

RELIABILITY MONITOR REPORT  
FOR

**uSOP Package**

**Dallas Semiconductor**

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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 assemblies covered by this package monitor are:

ASSY SITE	PINS	PACKAGE		
ATP (Amkor, PI)	10	uSOP	ATP (Amkor, PI)	8 uSOP
ATP (Amkor, PI)	10	uSOP (Pb-Free)	ATP (Amkor, PI)	8 uSOP (Pb-Free)
ATP (Amkor, PI)	8	uSOP (Pb-Free) Exposed Pad	ATP (Amkor, PI)	8 uSOP Exposed Pad
Carsem	8	uSOP	Unisem	10 uSOP
Unisem	8	uSOP	Unisem	10 uSOP (Pb-Free)
Unisem	8	uSOP (Pb-Free)	Unisem	8 uSOP (Pb-Free) Exposed Pad
Unisem	8	uSOP Exposed Pad	UTL (NSEB) UTAC	10 uSOP
UTL (NSEB) UTAC	8	uSOP	UTL (NSEB) UTAC	10 uSOP (Pb-Free)
UTL (NSEB) UTAC	8	uSOP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE:                    MTTF (YRS): 27143                    FITS: 4.2**

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

**Cf: 60%                    Ea: 0.7                    B: 0                    Tu: 25 °C                    Vu: 5.5 Volts**

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 10/1/2005 and 9/30/2006.

**Assembly Information:**

Package Type:                    uSOP (Pb-Free) 3x0.85  
 Flammability:                    UL 94-V0  
 Moisture Sensitivity                    Level 1  
 (JEDEC J-STD20A)  
 Date Code Range:                    0602                    to                    0629

**MOISTURE SENSITIVITY LEVEL 1**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
ULTRASOUND	0626	DS2740	J-STD-020		8	0	
STORAGE LIFE			125C	24 HRS	8		
MOISTURE SOAK			85 C/85% R.H.	168 HRS	8		
CONVECTION REFLOW			260C +/-5C	3 PASS	8	0	
EXTERNAL VISUAL			J-STD-020, 6.1a		8	0	
PRECONDITION U/S			J-STD-020		8	0	
<b>Total:</b>						<b>0</b>	

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0602	DS2705	125C, 5.5 V (PSA) & 0.0 V (PSB)	1000 HRS	77	0	
HIGH TEMP OP LIFE	0626	DS2740	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0629	DS2745	125C, 5.5 VOLTS	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**PACKAGE TESTS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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SOLDERABILITY (Sn/Pb)	0626	DS2740	JESD22-B102, COND C	5	0
SOLDERABILITY (Pb-Free)			JESD22-B102, COND C	5	0
X-RAY	0626	DS2740	MIL-STD-883-2012 : TOP & SIDE VIEW	6	0
PHYSICAL DIMENSIONS			JESD22-B100	6	0
MARK PERMANENCY			JESD22-B107	6	0
LEAD INTEGRITY			JESD22-B105, COND B	6	0
<b>Total:</b>				<b>0</b>	<b>0</b>

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#### PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0626	DS2740	125C	24 HRS	385		
MOISTURE SOAK			85 C/85% R.H.	168 HRS	385		
CONVECTION REFLOW			260C +/-5C	3 PASS	385	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	0626	DS2740	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	0626	DS2740	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0629	DS2745	-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	0626	DS2740	130C, 85%R.H.,5.5V	100 HRS	77	0	
HAST	0629	DS2745	130C, 85%R.H.,5.5V	96 HRS	76	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	DS2740	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
AUTOCLAVE	0629	DS2745	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**FAILURE RATE: MTTF (YRS): 27143 FITS: 4.2**