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PRODUCT RELIABILITY REPORT
FOR

MAX4744HELB+T, Process S45T

Maxim Integrated Products

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Conclusion:

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

MAX4744HELB+T, Process S45T

In addition, Maxim's continuous reliability monitor program ensures that all outgoing assemblies 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.

Package Description:

A description of this assembly 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):**	**5103**	**FITS:**	**22.4**
	DEVICE HOURS:	**40961084**	**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: 0.8** **B: 0** **Tu: 25** **°C** **Vu: 5** **Volts**

The reliability data follows. Some of the data in this report may be generic. At the start of this data is a description of the assembly vehicle used to generate this reliability data. The next section is the detailed reliability data for each stress. If there are additional assemblies used as part of this report, a description of each will follow which includes the respective reliability data for that assembly. The reliability data section includes the latest data available.

Assembly Information:

Assembly Site:	Hana AYUTHAYA
Pin Count:	10
Package Type:	uDFN (Pb-Free)
Body Size:	2x2x0.8
Mold Compound:	Hitachi CEL9220HF13
Lead Frame:	Stamped Copper CDA194
Lead Finsh:	Sn Plate 100% Matte (With Anneal Bake)
Die Attach:	Ablebond 2033SC
Bond Wire / Size:	Au / 1.0 mil
Flammability:	UL 94-V0
Theta JA:	198.6
Theta JC:	122
Moisture Sensitivity (JEDEC J-STD20A)	Level 1

OPERATING LIFE

DESCRIPTION	CONDITION	READPOINT	QTY	FAILS	FA#
HIGH TEMP OP LIFE	135C, 5.0 V	192 HRS	48	0	
		Total:		**0**	

ESD HBM

DESCRIPTION	CONDITION	READPOINT	QTY	FAILS	FA#
ESD SENSITIVITY	JESD22-A114 HBM 500 VOLTS	1 PUL'S	5	0	
ESD SENSITIVITY 1	JESD22-A114 HBM 1000 VOLTS	1 PUL'S	5	0	
ESD SENSITIVITY 2	JESD22-A114 HBM 1500 VOLTS	1 PUL'S	5	0	
ESD SENSITIVITY 3	JESD22-A114 HBM 2000 VOLTS	1 PUL'S	5	0	
ESD SENSITIVITY 4	JESD22-A114 HBM 4000 VOLTS	1 PUL'S	5	5	No FA
		Total:		**5**	

ESD CDM

DESCRIPTION	CONDITION	READPOINT	QTY	FAILS	FA#

ESD SENSITIVITY	JESD22-C101 CDM 750 VOLTS	1	PUL'S	5	0
			Total:		**0**

LATCH-UP

DESCRIPTION	CONDITION	READPOINT	QTY	FAILS	FA#
LATCH-UP I	JESD78A, I-TEST 125C		5	0	
LATCH-UP V	JESD78, V-SUPPLY TEST 125C			0	
		Total:		**0**	

FAILURE RATE:	**MTTF (YRS):**	**5103**	**FITS:**	**22.4**
	DEVICE HOURS:	**40961084**	**FAILS:**	**0**