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PRODUCT RELIABILITY REPORT
FOR

DS8024, Rev A2

Maxim Integrated Products

4401 South Beltwood Parkway
Dallas, TX 75244-3292

Prepared by:

Don Lipps
Manager, Reliability Engineering
Maxim Integrated Products
4401 South Beltwood Pkwy.
Dallas, TX 75244-3292
Email: don.lipps@maxim-ic.com
ph: 972-371-3739
fax: 972-371-6016

Conclusion:

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

DS8024, Rev A2

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):**	**57304**	**FITS:**	**2.0**
	DEVICE HOURS:	**487680**	**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: 6** **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:	B8, San Antonio B8 flow with TMA Topglass.
Passivation:	OxyNit LaserNoA&E - Pass/Nov.TEOS/OxyNit -Gen.LaserP
Die Size:	103 x 82
Number of Transistors:	9718
Interconnect:	Aluminum / 0.5% Copper
Gate Oxide Thickness:	NA

ESD HBM

DESCRIPTION	DATE CODE	PRODUCT	LOT	CONDITION	READPOINT		QTY	FAILS	FA#
ESD SENSITIVITY	0833	**DS8024**	QM832036	JESD22-A114 HBM 500 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	JESD22-A114 HBM 1000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	JESD22-A114 HBM 2000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	JESD22-A114 HBM 4000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	JESD22-A114 HBM 6000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	JESD22-A114 HBM 8000 VOLTS	1	PUL'S	3	0	
					Total:			**0**	

ESD IEC

DESCRIPTION	DATE CODE	PRODUCT	LOT	CONDITION	READPOINT		QTY	FAILS	FA#
ESD SENSITIVITY	0833	**DS8024**	QM832036	IEC 61000-4-2 CONTACT 2000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	IEC 61000-4-2 CONTACT 4000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	IEC 61000-4-2 CONTACT 6000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	IEC 61000-4-2 CONTACT 8000 VOLTS	10	PUL'S	3	0	
ESD SENSITIVITY	0833	**DS8024**	QM832036	IEC 61000-4-2 AIR 8000 VOLTS	10	PUL'S	3	0	
					Total:			**0**	

ESD MM

DESCRIPTION	DATE CODE	PRODUCT	LOT	CONDITION	READPOINT	QTY	FAILS	FA#

ESD SENSITIVITY	0831	**DS8024**	QK832036	JESD22-A115 MM 100 VOLTS	1	PUL'S	3	0
ESD SENSITIVITY	0831	**DS8024**	QK832036	JESD22-A115 MM 200 VOLTS	1	PUL'S	3	0
ESD SENSITIVITY	0831	**DS8024**	QK832036	JESD22-A115 MM 400 VOLTS	1	PUL'S	3	0
ESD SENSITIVITY	0831	**DS8024**	QK832036	JESD22-A115 MM 500 VOLTS	1	PUL'S	3	0
					Total:			**0**

LATCH-UP

DESCRIPTION	DATE	CODE/PRODUCT/LOT		CONDITION	READPOINT		QTY	FAILS	FA#
LATCH-UP I	0833	**DS8024**	QM832036	JESD78A, I-TEST 125C			6	0	
LATCH-UP V	0833	**DS8024**	QM832036	JESD78A, V-SUPPLY TEST 125C			6	0	
					Total:			**0**	

OPERATING LIFE

DESCRIPTION	DATE	CODE/PRODUCT/LOT		CONDITION	READPOINT		QTY	FAILS	FA#
HIGH TEMP OP LIFE	0724	DS8007	QN616349	125C, 6.0 VOLTS	1000	HRS	45	0	
HIGH TEMP OP LIFE	0740	DS8007	QN824614	125C, 6.0 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0740	DS8007	XN716349C	125C, 6.0 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0744	DS8113	QK732036	125C, 6.0 VOLTS	1000	HRS	45	0	
HIGH TEMP OP LIFE	0750	DS8007	QN824614	125C, 6.0 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0833	**DS8024**	QM832036	125C, 6.0 VOLTS	192	HRS	45	0	
HIGH TEMP OP LIFE	0834	DS8023	QM840693	125C, 6.0 VOLTS	1000	HRS	45	0	
HIGH TEMP OP LIFE	0837	DS2413	WJ942402	125C, 5.25 VOLTS	1000	HRS	45	0	
HIGH TEMP OP LIFE	0839	DS8007	SN839727A	125C, 6.0 VOLTS	192	HRS	120	0	
HIGH TEMP OP LIFE	0851	DS8313	QM941961	125C, 6.0 VOLTS	1000	HRS	45	0	
					Total:			**0**	

FAILURE RATE: **MTTF (YRS):** **57304** **FITS:** **2.0**

DEVICE HOURS: **487680** **FAILS:** **0**