RELIABILITY REPORT
FOR

DS1963S

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:

DS1963S

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:

$$Fr \ (module) = Fr \ (1) + Fr \ (2) + Fr \ (3) + ... + Fr \ (n)$$
$$Fr \ (module) = \text{Failure rate of module}$$
$$Fr(n) = \text{Failure rate of the nth component}$$

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:	Quantity:	MTTF (Yrs):	FITs:
DS2421	1	20404	5.6
Totals:		20404	6

The parameters used to calculate the module 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 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 proprietary products may be excepted from this requirement.

Assembly Information:

Qualification Vehicle:	DS1963S
Assembly Site:	Dallas
Pin Count:	2
Package Type:	iButton F50 w/Bump
Body Size:	0
Mold Compound:	FP4323, Dexter Hysol
Lead Frame:	Printed Crt Brd; FR4
Lead Finsh:	
Die Attach:	Underfill FP4527, Dexter Hysol
Bond Wire / Size:	Al / 1.25 mil
Flammability:	UL 94-V0
Moisture Sensitivity (JEDEC J-STD20A)	
Date Code Range:	9939 to 9939

MECHANICAL LIFE

DESCRIPTION	DATE CODE	CONDITION	READPOINT		QUANTITY	FAILS
MECHANICAL SHOCK	9939	200G, 1/2 SINE, 6 MS	30	CYS	50	0
VIBRATION, VARIABLE F	9939	10g or 0.06", 5Hz-2KHz, X Y Z axis	9	HRS	50	0
				Total:		**0**

STORAGE LIFE

DESCRIPTION	DATE CODE	CONDITION	READPOINT		QUANTITY	FAILS
STORAGE LIFE	9939	25 C	1144	HRS	22	0
STORAGE LIFE	9939	85 C	1000	HRS	77	0
				Total:		**0**

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	CONDITION	READPOINT		QUANTITY	FAILS
TEMP CYCLE	9939	-40 TO 85C	1000	CYS	77	3
				Total:		**3**

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	CONDITION	READPOINT		QUANTITY	FAILS
MOISTURE SOAK	9939	85 C/85% R.H.	959	HRS	77	0
				Total:		**0**