7. Package Related Reliability Test Data

Temperature Cycle Test (TCT)

1. Test Condition

Condition: T = -65°C / 15min , +150 °C/15min, Non-bias

Duration: 500 cycles

2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
BGA	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	231	0	
	Q2,19	231	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	77	0	
	Q2,19	77	0	
TSOP	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	77	0	
	Q2,19	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	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	231	0	
	Q2,19	231	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	77	0	
	Q2,19	77	0	
TSOP	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	77	0	
	Q2,19	77	0	

Highly Accelerated Stress Test (HAST)

1. Test Condition

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

T = 121°C/96hrs for BGA (Before July 2018)

T = 110°C/264hrs for BGA (Including and after July 2018)

RH = 85%.

Bias =Vddmax

Duration: 96hrs, 168hrs, 264hrs

2. DRAM Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
BGA	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	231	0	
	Q2,19	231	0	

3. Non-Volatile Memory Products

Package Type	Period	Total No of Samples	No. of Fails	Reject Information
SOP	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	77	0	
	Q2,19	77	0	
TSOP	Q3,18	231	0	
	Q4,18	231	0	
	Q1,19	77	0	
	Q2,19	77	0	