



7. Package Related Reliability Test Data

Pre-condition Test

1. Test Condition

- Step 1: TCT (-65°C/150°C, 5 cycles)
- Step 2: Bake (125°C, 24 hours)
- Step 3: Soak (60°C/60%RH, 52 hours)
- Step 4: IR, 3 passes

2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
BGA	Q3,19	1155	0	
	Q4,19	1155	0	
	Q1,20	1155	0	
	Q2,20	1155	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,19	308	0	
	Q4,19	308	0	
	Q1,20	308	0	
	Q2,20	308	0	
TSOP	Q3,19	308	0	
	Q4,19	308	0	
	Q1,20	308	0	
	Q2,20	308	0	



Temperature Cycle Test (TCT)

1. Test Condition

Condition: T = -65°C ~ +150 °C, condition C, soak mode 1

Duration: 500 cycles

2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
BGA	Q3,19	231	0	
	Q4,19	231	0	
	Q1,20	231	0	
	Q2,20	231	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,19	77	0	
	Q4,19	77	0	
	Q1,20	77	0	
	Q2,20	77	0	
TSOP	Q3,19	77	0	
	Q4,19	77	0	
	Q1,20	77	0	
	Q2,20	77	0	



Pressure Cooker Test (PCT) / Un-biased Highly Accelerated Stress Test (uHAST)

1. Test Condition

Condition: T = 121°C, RH = 100%, Non-bias for PCT
T = 130°C, RH = 85%, Non-bias for uHAST
Duration: 96 hrs

2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
BGA	Q3,19	231	0	
	Q4,19	231	0	
	Q1,20	231	0	
	Q2,20	231	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,19	77	0	
	Q4,19	77	0	
	Q1,20	77	0	
	Q2,20	77	0	
TSOP	Q3,19	77	0	
	Q4,19	77	0	
	Q1,20	77	0	
	Q2,20	77	0	



Highly Accelerated Stress Test (HAST)

1. Test Condition

Condition: T = 130°C/96hrs for TSOP/SOP

T = 110°C/264hrs for BGA

RH = 85%.

Bias =Vddmax

Duration: 96hrs, 168hrs, 264hrs

2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
BGA	Q3,19	231	0	
	Q4,19	231	0	
	Q1,20	231	0	
	Q2,20	231	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,19	77	0	
	Q4,19	77	0	
	Q1,20	77	0	
	Q2,20	77	0	
TSOP	Q3,19	77	0	
	Q4,19	77	0	
	Q1,20	77	0	
	Q2,20	77	0	