

RELIABILITY MONITOR REPORT  
FOR

**PBGA Package**

**Dallas Semiconductor**

4401 South Beltwood Parkway  
Dallas, TX 75244-3292

This Report was prepared by  
Dallas Semiconductor Reliability Engineering

**Summary:**

The data in the tables that follow was generated as the result of an on-going Package Reliability Monitor. The specific assemblies included in this package monitor are:

ASSY SITE	PINS	PACKAGE		
ATP (Amkor, PI)	256	PBGA (Pb-Free)	ATP (Amkor, PI)	484 PBGA-TE
ATP (Amkor, PI)	144	PBGA-TE (Pb-Free)	SCS (StatsChipPac Si	256 PBGA (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 35486 FITS: 3.2**

The parameters used to calculate this failure rate are as follows:

**Cf: 60% Ea: 0.7 Tu: 25 °C**

The reliability data follows. At the start of this data is a description of the assembly vehicle used to generate this reliability data. The next section is the detailed reliability data for each stress. The reliability data section includes the latest data available. This report covers data between and

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**Assembly Information:**

Package Type: PBGA (Pb-Free)  
Flammability: UL 94-V0  
Date Code Range: 0651 to 0712

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0651	DS31256	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0651	DS31256	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0712	DS3112	125C, 3.5 VOLTS	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0651	DS31256	150C	1000 HRS	77	0	
STORAGE LIFE	0651	DS31256	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0651	DS31256	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0651	DS31256	-55C TO 125C	1000 CYS	77	0	
<b>Total:</b>						<b>0</b>	

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**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0651	DS31256	85/85, 3.5 VOLTS	1000 HRS	45	0	
BIASED MOISTURE	0651	DS31256	85/85, 3.5 VOLTS	1000 HRS	45	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: PBGA-TE  
Flammability: UL 94-V0  
Date Code Range: 0625 to 0708

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0625	DS32512	125C, 2.0V (PSA) & 3.5V (PSB)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0708	DS32512	125C, 2.0V (PSA) & 3.5V (PSB)	1000 HRS	45	0	
					<b>Total:</b>	<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0625	DS32512	150C	1000 HRS	76	0	
					<b>Total:</b>	<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0625	DS32512	-55C TO 125C	1000 CYS	77	0	
					<b>Total:</b>	<b>0</b>	

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**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0625	DS32512	85/85, 2.0 VOLTS	1000 HRS	45	0	
					<b>Total:</b>	<b>0</b>	

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**Assembly Information:**

Package Type: PBGA-TE (Pb-Free)  
Flammability: UL 94-V0  
Date Code Range: 0645 to 0645

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0645	DS21448	125C, 3.3 VOLTS	1000 HRS	45	0	
					<b>Total:</b>	<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0645	DS21448	150C	1000 HRS	77	0	
					<b>Total:</b>	<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0645	DS21448	-55C TO 125C	1000 CYS	77	0	
					<b>Total:</b>	<b>0</b>	

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST, NO BIAS	0645	DS21448	130C, 85% R.H.	200	HRS	77	0
					<b>Total:</b>		<b>0</b>

**FAILURE RATE: MTTF (YRS): 35486 FITS: 3.2**