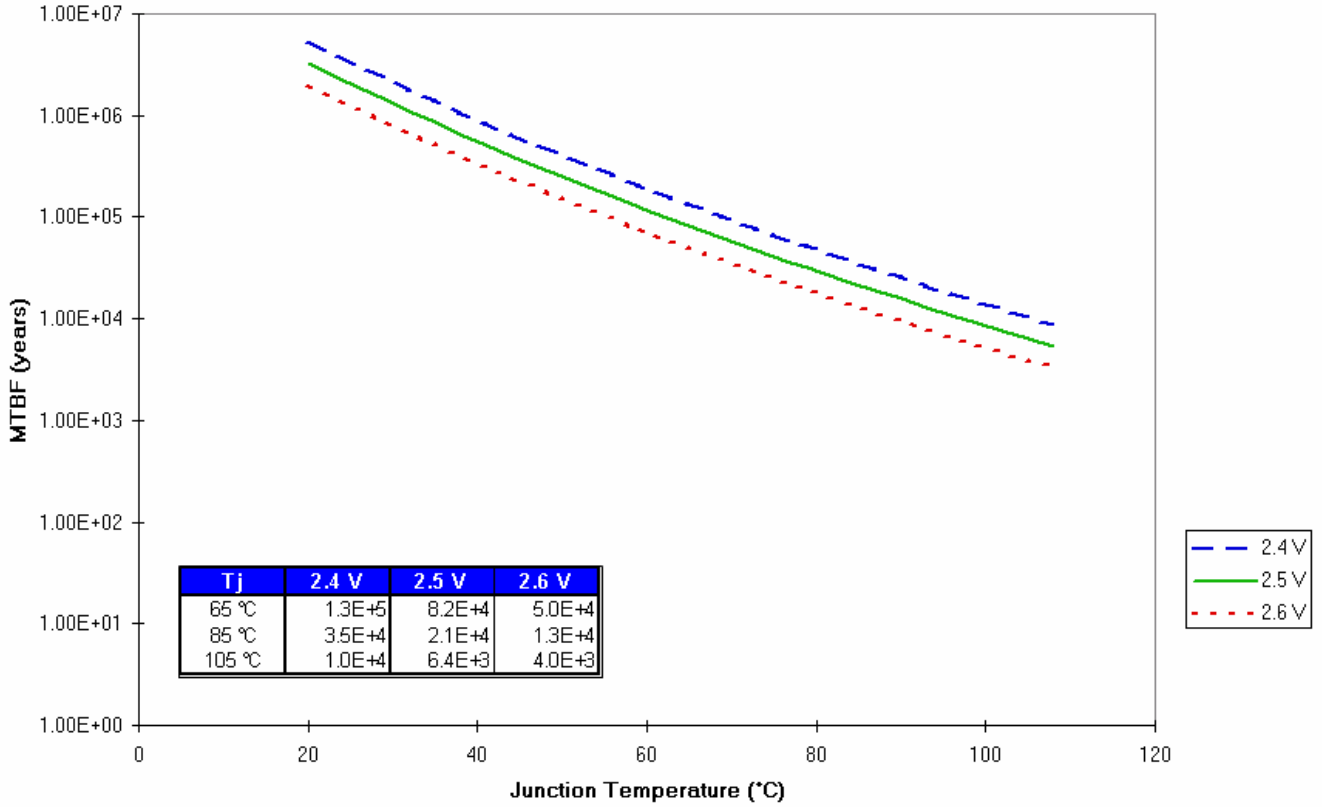
FITs vs Junction Temperature: XPC107  
 Thermal and Voltage Acceleration  
 $eA = 0.7 \text{ eV}$ ,  $\text{Beta} = 4.88$ , 60% Confidence





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MTBF vs Junction Temperature: XPC107  
 Thermal and Voltage Acceleration  
 eA = 0.7 eV, Beta = 4.88, 60% Confidence





**Revision History:**

Revision History			
Revision	Date*	Comment	Author
O	9/10/03	Original Release	Leo Loc

Update Revision Date in Footer