

RELIABILITY MONITOR REPORT  
FOR

**SOIC 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)	24	SOIC	ATP (Amkor, PI)	8 SOIC (Pb-Free)
ATP (Amkor, PI)	28	SOIC (Pb-Free)	Carsem	8 SOIC (Pb-Free)
CIRTEK	20	SOIC Welded Crystal (RoHS)	OSEP	8 SOIC
OSEP	8	SOIC (Pb-Free)	Unisem	8 SOIC
Unisem	8	SOIC (Pb-Free)	UTL (NSEB) UTAC	8 SOIC (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 129724 FITS: 0.9**

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

**Cf: 60% Ea: 0.7 Tu: 25 °C**

The reliability data follows. A 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

**Assembly Information:**

Package Type: SOIC  
 Flammability: UL 94-V0  
 Date Code Range: 0637 to 0722

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0637	DS2431	125C, 5.25 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0640	DS17885	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0646	DS75	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0652	DS17885	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0702	DS2431	125C, 5.25 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0708	DS2431	125C, 5.25 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0714	DS2431	125C, 5.25 VOLTS	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0637	DS2431	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0640	DS17885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0702	DS2431	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0708	DS2431	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0714	DS2431	-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
HAST	0637	DS2431	130C, 85%R.H.,5.5V	96 HRS	77	0	
HAST	0640	DS17885	130C, 85%R.H.,5.5V	96 HRS	77	0	
HAST	0708	DS2431	130C, 85%R.H.,5.5V	96 HRS	77	0	
HAST	0714	DS2431	130C, 85%R.H.,5.5V	96 HRS	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
AUTOCLAVE	0640	DS17885	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**W/E ENDURANCE AND DATA RET'N**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0637	DS2431	150C	1000 HRS	76	0	
WRITE CYCLE STRESS (KCYS)			85 C, 5.25 VOLTS	50 KCYS	77	0	
STORAGE LIFE	0637	DS2431	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)			25 C, 5.25 VOLTS	200 KCYS	77	0	
WRITE CYCLE STRESS (KCYS)	0708	DS2431	85 C, 5.25 VOLTS	50 KCYS	77	0	
STORAGE LIFE			150C	1000 HRS	77	0	
STORAGE LIFE	0708	DS2431	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)			25 C, 5.25 VOLTS	200 KCYS	77	0	
WRITE CYCLE STRESS (KCYS)	0714	DS2431	85 C, 5.25 VOLTS	50 KCYS	77	0	
STORAGE LIFE			150C	1000 HRS	76	0	
STORAGE LIFE	0714	DS2431	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)			25 C, 5.25 VOLTS	200 KCYS	77	0	
WRITE CYCLE STRESS (KCYS)	0722	DS2431	85 C, 5.25 VOLTS	50 KCYS	77	0	
STORAGE LIFE			150C	2000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)	0722	DS2431	125C, 5.25 VOLTS	1 KCYS	77	0	
STORAGE LIFE			150C	2000 HRS	76	0	
<b>Total:</b>						<b>0</b>	

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**W/E ENDURANCE AND OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0722	DS2431	150C, 5.25 VOLTS	816 HRS	76	0	
WRITE CYCLE STRESS (KCYS)			85 C, 5.25 VOLTS	50 KCYS	77	0	
<b>Total:</b>						<b>0</b>	

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**Assembly Information:**

Package Type: SOIC (Pb-Free)  
Flammability: UL 94-V0  
Date Code Range: 0647 to 0722

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0647	DS2502	125C, 6.0 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0710	DS1722	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0713	DS2413	125C, 5.25 VOLTS	1000 HRS	45	0	
			125C, 5.25 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0713	DS3994	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0713	DS75LX	125C, 3.7 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0714	DS1682	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0722	DS1311	125C, 5.5 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	0647	DS2502	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	0647	DS2502	-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	0647	DS2502	85/85, 5.5 VOLTS	1000 HRS	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
AUTOCLAVE	0647	DS2502	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
				<b>Total:</b>		<b>0</b>	

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**W/E ENDURANCE AND DATA RET'N**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
WRITE CYCLE STRESS (KCYS)	0713	DS3994	70 C, 5.5 VOLTS	30 KCYS	77	0	
STORAGE LIFE			150C	1000 HRS	77	0	
STORAGE LIFE	0714	DS1682	150C	1000 HRS	77	0	
WRITE CYCLE STRESS (KCYS)			85 C, 5.5 VOLTS	30 KCYS	77	0	
				<b>Total:</b>		<b>0</b>	

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**Assembly Information:**

Package Type: SOIC w/Crystal  
Flammability: UL 94-V0  
Date Code Range: 0626 to 0720

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0720	DS3232	125C, 5.5 VOLTS	1000 HRS	45	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
AUTOCLAVE	0626	DS3232	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
				<b>Total:</b>		<b>0</b>	

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**FAILURE RATE: MTTF (YRS): 129724 FITS: 0.9**