

RELIABILITY MONITOR REPORT  
FOR

**CSBGA 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	CSBGA	ATP (Amkor, PI)	25 CSBGA (Pb-Free)
ATP (Amkor, PI)	256	CSBGA (Pb-Free)	ATP (Amkor, PI)	144 CSBGA-TE
ATP (Amkor, PI)	256	CSBGA-TE	SCK (StatsChipPac	144 CSBGA (Pb-Free)
SCS (StatsChipPac Si	16	CSBGA	SCS (StatsChipPac Si	49 CSBGA (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 69092 FITS: 1.7**

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: CSBGA  
Flammability: UL 94-V0  
Date Code Range: 0705 to 0711

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**DATA RETENTION**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0711	DS3650	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0705	DS3100	125C, 3.5V (PSA) & 2.0V (PSB)	1000 HRS	48	0	
HIGH TEMP OP LIFE	0711	DS3650	125C, 3.0V (PSB) & 3.6V (PSA)	1000 HRS	45	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: CSBGA (Pb-Free)  
Flammability: UL 94-V0  
Date Code Range: 0604 to 0715

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**DATA RETENTION**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0632	DS3640	150C	1000 HRS	77	0	
STORAGE LIFE	0651	DS3641	150C	1000 HRS	77	0	
STORAGE LIFE	0715	DS3605	150C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0604	DS26522	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0632	DS3640	125C, 3.6V (PSA) & 3.9V (PSB)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0641	DS21348	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0642	DS32504	125C, 2.0V (PSA) & 3.5V (PSB)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0649	DS33X162	125C, 2.0V (PSB) & 3.5V (PSA)	1000 HRS	45	0	
HIGH TEMP OP LIFE	0650	DS26522	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0650	DS26522	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0651	DS3641	125C, 3.6 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0715	DS3605	125C, 3.6 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	0604	DS26522	150C	1000 HRS	77	0	
STORAGE LIFE	0641	DS21348	150C	1000 HRS	77	0	
STORAGE LIFE	0650	DS26522	150C	1000 HRS	77	0	
STORAGE LIFE	0650	DS26522	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	0604	DS26522	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0641	DS21348	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0650	DS26522	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0650	DS26522	-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 CYCLING	0604	DS26522	85/85, 3.5 VOLTS	1000 HRS	45	0	
BIASED MOISTURE	0641	DS21348	85/85, 3.5 VOLTS	1000 HRS	45	0	
BIASED MOISTURE CYCLING	0650	DS26522	85/85, 3.5 VOLTS	1000 HRS	40	0	
BIASED MOISTURE CYCLING	0650	DS26522	85/85, 3.5 VOLTS	1000 HRS	40	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: CSBGA-TE  
Flammability: UL 94-V0  
Date Code Range: 0632 to 0641

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0632	DS26334	125C, 3.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0641	DS3254	125C, 3.5 VOLTS	1000 HRS	45	0	
				<b>Total:</b>		<b>0</b>	

**FAILURE RATE: MTTF (YRS): 69092 FITS: 1.7**