6/28/2010

PRODUCT RELIABILITY REPORT
FOR

DS1624, Rev B2

Maxim Integrated Products

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Conclusion:

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

DS1624, Rev B2

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):**	**112374**	**FITS:**	**1.0**
	DEVICE HOURS:	**901990573**	**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:	SA E35W-0.5um, 5V CMOS with embedded Array EEPROM, embedded RSE EEPROM, 18V CMOS, VNPN, P2-P1 Cap, LVMOSCAP, HVMOSCAP, Varactor Cap, NTC poly R's, 3LM, M3 Laser Fuses
Passivation:	TEOS Oxide-Nitride Passivation
Die Size:	68 x 80
Number of Transistors:	20125
Interconnect:	Aluminum / 0.5% Copper
Gate Oxide Thickness:	120 Å

ESD HBM

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN		QTY	FAILS	FA#
ESD SENSITIVITY	1009	**DS1624**	WJ048844B	JESD22-A114 HBM 500 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	1009	**DS1624**	WJ048844B	JESD22-A114 HBM 1000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	1009	**DS1624**	WJ048844B	JESD22-A114 HBM 2000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	1009	**DS1624**	WJ048844B	JESD22-A114 HBM 3000 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	1009	**DS1624**	WJ048844B	JESD22-A114 HBM 4000 VOLTS	1	PUL'S	3	0	
					Total:			**0**	

LATCH-UP

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN	QTY	FAILS	FA#
LATCH-UP I	1009	**DS1624**	WJ048844B	JESD78A, I-TEST 125C		6	0	
LATCH-UP V	1009	**DS1624**	WJ048844B	JESD78A, V-SUPPLY TEST 125C		6	0	
					Total:		**0**	

OPERATING LIFE

DESCRIPTION	DATE CODE	PRODUCT	LOT	CONDITION	READPOIN		QTY	FAILS	FA#
HIGH TEMP OP LIFE	0839	DS2784	WJ942986T	125C, 4.6 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0843	DS2784	WJ941766O	125C, 4.6 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0848	DS2784	WJ943239LC	125C, 4.6 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0914	DS2780	WJ944804A	125C, 5.5 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0916	DS2784	WJ943240IC	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0916	DS2784	WJ945481A	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0922	DS36A92	WJ946542A	125C, 3.6 VOLTS	192	HRS	45	0	
HIGH TEMP OP LIFE	0932	MAX17043	WJ946441P	125C, 4.5V (PSA) & 9.2V (PSB)	192	HRS	45	0	
HIGH TEMP OP LIFE	0933	DS1873	QJ917612BC	125C, 4.2 VOLTS	192	HRS	77	0	
HIGH TEMP OP LIFE	0937	DS2784	WJ046898JC	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000	HRS	77	0	
HIGH TEMP OP LIFE	0940	DS2784	WJ048759A	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000	HRS	80	0	
HIGH TEMP OP LIFE	0946	DS1876	WJ048840A	125C, 4.2 VOLTS	192	HRS	77	0	
HIGH TEMP OP LIFE	0948	DS1091L	WJ946344E	150C, 3.6 VOLTS	408	HRS	45	0	
HIGH TEMP OP LIFE	0948	DS1091L	WJ946344E	150C, 3.6 VOLTS	408	HRS	45	0	
HIGH TEMP OP LIFE	0951	DS2784	WJ049559A	125C, 5.5 V (PSA) & 15.0 V (PSB)	1000	HRS	80	0	
HIGH TEMP OP LIFE	0951	DS1877	WJ048842A	125C, 4.2 VOLTS	192	HRS	77	0	
HIGH TEMP OP LIFE	0951	DS2430A	WH048838A	125C, 5.25 VOLTS	192	HRS	50	0	
HIGH TEMP OP LIFE	1004	DS3644	WS046549D	125C, 3.6V (PSA) & 3.3V (PSB)	192	HRS	45	0	
HIGH TEMP OP LIFE	1009	**DS1624**	WJ048844B	125C, 5.5 VOLTS	192	HRS	77	0	
HIGH TEMP OP LIFE	1013	DS2784	WJ050375A	125C, 5.5 V (PSA) & 15.0 V (PSB)	500	HRS	80	0	
					Total:			**0**	

W/E ENDURANCE AND DATA RET'N

DESCRIPTION	DATE CODE	PRODUCT	LOT	CONDITION	READPOIN		QTY	FAILS	FA#
WRITE CYCLE STRESS (KCYS)	0839	DS2784	WJ942986T	50 C, 4.6 V (PSA) & 15.0 V (PSB)	50	KCYS	77	0	
STORAGE LIFE	0839	DS2784	WJ942986T	150C	1000	HRS	77	0	
WRITE CYCLE STRESS (KCYS)	0843	DS2784	WJ941766O	50 C, 4.6 V (PSA) & 15.0 V (PSB)	50	KCYS	77	0	

STORAGE LIFE	0843	DS2784	WJ941766O	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0848	DS2784	WJ943239LC	50 C, 4.6 V (PSA) & 15.0 V (PSB)	50	KCYS	77	0
STORAGE LIFE	0848	DS2784	WJ943239LC	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0916	DS2784	WJ943240IC	50 C, 5.5 V (PSA) & 15.0 V (PSB)	50	KCYS	77	0
STORAGE LIFE	0916	DS2784	WJ943240IC	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0916	DS2784	WJ945481A	50 C, 5.5 V (PSA) & 15.0 V (PSB)	50	KCYS	77	0
STORAGE LIFE	0916	DS2784	WJ945481A	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0940	DS3882	WJ946345A	85 C, 5.25 VOLTS	30	KCYS	77	0
STORAGE LIFE	0940	DS3882	WJ946345A	150C	1000	HRS	77	0
WRITE CYCLE STRESS (KCYS)	0951	DS2430A	WH048838A	25 C, 5.25 VOLTS	200	KCYS	77	0
STORAGE LIFE	0951	DS2430A	WH048838A	150C	96	HRS	77	0
WRITE CYCLE STRESS (KCYS)	1009	**DS1624**	WJ048844B	85 C, 5.5 VOLTS	25	KCYS	77	0
STORAGE LIFE	1009	**DS1624**	WJ048844B	150C	96	HRS	77	0
					Total:			**0**

FAILURE RATE: **MTTF (YRS): 112374** **FITS: 1.0**

DEVICE HOURS: 901990573 **FAILS: 0**