

4/23/2015



RELIABILITY MONITOR REPORT  
FOR

**DFN Package**

**MAXIM INTEGRATED**

160 RIO ROBLES  
SAN JOSE, CA 95134

This Report was prepared by  
**MAXIM INTEGRATED Reliability Engineering**

## Summary:

The data in the tables that follow was generated as the result of an on-going Package Reliability Monitor. The specific assemblies included in this package monitor are:

ASSY SITE	PINS	PACKAGE		
ASE Chung-Li	8	TDFN (Pb-Free)	ASE Chung-Li	10 TDFN (Pb-Free)
ASE Chung-Li	12	TDFN (Pb-Free)	ASE Chung-Li	6 uDFN (Pb-Free)
ASE Chung-Li	8	uDFN (Pb-Free)	Hana AYUTHAYA	6 OTDFN (Pb-Free)
UTL (NSEB) UTAC	6	TDFN (Pb-Free)	UTL (NSEB) UTAC	8 TDFN (Pb-Free)
UTL (NSEB) UTAC	10	TDFN (Pb-Free)	UTL (NSEB) UTAC	6 uDFN (Pb-Free)

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 190259 FITS: 0.6**

The parameters used to calculate this failure rate are as follows:

**Cf: 60% Ea: 0.7 Tu: 25 °C**

The reliability data follows. 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. The reliability data section includes the latest data available. This report covers data between 4/1/2014 and 3/31/2015.

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### Assembly Information:

Package Type: OTDFN (Pb-Free)

Date Code Range: 1402 to 1423

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### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1419	MAX44009EDT+	135°C	1000 HRS	78	0	
<b>Total:</b>						<b>0</b>	

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### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1419	MAX44009EDT+	150°C	1000 HRS	80	0	
<b>Total:</b>						<b>0</b>	

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### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX44009EDT+T	-65C TO +150C (Condition C)	1000 CYS	200	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1402	MAX44009EDT+T	-65C TO +150C (Condition C)	1000 CYS	200	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1419	MAX44009EDT+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1422	MAX44009EDT+T	-65C TO +150C (Condition C)	100 CYS	197	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX44009EDT+T	-65C TO +150C (Condition C)	100 CYS	100	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX44009EDT+T	-65C TO +150C (Condition C)	100 CYS	193	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1423	MAX44009EDT+T	-65C TO +150C (Condition C)	100 CYS	200	1	

Total: 1

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**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1419	MAX44009EDT+	85 C/85% R.H.	500 HRS	80	1	
<b>Total:</b>						<b>1</b>	

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**Assembly Information:**

Package Type: TDFN (Pb-Free)  
Date Code Range: 1204 to N/A

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**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1204	MAX17510ATB+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1240	MAX17510ATB+	135°C	500 HRS	79	0	
HIGH TEMP OP LIFE	1343	MAX8902AATA+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1345	MAX17552AUB+	135°C	192 HRS	75	0	
HIGH TEMP OP LIFE	1352	MAX8902AATA+	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1352	MAX8902AATA+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1352	MAX8902AATA+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1403	MAX17510ATB+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1403	MAX17510ATB+	135°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1422	MAX15006BATT+	135°C	1000 HRS	47	0	
HIGH TEMP OP LIFE	1435	MAX15006AATT+	135°C	1000 HRS	47	0	
HIGH TEMP OP LIFE	1436	MAX14832ETB+T	135°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1444	MAX14839GTC+	135°C	192 HRS	80	0	
<b>Total:</b>						<b>0</b>	

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**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1204	MAX17510ATB+	150°C	1000 HRS	50	0	
STORAGE LIFE	1240	MAX17510ATB+	150°C	500 HRS	80	0	
STORAGE LIFE	1342	MAX8902AATA+	150°C	1000 HRS	80	0	
STORAGE LIFE	1352	MAX8902AATA+	150°C	1000 HRS	80	0	
STORAGE LIFE	1422	MAX15006BATT+	150°C	1000 HRS	80	0	
STORAGE LIFE	1435	MAX15006AATT+	150°C	1000 HRS	80	0	
<b>Total:</b>						<b>0</b>	

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**TEMPERATURE CYCLE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1343	MAX8902AATA+	-65C TO +150C (Condition C)	500 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX8902AATA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1351	MAX8902AATA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX8902AATA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX8902AATA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1352	MAX8902AATA+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX17510ATB+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1403	MAX17510ATB+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1422	MAX15006BATT+	-65C TO +150C (Condition C)	1000	CYS	65	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1435	MAX15006AATT+	-65C TO +150C (Condition C)	500	CYS	80	0

**Total: 0**

### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1204	MAX17510ATB+	130C, 85% R.H.	96	HRS	33	0
BIASED MOISTURE	1240	MAX17510ATB+	130C, 85% R.H.	96	HRS	33	0
BIASED MOISTURE	1343	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1351	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1352	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1352	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1352	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
BIASED MOISTURE	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	33	0
BIASED MOISTURE	1403	MAX17510ATB+	130C, 85% R.H.	100	HRS	33	0
BIASED MOISTURE	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	33	0
BIASED MOISTURE	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	33	0
BIASED MOISTURE	1422	MAX15006BATT+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1435	MAX15006AATT+	130C, 85% R.H.	96	HRS	80	1

**Total: 1**

### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1204	MAX17510ATB+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1240	MAX17510ATB+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1331	MAX14562ETA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1343	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1351	MAX8902AATA+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1351	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0

MOISTURE SOAK	1352	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1352	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1352	MAX8902AATA+	130C, 85% R.H.	100	HRS	80	0
MOISTURE SOAK	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	80	1
MOISTURE SOAK	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1403	MAX17510ATB+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	N/A	MAX5969BETB+T	85 C/85% R.H.	1000	HRS	44	1
MOISTURE SOAK	N/A	MAX5969BETB+T	85 C/85% R.H.	1000	HRS	45	0
<b>Total:</b>							<b>2</b>

### Assembly Information:

Package Type: uDFN (Pb-Free)  
Date Code Range: 1349 to 1433

### OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1404	MAX2659ELT+T	135°C	500 HRS	79	0	
HIGH TEMP OP LIFE	1416	MAX2659ELT+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1417	MAX5128ELA+T	135°C	1000 HRS	48	0	
HIGH TEMP OP LIFE	1433	MAX2659ELT+	135°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1433	MAX2659ELT+	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1433	MAX2659ELT+	135°C	1000 HRS	80	0	
<b>Total:</b>						<b>0</b>	

### STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1417	MAX5128ELA+T	150°C	1000 HRS	66	0	
STORAGE LIFE	1419	MAX2659ELT+T	150°C	1000 HRS	80	0	
<b>Total:</b>						<b>0</b>	

### TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1417	MAX5128ELA+T	-65C TO +150C (Condition C)	1000 CYS	78	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1419	MAX2659ELT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
<b>Total:</b>						<b>0</b>	

### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1433	MAX2659ELT+	130C, 85% R.H.	200 HRS	80	0	
BIASED MOISTURE	1433	MAX2659ELT+	130C, 85% R.H.	200 HRS	79	0	
BIASED MOISTURE	1433	MAX2659ELT+	130C, 85% R.H.	200 HRS	79	0	

**Total: 0**

**UNBIASED MOISTURE RESISTANCE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1349	MAX2659ELT+T	130C, 85% R.H.	500 HRS	77	0	
MOISTURE SOAK	1349	MAX2659ELT+T	130C, 85% R.H.	500 HRS	79	0	
MOISTURE SOAK	1349	MAX2659ELT+T	130C, 85% R.H.	500 HRS	78	0	
MOISTURE SOAK	1433	MAX2659ELT+	130C, 85% R.H.	500 HRS	80	0	
MOISTURE SOAK	1433	MAX2659ELT+	130C, 85% R.H.	500 HRS	80	0	
MOISTURE SOAK	1433	MAX2659ELT+	130C, 85% R.H.	500 HRS	80	0	
<b>Total:</b>						<b>0</b>	

**FAILURE RATE: MTTF (YRS): 190259 FITS: 0.6**