

6/25/2020



**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 Kaoshiung	8	TDFN (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	12	TDFN (Pb-Free)	UTL (NSEB) UTAC	14 TDFN (Pb-Free)
UTL (NSEB) UTAC	6	uDFN (Pb-Free)	UTL (NSEB) UTAC	10 uDFN (Pb-Free)

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 260271 FITS: 0.4

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 1/1/2020 and 3/31/2020.

Assembly Information:

Package Type: TDFN (Pb-Free)

Date Code Range: 1802 to 1933

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX17761XATC+	125°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1802	MAX15006AATT/V+	125°C	2000 HRS	32	0	
HIGH TEMP OP LIFE	1802	MAX15006AATT/V+	125°C	500 HRS	47	0	
HIGH TEMP OP LIFE	1826	MAX17761XATC+	125°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1852	MAX20000ATCB/V+	125°C	750 HRS	79	0	
HIGH TEMP OP LIFE	1852	MAX20000ATCB/V+	125°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1852	MAX20000ATCB/V+	125°C	192 HRS	80	0	
HIGH TEMP OP LIFE	1852	MAX20000ATCB/V+	125°C	192 HRS	79	0	
HIGH TEMP OP LIFE	1903	MAX40026ATA/VY+	125°C	72 HRS	78	0	
HIGH TEMP OP LIFE	1905	MAX25276ATCA/VY+	125°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1907	MAX20000ATCB/V+	125°C	750 HRS	78	0	
HIGH TEMP OP LIFE	1907	MAX20000ATCB/V+	125°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1909	MAX20019ATBA/V+	125°C	1000 HRS	79	0	
HIGH TEMP OP LIFE	1909	MAX77596ETBC+TC MR	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1912	MAX40661ATB/VY+T	125°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1912	MAX40661ATB/VY+T	125°C	500 HRS	80	0	

HIGH TEMP OP LIFE	1917	MAX9113ATA/VY+T	125°C	1000	HRS	79	0
HIGH TEMP OP LIFE	1922	MAX49017ATA/VY+T	125°C	1000	HRS	79	0
HIGH TEMP OP LIFE	1923	MAX8902BATA/V+T	125°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1928	MAX20076EATCB/V Y+	125°C	1000	HRS	80	0
HIGH TEMP OP LIFE	1929	MAX9113ATA/VY+T	125°C	1000	HRS	78	0
HIGH TEMP OP LIFE	1931	MAX9113ATA/VY+T	125°C	1000	HRS	80	0
Total:							0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	1826	MAX17761XATC+	130C, 85% R.H.	3	PASS	100	0
CONVECTION REFLOW	1850	MAX17761XATC+	85 C/85% R.H.	3	PASS	400	0
CONVECTION REFLOW	1850	MAX17761XATC+		3	PASS	160	0
CONVECTION REFLOW	1852	MAX20000ATCB/V+		3	PASS	499	0
CONVECTION REFLOW	1852	MAX20000ATCB/V+	125°C	3	PASS	150	0
CONVECTION REFLOW	1852	MAX20000ATCB/V+		3	PASS	500	0
CONVECTION REFLOW	1905	MAX25276ATCA/VY+	130C, 85% R.H.	3	PASS	349	0
CONVECTION REFLOW	1907	MAX20000ATCB/V+		3	PASS	500	0
CONVECTION REFLOW	1911	MAX9113ATA/VY+T		3	PASS	335	0
SOLDERABILITY	1911	MAX9113ATA/VY+T	JESD22-B102, COND C (245C)	1	PASS	15	0
CONVECTION REFLOW	1917	MAX9113ATA/VY+T		3	PASS	302	0
SOLDERABILITY	1917	MAX9113ATA/VY+T	JESD22-B102, COND C (245C)	1	PASS	15	0
CONVECTION REFLOW	1918	MAX6769TALD2/V+T		3	PASS	154	0
CONVECTION REFLOW	1923	MAX8902BATA/V+T	130C, 85% R.H.	3	PASS	320	0
CONVECTION REFLOW	1929	MAX9113ATA/VY+T	> 5 GMS	3	PASS	324	0
SOLDERABILITY	1929	MAX9113ATA/VY+T	JESD22-B102, COND C (245C)	1	PASS	15	0
CONVECTION REFLOW	1929	MAX9113ATA/VY+T		3	PASS	312	0
SOLDERABILITY	1929	MAX9113ATA/VY+T	JESD22-B102, COND C (245C)	1	PASS	15	0
CONVECTION REFLOW	1929	MAX20077ATCB/VY+ GA		3	PASS	320	0
CONVECTION REFLOW	1931	MAX9113ATA/VY+T	> 5 GMS	3	PASS	333	0
CONVECTION REFLOW	1931	MAX9113ATA/VY+T		3	PASS	291	0
CONVECTION REFLOW	1933	MAX40661ATB/VY+T	125°C	3	PASS	327	0
CONVECTION REFLOW	1933	MAX40661ATB/VY+T		3	PASS	335	0
CONVECTION REFLOW	1933	MAX40661ATB/VY+T		3	PASS	335	0
Total:							0

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1840	MAX20000ATCB/V+	150°C	1000	HRS	80	0

STORAGE LIFE	1852	MAX20000ATCB/V+	150°C	500	HRS	79	0
STORAGE LIFE	1852	MAX20000ATCB/V+	150°C	1000	HRS	80	0
STORAGE LIFE	1905	MAX25276ATCA/VY+	150°C	500	HRS	80	0
STORAGE LIFE	1912	MAX40661ATB/VY+T	150°C	500	HRS	80	0
STORAGE LIFE	1912	MAX40661ATB/VY+T	150°C	500	HRS	80	0
STORAGE LIFE	1912	MAX40661ATB/VY+T	150°C	500	HRS	80	0
STORAGE LIFE	1912	MAX4990ETD+	150°C	1000	HRS	80	0
STORAGE LIFE	1923	MAX8902BATA/V+T	150°C	1000	HRS	79	0
STORAGE LIFE	1931	MAX9113ATA/VY+T	150°C	1000	HRS	80	0
STORAGE LIFE	1931	MAX9113ATA/VY+T	150°C	1000	HRS	80	0
STORAGE LIFE	1933	MAX40661ATB/VY+T	150°C	500	HRS	80	0
STORAGE LIFE	1933	MAX40661ATB/VY+T	150°C	500	HRS	80	0
STORAGE LIFE	1933	MAX40661ATB/VY+T	150°C	1000	HRS	80	0
Total:						0	0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1852	MAX20000ATCB/V+	-65C TO +150C (Condition C)	1000	CYS	71	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1852	MAX20000ATCB/V+	-65C TO +150C (Condition C)	1000	CYS	71	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1905	MAX25276ATCA/VY+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1905	MAX25276ATCA/VY+	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1905	MAX25276ATCA/VY+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1907	MAX20000ATCB/V+	-65C TO +150C (Condition C)	1000	CYS	72	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1912	MAX40661ATB/VY+T	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1912	MAX40661ATB/VY+T	-65C TO +150C (Condition C)	1000	CYS	79	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1912	MAX40661ATB/VY+T	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1912	MAX4990ETD+	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1917	MAX9113ATA/VY+T	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1923	MAX8902BATA/V+T	-65C TO +150C (Condition C)	500	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1929	MAX9113ATA/VY+T	-65C TO +150C (Condition C)	1000	CYS	80	0
Total:						0	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
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BIASED MOISTURE	1826	MAX17761XATC+	130C, 85% R.H.	96	HRS	75	0
BIASED MOISTURE	1826	MAX17761XATC+	130C, 85% R.H.	96	HRS	5	0
BIASED MOISTURE	1843	MAX17761XATC+	130C, 85% R.H.	96	HRS	75	0
BIASED MOISTURE	1843	MAX17761XATC+	130C, 85% R.H.	96	HRS	5	0
BIASED MOISTURE	1850	MAX17761XATC+	130C, 85% R.H.	96	HRS	8	0
BIASED MOISTURE	1852	MAX20000ATCB/V+	130C, 85% R.H.	96	HRS	75	0
BIASED MOISTURE	1852	MAX20000ATCB/V+	130C, 85% R.H.	96	HRS	72	0
BIASED MOISTURE	1852	MAX20000ATCB/V+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1905	MAX25276ATCA/VY+	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1905	MAX25276ATCA/VY+	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1905	MAX25276ATCA/VY+	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1911	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1912	MAX40661ATB/VY+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1912	MAX40661ATB/VY+T	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1912	MAX40661ATB/VY+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1917	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	79	0
BIASED MOISTURE	1918	MAX6769TALD2/V+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1923	MAX8902BATA/V+T	130C, 85% R.H.	96	HRS	80	0
BIASED MOISTURE	1929	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1929	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	77	0
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1905	MAX25276ATCA/VY+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1905	MAX25276ATCA/VY+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1905	MAX25276ATCA/VY+	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1911	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1917	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1929	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1929	MAX9113ATA/VY+T	130C, 85% R.H.	96	HRS	80	0
Total:						0	0

Assembly Information:

Package Type: uDFN (Pb-Free)
Date Code Range: 1701 to 1932

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1701	MAX4906FELB+	125°C	192	HRS	80	0

HIGH TEMP OP LIFE	1701	MAX4906FELB+	125°C	1000 HRS	79	0
Total:						0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
PHYSICAL DIMENSION		MAX4906FELB+	JESD22-B100	1 PASS	20	0	
SOLDERABILITY		MAX4906FELB+	JESD22-B102, COND C (245C)	1 PASS	50	0	
BOND PULL		MAX4906FELB+	> 5 GMS	1 PASS	50	0	
PHYSICAL DIMENSION		MAX4906FELB+	JESD22-B100	1 PASS	20	0	
SOLDERABILITY		MAX4906FELB+	JESD22-B102, COND C (245C)	1 PASS	50	0	
BOND PULL		MAX4906FELB+	> 5 GMS	1 PASS	50	0	
BOND PULL	1701	MAX4906FELB+	> 5 GMS	1 PASS	50	0	
CONVECTION REFLOW	1920	MAX9938FELT+		3 PASS	114	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1917	MAX31889ALT+T	150°C	1000 HRS	79	0	
STORAGE LIFE	1932	MAX31889ALT+T	150°C	1000 HRS	79	0	
STORAGE LIFE	1932	MAX31889ALT+T	150°C	1000 HRS	77	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX4906FELB+	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX4906FELB+	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1701	MAX4906FELB+	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1917	MAX31889ALT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1932	MAX31889ALT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1932	MAX31889ALT+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
Total:						0	

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1701	MAX4906FELB+	130C, 85% R.H.	96 HRS	47	0	
BIASED MOISTURE	1701	MAX4906FELB+	130C, 85% R.H.	96 HRS	31	0	
BIASED MOISTURE	1827	MAX4906FELB+	130C, 85% R.H.	96 HRS	16	0	
BIASED MOISTURE	1827	MAX4906FELB+	130C, 85% R.H.	96 HRS	48	0	
BIASED MOISTURE	1827	MAX4906FELB+	130C, 85% R.H.	96 HRS	16	0	

BIASED MOISTURE	1827	MAX4906FELB+	130C, 85% R.H.	96	HRS	32	0
BIASED MOISTURE	1827	MAX4906FELB+	130C, 85% R.H.	96	HRS	48	0
BIASED MOISTURE	1920	MAX9938FELT+T	130C, 85% R.H.	96	HRS	78	0
BIASED MOISTURE	1926	MAX1709ESE+	130C, 85% R.H.	96	HRS	77	0
BIASED MOISTURE	1932	MAX31889ALT+T	130C, 85% R.H.	96	HRS	77	0
BIASED MOISTURE	1932	MAX31889ALT+T	130C, 85% R.H.	96	HRS	77	0
					Total:		0

FAILURE RATE: MTTF (YRS): 260271 FITS: 0.4