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PRODUCT RELIABILITY REPORT
FOR

MAX66100, 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:

MAX66100, 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):**	**87112**	**FITS:**	**1.3**
	DEVICE HOURS:	**699223642**	**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: 3.3 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:	85.03937 x 125.984252
Number of Transistors:	131333
Interconnect:	Aluminum / 0.5% Copper
Gate Oxide Thickness:	120 Å

ESD HBM

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN		QTY	FAILS	FA#
ESD SENSITIVITY	1004	**MAX66140**	WJ050342AB	EOS/ESD S5.1 HBM 500 VOLTS	1	PUL'S	3	0	
ESD SENSITIVITY	1004	**MAX66140**	WJ050342AB	EOS/ESD S5.1 HBM 1000 VOLTS	2	PUL'S	3	0	
ESD SENSITIVITY	1004	**MAX66140**	WJ050342AB	EOS/ESD S5.1 HBM 2000 VOLTS	3	PUL'S	3	0	
ESD SENSITIVITY	1004	**MAX66140**	WJ050342AB	EOS/ESD S5.1 HBM 4000 VOLTS	4	PUL'S	3	0	
ESD SENSITIVITY	1004	**MAX66140**	WJ050342AB	EOS/ESD S5.1 HBM 8000 VOLTS	5	PUL'S	3	3	No FA
					Total:			**3**	

LATCH-UP

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN	QTY	FAILS	FA#
LATCH-UP I	1004	**MAX66140**	WJ050342AB	JESD78A, I-TEST 85C		6	0	
LATCH-UP V	1004	**MAX66140**	WJ050342AB	JESD78A, V-SUPPLY TEST 25C		6	0	
					Total:		**0**	

OPERATING LIFE

DESCRIPTION	DATE CODE/PRODUCT/LOT			CONDITION	READPOIN		QTY	FAILS	FA#
HIGH TEMP OP LIFE	0845	DS2431	WJ943331AB	125C, 5.25 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0845	DS2431	WJ943238Q	125C, 5.25 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0846	DS28EC20	WJ941331D	125C, 5.25 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0846	DS28EC20	WJ942984PB	125C, 5.25 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0846	DS28EC20	WJ943330BB	125C, 5.25 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0846	DS28EC20	WJ942984PB	125C, 5.25 VOLTS	408	HRS	80	0	
HIGH TEMP OP LIFE	0848	DS2431	WJ943235BB	125C, 5.25 VOLTS	1000	HRS	77	0	
HIGH TEMP OP LIFE	0951	DS2430A	WH048838A	125C, 5.25 VOLTS	192	HRS	50	0	
HIGH TEMP OP LIFE	1004	**MAX66140**	WJ050342AB	125C, 3.3 VOLTS	192	HRS	45	0	
HIGH TEMP OP LIFE	1009	DS1624	WJ048844BB	125C, 5.5 VOLTS	192	HRS	77	0	
HIGH TEMP OP LIFE	1013	DS2431	WJ052466AB	150C, 5.25 VOLTS	408	HRS	50	0	
HIGH TEMP OP LIFE	1013	DS2431	WJ052268AB	150C, 5.25 VOLTS	408	HRS	50	0	
HIGH TEMP OP LIFE	1014	DS2431	WJ052527AB	150C, 5.25 VOLTS	408	HRS	50	0	
HIGH TEMP OP LIFE	1039	MAX31722	ZJ148849DB	125C, 3.7V (PSA)	192	HRS	48	0	
					Total:			**0**	

FAILURE RATE: **MTTF (YRS):** **87112** **FITS:** **1.3**

DEVICE HOURS: **699223642** **FAILS:** **0**