

RELIABILITY MONITOR REPORT
FOR

uSOP 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 assemblies covered by this package monitor are:

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

The calculated failure rate for this assembly is:

FAILURE RATE: **MTTF (YRS): 62134** **FITS: 1.8**

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 04/01/2004 and 03/31/2005.

Assembly Information:

Package Type: uSOP 3mm
 Flammability: UL 94-V0
 Moisture Sensitivity
 (JEDEC J-STD20A) Level 1
 Date Code Range: 0410 to 0501

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0410	DS1090	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0413	DS1094L	125C, 3.6 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0416	DS3902	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0421	DS1392	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0421	DS1390	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0422	DS1393	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0424	DS1391	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0437	DS600	125C, 5.5 VOLTS	1000 HRS	45	0	
HIGH TEMP OP LIFE	0443	DS1825	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0501	DS1088L	125C, 3.6 VOLTS	192 HRS	77	0	
Total:						0	

PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0413	DS1094L	125C	24 HRS	306		
MOISTURE SOAK			85 C/85% R.H.	168 HRS	306		
CONVECTION REFLOW			235C +5/-0C	3 PASS	306	0	

STORAGE LIFE	0501	DS1088L	125C	24	HRS	306		
MOISTURE SOAK			85 C/85% R.H.	168	HRS	306		
CONVECTION REFLOW			235C +/-0C	3	PASS	306	6	
Total:							6	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
STORAGE LIFE	0437	DS600	150C	1000	HRS	77	0	
STORAGE LIFE	0501	DS1088L	150C	1000	HRS	77	1	
Total:							1	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
TEMP CYCLE	0413	DS1094L	-55C TO 125C	1000	CYS	77	0	
TEMP CYCLE	0501	DS1088L	-55C TO 125C	1000	CYS	77	3	
Total:							3	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
AUTOCLAVE	0413	DS1094L	121C, 2 ATM STEAM, UNBIASED	168	HRS	85	0	
AUTOCLAVE	0501	DS1088L	121C, 2 ATM STEAM, UNBIASED	168	HRS	70	3	
Total:							3	

Assembly Information:

Package Type: uSOP (Pb-Free) 3mm
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) Level 1
 Date Code Range: 0425 to 0425

MOISTURE SENSITIVITY LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
EXTERNAL VISUAL	0425	DS2740	J-STD-020, 6.1a		8	0		
ULTRASOUND			J-STD-020		8	0		
STORAGE LIFE			125C	24	HRS	8		
MOISTURE SOAK			85 C/85% R.H.	168	HRS	8		
CONVECTION REFLOW			260C +/-0/-5C	3	PASS	8	0	
EXTERNAL VISUAL			J-STD-020, 6.1a		8	0		
PRECONDITION U/S			J-STD-020		8	0		
Total:							0	

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
HIGH TEMP OP LIFE	0425	DS2740	125C, 5.5 VOLTS	1000	HRS	45	0	
Total:							0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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SOLDERABILITY (Sn/Pb)	0425	DS2740	JESD22-B102, COND C	3	0
X-RAY	0425	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
Total:				0	0

PRECONDITIONING LEVEL 1

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0425	DS2740	125C	24 HRS	385		
MOISTURE SOAK			85 C/85% R.H.	168 HRS	385		
CONVECTION REFLOW			260C +/-5C	3 PASS	385	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0425	DS2740	150C	1000 HRS	77	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0425	DS2740	-55C TO 125C	1000 CYS	77	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST, NO BIAS	0425	DS2740	130C, 85% R.H.	200 HRS	77	0	
AUTOCLAVE	0425	DS2740	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
Total:						0	

FAILURE RATE: MTTF (YRS): 62134 FITS: 1.8