

## 7. Package Related Reliability Test Data

### Temperature-Humidity-Bias Test

#### 1. Test Condition

Condition: T = 85°C, RH = 85%, Maximum operating voltage

Duration: Test time points at 168 hrs, 500 hrs, and 1000 hrs.

#### 2. SRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q4,03	90	0	
	Q1,04	90	0	
	Q2,04	90	0	
SOJ	Q4,03	90	0	
	Q1,04	-	-	
	Q2,04	90	0	

#### 3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	90	0	
	Q1,04	90	0	
	Q2,04	-	-	
DIP	Q4,03	-	-	
	Q1,04	90	0	
	Q2,04	-	-	

**4. Logic Products**

<b>Package Type</b>	<b>Period</b>	<b>Total No of Samples</b>	<b>No. of Fails</b>	<b>Reject Information</b>
PLCC	Q4,03	45	0	
	Q1,04	90	0	
	Q2,04	45	0	
QFP	Q4,03	90	0	
	Q1,04	180	0	
	Q2,04	135	0	
QTCP	Q4,03	-	-	
	Q1,04	44	0	
	Q2,04	22	0	
BGA	Q4,03	45	0	
	Q1,04	-	-	
	Q2,04	45	0	

## Thermal Shock Test

### 1. Test Condition

Condition: T = -65°C/150°C, transition period = 5 minutes, Non-bias  
 T = -55°C/125°C, transition period = 5 minutes, Non-bias for LCD Driver

Duration: 100 cycles

### 2. SRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q4,03	64	0	
	Q1,04	64	0	
	Q2,04	64	0	
SOJ	Q4,03	64	0	
	Q1,04	-	-	
	Q2,04	64	0	

### 3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	64	0	
	Q1,04	64	0	
	Q2,04	-	-	
DIP	Q4,03	-	-	
	Q1,04	64	0	
	Q2,04	-	-	

#### 4. Logic Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	32	0	
	Q1,04	64	0	
	Q2,04	32	0	
QFP	Q4,03	64	0	
	Q1,04	128	0	
	Q2,04	96	0	
BGA	Q4,03	32	0	
	Q1,04	-	-	
	Q2,04	32	0	

## Temperature Cycle Test (TCT)

### 1. Test Condition

Condition: T = -65°C/150°C, transition period = 15 minutes, Non-bias  
 T = -55°C/125°C, transition period = 15 minutes, Non-bias for LCD Driver

Duration: 200 cycles for SRAM, Non-Volatile and Logic  
 500 cycles for DRAM  
 300 cycles for LCD Driver

### 2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
TSOP	Q4,03	300	0	
	Q1,04	200	0	
	Q2,04	703	0	

### 3. SRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q4,03	64	0	
	Q1,04	64	0	
	Q2,04	64	0	
SOJ	Q4,03	64	0	
	Q1,04	-	-	
	Q2,04	64	0	

#### 4. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	64	0	
	Q1,04	64	0	
	Q2,04	-	-	
DIP	Q4,03	-	-	
	Q1,04	64	0	
	Q2,04	-	-	

#### 5. Logic Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	32	0	
	Q1,04	64	0	
	Q2,04	32	0	
QFP	Q4,03	64	0	
	Q1,04	128	0	
	Q2,04	96	0	
BGA	Q4,03	32	0	
	Q1,04	-	-	
	Q2,04	32	0	

## Pressure Cooker Test (PCT)

### 1. Test Condition

Condition: T = 121 °C, RH = 100%, Non-bias for SRAM, Non-Volatile, and Logic

T = 127 °C, RH=100%, Non-bias for DRAM

T = 121 °C, RH=85%, LCD Driver

Duration: 168 hrs for SRAM, Non-volatile, and Logic

300 hrs for DRAM.

100 hrs for LCD Driver

### 2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
TSOP	Q4,03	-	-	
	Q1,04	-	-	
	Q2,04	306	0	

### 3. SRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q4,03	64	0	
	Q1,04	64	0	
	Q2,04	64	0	
SOJ	Q4,03	64	0	
	Q1,04	-	-	
	Q2,04	64	0	

#### 4. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	64	0	
	Q1,04	64	0	
	Q2,04	-	-	
DIP	Q4,03	-	-	
	Q1,04	64	0	
	Q2,04	-	-	

#### 5. Logic Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
PLCC	Q4,03	32	0	
	Q1,04	64	0	
	Q2,04	32	0	
QFP	Q4,03	64	0	
	Q1,04	128	0	
	Q2,04	96	0	
BGA	Q4,03	32	0	
	Q1,04	-	-	
	Q2,04	32	0	

## Highly Accelerated Stress Test (HAST)

### 1. Test Condition

Condition: T = 130°C, RH = 85%.

Duration: 168 hrs for SRAM, Non-Volatile and Logic  
300 hrs for DRAM

### 2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
TSOP	Q4,03	300	0	
	Q1,04	-	-	
	Q2,04	306	0	