

7/10/2017



**RELIABILITY MONITOR REPORT
FOR**

LGA 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	28	LGA (Pb-Free)	ASE Chung-Li	32 LGA (Pb-Free)
ASE Chung-Li	33	LGA (Pb-Free)	ASE Chung-Li	8 OLGA (Pb-Free)
ASE Chung-Li	14	OLGA (Pb-Free)	ASE Chung-Li	18 OLGA (Pb-Free)
ASE Chung-Li	22	OLGA (Pb-Free)	ASE Kaoshiung	60 LGA Flip Chip (Pb-Free)
Dallas-Maxfilm	14	OLGA (Pb-Free)		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 178539 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 4/1/2017 and 6/30/2017.

Assembly Information:

Package Type: LGA (Pb-Free)
Date Code Range: 1613 to 1714

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1613	MAXM17503ALJ+	135°C	1000 HRS	55	0	
HIGH TEMP OP LIFE	1613	MAXM17503ALJ+	135°C	1000 HRS	67	0	
HIGH TEMP OP LIFE	1613	MAXM17503ALJ+	135°C	1000 HRS	67	0	
HIGH TEMP OP LIFE	1624	MAXM17503ALJ+	135°C	336 HRS	28	0	
HIGH TEMP OP LIFE	1707	MAXM17574ALC+	135°C	500 HRS	50	0	
HIGH TEMP OP LIFE	1707	MAXM17574ALC+	135°C	500 HRS	50	0	
HIGH TEMP OP LIFE	1707	MAXM17574ALC+	135°C	1000 HRS	50	0	
HIGH TEMP OP LIFE	1707	MAXM17575ATC+	135°C	192 HRS	48	0	
HIGH TEMP OP LIFE	1707	MAXM17575ATC+	135°C	500 HRS	47	0	
HIGH TEMP OP LIFE	1714	MAXM17761AL1+	135°C	500 HRS	48	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1702	MAXM17575ALI+	150°C	500 HRS	80	0	
STORAGE LIFE	1702	MAXM17575ALI+	150°C	1000 HRS	80	0	
STORAGE LIFE	1707	MAXM17574ALC+	150°C	1000 HRS	90	0	
STORAGE LIFE	1707	MAXM17574ALC+	150°C	1000 HRS	90	0	

STORAGE LIFE	1707	MAXM17574ALC+	150°C	1000 HRS	90	0
STORAGE LIFE	1712	MAXM17761ALI+	150°C	500 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	1702	MAXM17575ALI+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1702	MAXM17575ALI+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1707	MAXM17574ALC+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1707	MAXM17574ALC+	-65C TO +150C (Condition C)	1000 CYS	90	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1707	MAXM17574ALC+	-65C TO +150C (Condition C)	1000 CYS	90	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1712	MAXM17761ALI+	-65C TO +150C (Condition C)	500 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1712	MAXM17575ALI+	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1712	MAXM17761ALI+	-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
BIASED MOISTURE	1702	MAXM17572ATC+	130C, 85% R.H.	264 HRS	48	0	
Total:					0	0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1613	MAXM17503ALJ+	85 C/85% R.H.	1000 HRS	78	0	
MOISTURE SOAK	1613	MAXM17503ALJ+	85 C/85% R.H.	1000 HRS	79	0	
MOISTURE SOAK	1613	MAXM17503ALJ+	85 C/85% R.H.	1000 HRS	80	0	
MOISTURE SOAK	1702	MAXM17575ALI+	130C, 85% R.H.	500 HRS	80	0	
MOISTURE SOAK	1702	MAXM17575ALI+	130C, 85% R.H.	500 HRS	80	0	
MOISTURE SOAK	1705	MAXM17574ALC+	85 C/85% R.H.	500 HRS	46	0	
MOISTURE SOAK	1705	MAXM17574ALC+	85 C/85% R.H.	1000 HRS	46	0	
MOISTURE SOAK	1712	MAXM17761ALI+	130C, 85% R.H.	500 HRS	80	0	
MOISTURE SOAK	1712	MAXM17761ALI+	130C, 85% R.H.	96 HRS	80	0	
Total:					0	0	

Assembly Information:

Package Type: LGA Flip Chip (Pb-Free)
Date Code Range: 1548 to 1548

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1548	MAX24101ELU+	135°C	192 HRS	48	0	
Total:						0	

Assembly Information:

Package Type: OLGA (Pb-Free)

Date Code Range: 1601 to 1649

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1601	MAX86902EFD+	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1601	MAX86902EFD+	135°C	1000 HRS	76	0	
HIGH TEMP OP LIFE	1601	MAX86902EFD+	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1601	MAX86907AEFD+	135°C	500 HRS	20	0	
HIGH TEMP OP LIFE	1616	MAX86160EFN+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1616	MAX86160EFN+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1616	MAX86160EFN+T	135°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1649	MAX86150EFF+	135°C	1000 HRS	77	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE		MAX87020	150°C	105 HRS	36	0	
STORAGE LIFE	1616	MAX86160EFN+T	150°C	500 HRS	80	0	
STORAGE LIFE	1616	MAX86160EFN+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1616	MAX86160EFN+T	150°C	1000 HRS	80	0	
STORAGE LIFE	1639	MAX86907DEFD+	150°C	120 HRS	40	0	
STORAGE LIFE	1649	MAX86150EFF+	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		MAX86915EFD+	-65C TO +150C (Condition C)	500 CYS	77	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX86160EFN+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX86160EFN+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1616	MAX86160EFN+T	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1623	MAX86160EFN+T	-65C TO +150C (Condition C)	1000 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1623	MAX86160EFN+T	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1623	MAX86160EFN+T	-65C TO +150C (Condition C)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1631	MAX86907BEFD+T	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1631	MAX86907BEFD+T	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1631	MAX86907BEFD+T	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1639	MAX86907DEFD+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1639	MAX86907DEFD+	-65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1649	MAX86150EFF+	-65C TO +150C (Condition C)	500	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1649	MAX86150EFF+	-65C TO +150C (Condition C)	1000	CYS	77	0
Total:						0	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK		MAX86915EFD+	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1601	MAX86902EFD+	85 C/85% R.H.	1000	HRS	77	0
MOISTURE SOAK	1601	MAX86907BEFD+	85 C/85% R.H.	1000	HRS	76	0
MOISTURE SOAK	1601	MAX86907BEFD+	85 C/85% R.H.	1000	HRS	77	0
MOISTURE SOAK	1601	MAX86907BEFD+	85 C/85% R.H.	1000	HRS	77	0
MOISTURE SOAK	1616	MAX86160EFN+T	85 C/85% R.H.	1000	HRS	80	0
MOISTURE SOAK	1616	MAX86160EFN+T	85 C/85% R.H.	1000	HRS	80	0
MOISTURE SOAK	1616	MAX86160EFN+T	85 C/85% R.H.	1000	HRS	20	0
MOISTURE SOAK	1631	MAX86907BEFD+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1631	MAX86907BEFD+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1631	MAX86907BEFD+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1639	MAX86907DEFD+	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1639	MAX86907DEFD+	130C, 85% R.H.	96	HRS	76	0
MOISTURE SOAK	1639	MAX86907DEFD+	130C, 85% R.H.	120	HRS	77	0
MOISTURE SOAK	1639	MAX86907DEFD+	85 C/85% R.H.	120	HRS	40	0
Total:						0	0

FAILURE RATE: MTTF (YRS): 178539 FITS: 0.6