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PRODUCT RELIABILITY REPORT
FOR

DS1337, Rev B1

Maxim Integrated Products

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Conclusion:

The following qualification successfully meets the quality and reliability standards required of all Maxim products:

DS1337, Rev B1

In addition, Maxim'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.

Device Description:

A description of this device 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:

The Arrhenius model will be used to determine the acceleration factor for failure mechanisms that are temperature accelerated.

AfT = exp((Ea/k)*(1/Tu - 1/Ts)) = tu/ts
AfT = Acceleration factor due to Temperature
tu = Time at use temperature (e.g. 55°C)
ts = Time at stress temperature (e.g. 125°C)
k = Boltzmann's Constant (8.617 x 10-5 eV/°K)
Tu = Temperature at Use (°K)
Ts = Temperature at Stress (°K)
Ea = Activation Energy (e.g. 0.7 ev)

The activation energy of the failure mechanism is derived from either internal studies or industry accepted standards, or activation energy of 0.7ev will be used whenever actual failure mechanisms or their activation energies are unknown. All deratings will be done from the stress ambient temperature to the use ambient temperature.

An exponential model will be used to determine the acceleration factor for failure mechanisms, which are voltage accelerated.

AfV = exp(B*(Vs - Vu))
AfV = Acceleration factor due to Voltage
Vs = Stress Voltage (e.g. 7.0 volts)
Vu = Maximum Operating Voltage (e.g. 5.5 volts)
B = Constant related to failure mechanism type (e.g. 1.0, 2.4, 2.7, etc.)

The Constant, B, related to the failure mechanism is derived from either internal studies or industry accepted standards, or a B of 1.0 will be used whenever actual failure mechanisms or their B are unknown. All deratings will be done from the stress voltage to the maximum operating voltage. Failure rate data from the operating life test is reported using a Chi-Squared statistical model at the 60% or 90% confidence level (Cf).

The failure rate, Fr, is related to the acceleration during life test by:

Fr = X/(ts * AfV * AfT * N * 2)
X = Chi-Sq statistical upper limit
N = Life test sample size

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 device/process is:

FAILURE RATE:	**MTTF (YRS):**	**244685**	**FITS:**	**0.5**
	DEVICE HOURS:	**1964013472**	**FAILS:**	**0**

Only data from Operating Life or similar stresses are used for this calculation.

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 the device information. The next section is the detailed reliability data for each stress. The reliability data section includes the latest data available and may contain some generic data. **Bold** Product Number denotes specific product data.

Device Information:

Process:	E6H-2P2M,HPVt,PF-Ring,TCN1,ALOCOS:GOI
Passivation:	Passivation w/Nov TEOS Oxide-Nitride
Die Size:	56 x 68
Number of Transistors:	2904
Interconnect:	Aluminum / 0.5% Copper
Gate Oxide Thickness:	150 Å

ELECTRICAL CHARACTERIZATION

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN		QTY	FAILS	FA#
ESD SENSITIVITY	0550	**DS1337**	QJ618643BB	EOS/ESD S5.1 HBM 500 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0550	**DS1337**	QJ618643BB	EOS/ESD S5.1 HBM 1000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0550	**DS1337**	QJ618643BB	EOS/ESD S5.1 HBM 2000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0550	**DS1337**	QJ618643BB	EOS/ESD S5.1 HBM 4000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0550	**DS1337**	QJ618643BB	EOS/ESD S5.1 HBM 8000 VOLTS	1	PUL'S	3	1	No FA
LATCH-UP	0550	**DS1337**	QJ618643BB	JESD78, I-TEST 125C			6	0	
LATCH-UP	0550	**DS1337**	QJ618643BB	JESD78, V-SUPPLY TEST 125C			6	0	
					Total:			**1**	

OPERATING LIFE

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN		QTY	FAILS	FA#
HIGH TEMP OP LIFE	0541	DS21352	VK532573AB	125C, 3.3 VOLTS	1000	HRS	77	0	

HIGH TEMP OP LIFE	0544	DS2154	VK502194AA	125C, 5.0 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0545	DS1672	QK607618B	125C, 3.6 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0550	**DS1337**	QJ618643BB	125C, 5.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0603	DS4404	QJ626605BB	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0609	DS21448	QC617552A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0609	DS21448	QC617552A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0611	DS21Q352	QK617549A	125C, 3.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0611	DS21Q352	QK617549A	125C, 3.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0614	DS21Q50	VK610239AA	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0621	DS21Q50	QK533115A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0621	DS21Q50	QK533115A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0622	DS21Q50	QK533115A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0622	DS21Q50	IN536397AA	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0623	DS4404	QJ626605AB	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0623	DS2714	QK634604A	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0625	DS1805	QK627357A	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0627	DS21354	QC624120A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0630	DS1805	QE644159A	125C, 5.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0641	DS21348	QC624121A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0644	DS2154	QK648227A	125C, 5.25 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0645	DS21448	QK650371A	125C, 3.3 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0704	DS3205	QJ718179BB	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0709	DS1090	QK523784A	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0710	DS21448	QC718668A	125C, 3.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0722	DS1311	QJ718603BB	125C, 5.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0722	DS1337C	VH717021AB	125C, 5.5 VOLTS	1000	HRS	77	0
HIGH TEMP OP LIFE	0723	DS1372	QD728621B	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0728	DS1775	QJ718116AF	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0728	DS1775	QJ718116AF	125C, 5.5 VOLTS	1000	HRS	33	0
HIGH TEMP OP LIFE	0729	DS4412	QD743601A	125C, 5.5V (PSA) & 3.0V (PSB)	1000	HRS	45	0
HIGH TEMP OP LIFE	0735	DS1050	QJ704631CA	125C, 5.5 VOLTS	1000	HRS	77	0

HIGH TEMP OP LIFE	0806	DS2710	QJ751638CC	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0819	DS21448	QS751045A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0819	DS21448	QS751045A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0819	DS21448	QS751045A	125C, 3.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0824	DS2482-101	QJ840074AE	125C, 5.5 VOLTS	1000	HRS	45	0
HIGH TEMP OP LIFE	0840	DS1843	QU904638A	125C, 5.5 VOLTS	192	HRS	45	0
HIGH TEMP OP LIFE	0843	DS1090	VJ645637AE	125C, 5.5 VOLTS	408	HRS	45	0
HIGH TEMP OP LIFE	0843	DS1090	VJ645637AE	125C, 5.5 VOLTS	408	HRS	45	0
					Total:			**0**

FAILURE RATE:	**MTTF (YRS):**	**244685**	**FITS:**	**0.5**	
	DEVICE HOURS:	**1964013472**	**FAILS:**	**0**	