

RELIABILITY MONITOR REPORT
FOR

PDIP 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		
A TEC	24	PDIP	A TEC	28 PDIP
A TEC	40	PDIP	A TEC	24 PDIP (Pb-Free)
A TEC	40	PDIP (Pb-Free)	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)	20 PDIP (Pb-Free)
ATP (Amkor, PI)	24	PDIP (Pb-Free)	ATP (Amkor, PI)	28 PDIP (Pb-Free)
ATP (Amkor, PI)	8	PDIP (Pb-Free)	Carsem	14 PDIP
Carsem	16	PDIP	Carsem	24 PDIP
NSEB	8	PDIP	OSEP	14 PDIP
OSEP	16	PDIP	OSEP	8 PDIP

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 78727 FITS: 1.5

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: PDIP 300 mil
 Flammability: UL 94-V0
 Moisture Sensitivity NA
 (JEDEC J-STD20A)
 Date Code Range: 0348 to 0447

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0348	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0404	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0447	DS1302	125C, 5.5 VOLTS	1000 HRS	80	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0348	DS1302	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0404	DS1302	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0447	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	0348	DS1302	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0404	DS1302	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0447	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	0348	DS1302	121C, 2 ATM STEAM, UNBIASED	96 HRS	45	0	
AUTOCLAVE	0404	DS1302	121C, 2 ATM STEAM, UNBIASED	96 HRS	45	0	
AUTOCLAVE	0447	DS1302	121C, 2 ATM STEAM, UNBIASED	96 HRS	45	0	
					Total:	0	

Assembly Information:

Package Type: PDIP 600 mil
Flammability: UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A) NA
Date Code Range: 0351 to 0450

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0351	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0435	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0450	DS80C320	125C, 5.5 VOLTS	1000 HRS	77	0	
					Total:	0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
ULTRASOUND	0435	DS80C320	J-STD-020		244	0	
ULTRASOUND	0450	DS80C320	J-STD-020		244	0	
					Total:	0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0351	DS80C320	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0435	DS80C320	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0450	DS80C320	-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	0351	DS80C320	85/85, 5.5 VOLTS	1000 HRS	77	0	

BIASED MOISTURE	0435	DS80C320	85/85, 5.5 VOLTS	500	HRS	77		
BIASED MOISTURE	0450	DS80C320	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	0351	DS80C320	121C, 2 ATM STEAM, UNBIASED	96	HRS	45	0	
AUTOCLAVE	0435	DS80C320	121C, 2 ATM STEAM, UNBIASED	96	HRS	45		
AUTOCLAVE	0450	DS80C320	121C, 2 ATM STEAM, UNBIASED	96	HRS	45		
Total:							0	

Assembly Information:

Package Type: PDIP (Pb-Free) 600 mil
 Flammability: UL 94-V0
 Moisture Sensitivity (JEDEC J-STD20A): NA
 Date Code Range: 0432 to 0433

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
HIGH TEMP OP LIFE	0432	DS12885	125C, 5.0 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0432	DS12885	125C, 5.0 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0433	DS80C320	125C, 5.5 VOLTS	1000	HRS	45	0	
Total:							0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO	
SOLDERABILITY (Sn/Pb)	0432	DS12885	JESD22-B102, COND C		3	0		
X-RAY	0432	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)	0432	DS12885	JESD22-B102, COND C		3	0		
X-RAY	0432	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		
X-RAY	0433	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	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	0432	DS12885	150C	1000	HRS	77	0
STORAGE LIFE	0432	DS12885	150C	1000	HRS	77	0

STORAGE LIFE	0433	DS80C320	150C	1000 HRS	55	0
Total:						0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE	0432	DS12885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0432	DS12885	-55C TO 125C	1000 CYS	77	0	
TEMP CYCLE	0433	DS80C320	-55C TO 125C	1000 CYS	60	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	0432	DS12885	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0432	DS12885	85/85, 5.5 VOLTS	1000 HRS	77	0	
BIASED MOISTURE	0433	DS80C320	85/85, 5.5 VOLTS	1000 HRS	45	0	
Total:						0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0432	DS12885	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
AUTOCLAVE	0432	DS12885	121C, 2 ATM STEAM, UNBIASED	168 HRS	77	0	
AUTOCLAVE	0433	DS80C320	121C, 2 ATM STEAM, UNBIASED	168 HRS	58	0	
Total:						0	

FAILURE RATE: MTTF (YRS): 78727 FITS: 1.5