DALLAS SEMICONDUCTOR MAXIM

10/2/2006

RELIABILITY REPORT
FOR

DS3030W, Rev A, RoHS

Dallas Semiconductor

4401 South Beltwood Parkway
Dallas, TX 75244-3292

Prepared by:

Ken Wendel
Reliability Engineering Manager
Dallas Semiconductor
4401 South Beltwood Pkwy.
Dallas, TX 75244-3292
Email : ken.wendel@dalsemi.com
ph: 972-371-3726
fax: 972-371-6016
mbl: 214-435-6610

Conclusion:

The following qualification successfully meets the quality and reliability standards required of all Dallas Semiconductor products and processes:

DS3030W, Rev A, RoHS

In addition, Dallas Semiconductor's continuous reliability monitor program ensures that all outgoing product will continue to meet Maxim's quality and reliability standards. The current status of the reliability monitor program can be viewed at http://www.maxim-ic.com/TechSupport /dsreliability.html.*

Module Description

A description of this Module can be found in the product data sheet. You can find the product data sheet at http://dbserv.maxim-ic.com/l_datasheet3.cfm.*

Reliability Derating:

A module device consists of one or more IC's in a single, upward integrated, package. This package is assembled to include batteries, crystals, and other piece parts that make up the configuration of the Module. Because of either the complexity of the package or the included piece parts, standard high temperature reliability testing is not possible. Therefore, in order to determine the reliability of module products, the reliability of each of the piece parts is individually determined, then summed to determine the reliability of the integrated module product. If there are "n" significant components in the module then:

Fr (module) = Fr (1) + Fr (2) + Fr (3) + ... + Fr (n)
Fr (module) = Failure rate of module
Fr(n) = Failure rate of the nth component

Failure Rates are reported in FITs (Failures in Time) or MTTF (Mean Time To Failure). The FIT rate is related to MTTF by:

MTTF = 1/Fr

NOTE: MTTF is frequently used interchangeably with MTBF.

The calculated failure rate for this module/assembly is:

Module Device:	Module Units:	Quantity:	Fails:	Ea:	Beta:	MTTF (Yrs):	FITs:
256K SRAM 3V	**1**	**2187**	**0**	**0.7**	**0.0**	**198323**	**0.6**
CRYSTAL	**1**	**100**	**0**	**0.7**	**0.0**	**12463**	**9.2**
DS1310	**1**	**1862**	**0**	**0.7**	**0.0**	**211624**	**0.5**
ML2020R	**1**	**45**	**0**	**0.7**	**0.0**	**3527**	**32.4**
Totals:						**2677**	**42.6**

The parameters used to calculate the module failure rate are as follows

Cf: 60% **Tu: 25** **°C** **Vu: 3** **Volts**

The reliability data follows. At the start of this data is the module assembly information. This is a description of the module. The next section is the detailed reliability data for each stress found in the qualification / monitor. If there are additional processes or assemblies used as part of this report, a description of each will follow which includes the respective reliability data for that process/ assembly. The reliability data section includes the latest data available. Some of this data may be generic with other packages or products.

* Some proprietary products may be excepted from this requirement

Assembly Information:

Assembly Site:	Dallas
Pin Count:	256
Package Type:	Single Piece BGA Module w/Battery & Crystal (Server RoHS
Body Size:	27x27x7.9
Mold Compound:	NA
Lead Frame:	PCB; BT
Lead Finsh:	SnPb Ball (63/37)
Die Attach:	n/a
Bond Wire / Size:	Au / 1.0 mil
Flammability:	UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A)	Level 3
Date Code Range:	0606 to 0615

PACKAGE TESTS

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
X-RAY	0606	MIL-STD-883-2012 : TOP & SIDE VIEW			6	0	
PHYSICAL DIMENSIONS		JESD22-B100			6	0	
MARK PERMANENCY		JESD22-B107			6	0	
BALL SHEAR		JESD22-B117			6	0	
EXTERNAL VISUAL		JESD22-B101			6	0	
				Total:		**0**	

PRECONDITIONING LEVEL 3

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
STORAGE LIFE	0606	125C	48	HRS	275		
MOISTURE SOAK		30C/60% R.H.	192	HRS	275		
CONVECTION REFLOW		220C +5/-0C	2	PASS	275		
GROSS LEAK		25 C, AIR PRESSURE DECAY			275	0	
EXTERNAL VISUAL		JESD22-B101			275	0	

			Total:		0

FOLLOWED BY:

MECHANICAL LIFE

DESCRIPTION	CONDITION	READPOINT		QTY	FAILS	FA#
VIBRATION, VARIABLE FREQUENCY	10g or 0.06", 5Hz-2KHz, X Y Z axis	9	HRS	22	0	
MECHANICAL SHOCK	200G, 1/2 SINE, 6 MS	30	CYS	22	0	
			Total:		0	

STORAGE LIFE

DESCRIPTION	CONDITION	READPOINT		QTY	FAILS	FA#
STORAGE LIFE	85 C	1000	HRS	77	0	
			Total:		0	

TEMPERATURE CYCLE

DESCRIPTION	CONDITION	READPOINT		QTY	FAILS	FA#
TEMP CYCLE	-40 TO 85C	1000	CYS	77	0	
			Total:		0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	CONDITION	READPOINT		QTY	FAILS	FA#
FLUX DIP & H20 RINSE	JESD22-A113	1	HRS	77	0	
BIASED MOISTURE (BATTERY)	60C/90% R.H., BATTERY BIAS	1000	HRS	77	0	
			Total:		0	

CONSTRUCTION ANALYSIS

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
PACKAGE, ASSEMBLY PROCESS	0606	TO BE DONE BY F/A	2		3	0	
				Total:		0	

PACKAGE TESTS

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
X-RAY	0615	MIL-STD-883-2012 : TOP & SIDE VIEW			6	0	
PHYSICAL DIMENSIONS		JESD22-B100			6	0	
MARK PERMANENCY		JESD22-B107			6	0	
BALL SHEAR		JESD22-B117			6	0	
EXTERNAL VISUAL		JESD22-B101			6	0	
				Total:		0	

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EXTERNAL VISUAL		JESD22-B101			275	0	

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FOLLOWED BY:

MECHANICAL LIFE

DESCRIPTION	CONDITION	READPOINT		QTY	FAILS	FA#
VIBRATION, VARIABLE FREQUENCY	10g or 0.06", 5Hz-2KHz, X Y Z axis	9	HRS	22	0	
MECHANICAL SHOCK	200G, 1/2 SINE, 6 MS	30	CYS	22	0	
			Total:		**0**	

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