

RELIABILITY MONITOR REPORT
FOR

PDIP 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)	14	PDIP	ATP (Amkor, PI)	16 PDIP
ATP (Amkor, PI)	18	PDIP	ATP (Amkor, PI)	20 PDIP
ATP (Amkor, PI)	24	PDIP	ATP (Amkor, PI)	28 PDIP
ATP (Amkor, PI)	40	PDIP	ATP (Amkor, PI)	8 PDIP
ATP (Amkor, PI)	14	PDIP (Pb-Free)	ATP (Amkor, PI)	16 PDIP (Pb-Free)
ATP (Amkor, PI)	18	PDIP (Pb-Free)	ATP (Amkor, PI)	20 PDIP (Pb-Free)
ATP (Amkor, PI)	24	PDIP (Pb-Free)	ATP (Amkor, PI)	28 PDIP (Pb-Free)
ATP (Amkor, PI)	40	PDIP (Pb-Free)	ATP (Amkor, PI)	8 PDIP (Pb-Free)
Carsem	14	PDIP	Carsem	16 PDIP
Carsem	24	PDIP	Carsem	14 PDIP (Pb-Free)
ISPL (ATEC, PI)	24	PDIP	ISPL (ATEC, PI)	28 PDIP
ISPL (ATEC, PI)	40	PDIP	ISPL (ATEC, PI)	0 PDIP (Pb-Free)
ISPL (ATEC, PI)	24	PDIP (Pb-Free)	ISPL (ATEC, PI)	28 PDIP (Pb-Free)
ISPL (ATEC, PI)	40	PDIP (Pb-Free)	OSEP	14 PDIP
OSEP	16	PDIP	OSEP	8 PDIP
OSEP	14	PDIP (Pb-Free)	OSEP	16 PDIP (Pb-Free)
OSEP	8	PDIP (Pb-Free)	UTL (NSEB) UTAC	8 PDIP
UTL (NSEB) UTAC	8	PDIP (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 82488 FITS: 1.4

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. 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 7/1/2005 and 6/30/2006 .

Assembly Information:

Package Type: PDIP 300
 Flammability: UL 94-V0
 Moisture Sensitivity NA
 (JEDEC J-STD20A)
 Date Code Range: 0528 to 0608

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0528	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0546	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0608	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0608	DS1302	150C	1000 HRS	80	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0528	DS1302	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0546	DS1302	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0608	DS1302	-55C TO 125C	1000 CYS	45	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0528	DS1302	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0546	DS1302	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0608	DS1302	85/85, 5.5 VOLTS	1000 HRS	77	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0528	DS1302	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
AUTOCLAVE	0546	DS1302	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
AUTOCLAVE	0608	DS1302	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
Total:						0	

Assembly Information:

Package Type: PDIP 600
Flammability: UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A) NA
Date Code Range: 0518 to 0612

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0518	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0547	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0612	DS12885	125C, 5.5 VOLTS	1000 HRS	77	0	
Total:						0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
ULTRASOUND	0518	DS80C320	J-STD-020		25	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0518	DS80C320	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0547	DS80C320	-55C TO 125C	1000 CYS	45	0	

TEMP CYCLE	0612	DS12885	-55C TO 125C	1000	CYS	77	0
				Total:			0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0518	DS80C320	85/85, 5.5 VOLTS	1000	HRS	45	0
BIASED MOISTURE	0547	DS80C320	85/85, 5.5 VOLTS	1000	HRS	45	1 30047208
HAST	0612	DS12885	130C, 85%R.H.,5.5V	96	HRS	77	0
				Total:			1

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0518	DS80C320	121C, 2 ATM STEAM, UNBIASED	168	HRS	45	0
AUTOCLAVE	0547	DS80C320	121C, 2 ATM STEAM, UNBIASED	168	HRS	45	0
AUTOCLAVE	0612	DS12885	121C, 2 ATM STEAM, UNBIASED	168	HRS	77	0
				Total:			0

Assembly Information:

Package Type: PDIP (Pb-Free) 600
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A) NA
 Date Code Range: 0548 to 0549

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0548	DS12885	125C, 5.0 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0548	DS12885	125C, 5.0 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0549	DS80C320	125C, 5.5 VOLTS	1000	HRS	77	0
				Total:			0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
SOLDERABILITY (Sn/Pb)	0548	DS12885	JESD22-B102, COND C		3	0	
SOLDERABILITY (Pb-Free)			JESD22-B102, COND C		3	0	
X-RAY	0548	DS12885	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	
SOLDERABILITY (Sn/Pb)	0548	DS12885	JESD22-B102, COND C		3	0	
SOLDERABILITY (Pb-Free)			JESD22-B102, COND C		3	0	
X-RAY	0548	DS12885	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	

SOLDERABILITY (Sn/Pb)	0549	DS80C320	JESD22-B102, COND C	3	0
SOLDERABILITY (Pb-Free)			JESD22-B102, COND C	3	0
X-RAY	0549	DS80C320	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

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0548	DS12885	150C	1000 HRS	77	0	
STORAGE LIFE	0548	DS12885	150C	1000 HRS	77	0	
STORAGE LIFE	0549	DS80C320	150C	1000 HRS	77	0	
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0548	DS12885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0548	DS12885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0549	DS80C320	-55C TO 125C	1000 CYS	77	0	
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0548	DS12885	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0548	DS12885	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0549	DS80C320	85/85, 5.5 VOLTS	1000 HRS	77	0	
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0548	DS12885	121C, 2 ATM STEAM, UNBIASED	168 HRS	76	0	
AUTOCLAVE	0548	DS12885	121C, 2 ATM STEAM, UNBIASED	168 HRS	75	0	
AUTOCLAVE	0549	DS80C320	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
Total:						0	0

FAILURE RATE: MTTF (YRS): 82488 FITS: 1.4