3/7/2008

PRODUCT RELIABILITY REPORT
FOR

DS34T108, Rev A1

Maxim Integrated Products

4401 South Beltwood Parkway
Dallas, TX 75244-3292

Prepared by:

Ken Wendel
Director, Reliability Engineering
Maxim Integrated Products
4401 South Beltwood Pkwy.
Dallas, TX 75244-3292
Email : ken.wendel@maxim-ic.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 Maxim products:

DS34T108, Rev A1

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):**	**81035**	**FITS:**	**1.4**
	DEVICE HOURS:	**689640**	**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:	TSMC Fab8B 0.18um Logic General Purpose 1P6M Salicide 1.8V/3.3V, Phase II
Passivation:	Laser/TEOS Ox - Pass/Nit -PreLP+GenLP
Die Size:	435 x 435
Number of Transistors:	0
Interconnect:	Aluminum / 0.5% Copper
Gate Oxide Thickness:	32 Å

ELECTRICAL CHARACTERIZATION

DESCRIPTION	DATE	CODE/PRODUCT/LOT		CONDITION	READPOINT		QTY	FAILS	FA#
ESD SENSITIVITY	0648	**DS34T108**	QN074782	EOS/ESD S5.1 HBM 500 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0648	**DS34T108**	QN074782	EOS/ESD S5.1 HBM 1000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0648	**DS34T108**	QN074782	EOS/ESD S5.1 HBM 2000 VOLTS	1	PUL'S	3	0	
LATCH-UP	0648	**DS34T108**	QN074782	JESD78, I-TEST 125C			6	0	
LATCH-UP	0648	**DS34T108**	QN074782	JESD78, V-SUPPLY TEST 125C			6	0	
					Total:			**0**	

OPERATING LIFE

DESCRIPTION	DATE	CODE/PRODUCT/LOT		CONDITION	READPOINT		QTY	FAILS	FA#
HIGH TEMP OP LIFE	0452	DS31612	QR561723	125C, 3.5V (PSA) & 2.0V (PSB)	1000	HRS	45	0	
HIGH TEMP OP LIFE	0527	DS31612	QR561723	125C, 3.5V (PSA) & 2.0V (PSB)	1000	HRS	45	0	
HIGH TEMP OP LIFE	0607	DS3100	QK062588	125C, 3.5V (PSA) & 2.0V (PSB)	1000	HRS	45	0	
HIGH TEMP OP LIFE	0625	DS32512	QK062588	125C, 2.0V (PSA) & 3.5V (PSB)	1000	HRS	45	0	
HIGH TEMP OP LIFE	0642	DS32504	QL064723A	125C, 2.0V (PSA) & 3.5V (PSB)	1000	HRS	45	0	
HIGH TEMP OP LIFE	0647	DS26519	QN062959	125C, 2.0V (PSB) & 3.5V (PSA)	1000	HRS	45	0	

HIGH TEMP OP LIFE	0648	**DS34T108**	QN074782	125C, 2.0V (PSB) & 3.5V (PSA)	1000	HRS	45	0
HIGH TEMP OP LIFE	0649	DS33X162	QK076138	125C, 2.0V (PSB) & 3.5V (PSA)	1000	HRS	45	0
HIGH TEMP OP LIFE	0705	DS3104	QC076354	125C, 3.5V (PSA) & 2.0V (PSB)	1000	HRS	45	0
HIGH TEMP OP LIFE	0705	DS3100	QK073291	125C, 3.5V (PSA) & 2.0V (PSB)	1000	HRS	48	0
HIGH TEMP OP LIFE	0708	DS32512	QK073291	125C, 2.0V (PSA) & 3.5V (PSB)	1000	HRS	45	0
HIGH TEMP OP LIFE	0709	DS26519	QN062959	125C, 2.0V (PSB) & 3.5V (PSA)	1000	HRS	48	0
HIGH TEMP OP LIFE	0720	DS26519	QN076204	125C, 2.0V (PSB) & 3.5V (PSA)	1000	HRS	45	0
HIGH TEMP OP LIFE	0731	DS3104	QC073632	125C, 3.5V (PSA) & 2.0V (PSB)	1000	HRS	45	0
HIGH TEMP OP LIFE	0743	DS32506	QK074592	125C, 2.0V (PSA) & 3.5V (PSB)	1000	HRS	45	0
HIGH TEMP OP LIFE	0744	DS33X162	QK075519	125C, 2.0V (PSB) & 3.5V (PSA)	192	HRS	45	0
					Total:			**0**

FAILURE RATE:	**MTTF (YRS):**	**81035**	**FITS:**	**1.4**	
	DEVICE HOURS:	**689640**	**FAILS:**	**0**	