09/23/2004

RELIABILITY REPORT
FOR

DS1921G

Dallas Semiconductor

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Prepared by:

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Conclusion:

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

DS1921G

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:	MTTF (Yrs):	FITs:
BR1225	**1**	**100**	**1**	**1.0**	**175984**	**0.6**
DS1921	**1**	**2052**	**2**	**0.7**	**21998**	**5.2**
DS9503	**1**	**152**	**0**	**0.8**	**47516**	**2.4**
Totals:					**13853**	**8.2**

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

Cf: 60% **Tu: 25** **°C**

The reliability data follows. A 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:	2
Package Type:	Puk Can F50 Rev B w/Bump
Body Size:	0
Mold Compound:	FP4323, Dexter Hysol
Lead Frame:	PCB; FR4
Lead Finsh:	
Die Attach:	Underfill FP4527, Dexter Hysol
Bond Wire / Size:	/
Flammability:	UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A)	
Date Code Range:	0047 to 0102

MECHANICAL LIFE

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
MECHANICAL SHOCK	0047	200G, 1/2 SINE, 6 MS	30	CYS	50	0	
VIBRATION, VARIABLE FREQUENCY	0047	10g or 0.06", 5Hz-2KHz, X Y Z axis	9	HRS	50	0	
MECHANICAL SHOCK	0102	200G, 1/2 SINE, 6 MS	30	CYS	50	0	
VIBRATION, VARIABLE FREQUENCY	0102	10g or 0.06", 5Hz-2KHz, X Y Z axis	9	HRS	50	0	
				Total:		**0**	

STORAGE LIFE

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
STORAGE LIFE	0047	85 C	1000	HRS	77	0	
STORAGE LIFE	0102	85 C	1000	HRS	77	0	
				Total:		**0**	

TEMPERATURE CYCLE

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
TEMP CYCLE	0047	-40 TO 85C	1000	CYS	77	0	
TEMP CYCLE	0102	0C TO 70C	1000	CYS	77	0	
TEMP CYCLE	0102	-40 TO 85C	1000	CYS	77	0	
				Total:		**0**	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CD	CONDITION	READPOINT	QTY	FAILS	FA#

MOISTURE SOAK	0047	60C/90% R.H.	960	HRS	77	0
MOISTURE SOAK	0102	60C/90% R.H.	960	HRS	77	0
				Total:		**0**

Assembly Information:

Assembly Site:	Dallas
Pin Count:	2
Package Type:	Puk Can F50 Rev B w/Bump & overmold lid
Body Size:	0
Mold Compound:	?
Lead Frame:	PCB; FR4
Lead Finsh:	
Die Attach:	Underfill FP4527, Dexter Hysol
Bond Wire / Size:	/
Flammability:	UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A)	
Date Code Range:	0344 to 0344

ELECTRICAL CHARACTERIZATION

DESCRIPTION	DATE CD	CONDITION	READPOINT		QTY	FAILS	FA#
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 2000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 4000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 6000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 8000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 2000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 4000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 8000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 15000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 20000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 2000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 4000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 6000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 CONTACT 8000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 2000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 4000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 8000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 15000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0344	IEC 1000-4-2 AIR 20000 VOLTS	10	PUL'S	3	0	
				Total:		**0**	