

RELIABILITY MONITOR REPORT  
FOR

**TO 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		
Carsem	3	TO220	Carsem	2 TO92
Carsem	3	TO92	Carsem	2 TO92 (Pb-Free)
Carsem	3	TO92 (Pb-Free)	CIRTEK	2 TO92
CIRTEK	3	TO92	CIRTEK	2 TO92 (Pb-Free)
CIRTEK	3	TO92 (Pb-Free)	Hana	3 PR35 (Pb-Free) (TO226)
Hana	3	TO226 (PR35)	Hana	2 TO92
Hana	3	TO92	Hana	2 TO92 (Pb-Free)
Hana	3	TO92 (Pb-Free)	Omedata	3 TO92

The calculated failure rate for this assembly is:

**FAILURE RATE:                    MTTF (YRS): 55109                    FITS: 2.1**

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.

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**Assembly Information:**

Package Type:                    TO92 150  
 Flammability:                    UL 94-V0  
 Moisture Sensitivity  
 (JEDEC J-STD20A)                    NA  
 Date Code Range:                    0527    to    0629

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	0527	DS2401	125C, 6.0 VOLTS	1000 HRS	75	0	
HIGH TEMP OP LIFE	0539	DS1820B	125C, 5.5 VOLTS	1000 HRS	77	0	
HIGH TEMP OP LIFE	0541	DS2401	125C, 6.0 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0607	DS2401	125C, 6.0 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0614	DS2401	125C, 6.0 VOLTS	1000 HRS	80	0	
HIGH TEMP OP LIFE	0629	DS2503	125C, 6.0 VOLTS	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

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**PACKAGE TESTS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
DROP	0527	DS2401	25 C	36	CYS	250	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	0607	DS2401	150C	1000 HRS	77	0	

STORAGE LIFE	0614	DS2401	150C	1000 HRS	77	0
STORAGE LIFE	0629	DS2503	150C	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	0527	DS2401	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0541	DS2401	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0607	DS2401	-55C TO 125C	1000 CYS	45	0	
TEMP CYCLE	0614	DS2401	-55C TO 125C	1000 CYS	45	0	
<b>Total:</b>						<b>0</b>	

**TEMPERATURE HUMIDITY BIAS**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HAST	0527	DS2401	130C, 85%R.H.,5.5V	96 HRS	70	0	
HAST	0541	DS2401	130C, 85%R.H.,5.5V	96 HRS	77	0	
HAST	0607	DS2401	130C, 85%R.H.,5.5V	96 HRS	77	0	
HAST	0614	DS2401	130C, 85%R.H.,5.5V	96 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
AUTOCLAVE	0527	DS2401	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
AUTOCLAVE	0541	DS2401	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
AUTOCLAVE	0607	DS2401	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
AUTOCLAVE	0614	DS2401	121C, 2 ATM STEAM, UNBIASED	168 HRS	45	0	
<b>Total:</b>						<b>0</b>	

**FAILURE RATE:                    MTTF (YRS): 55109                    FITS: 2.1**