

8/1/2019



**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	10	LGA	ASE Chung-Li	14 OLGA (Pb-Free)
ASE Chung-Li	14	OLGA Hybrid	ASE Kaoshiung	44 OLGA Hybrid
ASE Korea	42	LGA	ATC (Amkor, China)	12 LGA (Pb-Free)
UTAC DG	10	LGA		

The calculated failure rate for this assembly is:

FAILURE RATE: MTTF (YRS): 154638 FITS: 0.7

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 4/1/2019 and 8/1/2019.

Assembly Information:

Package Type: LGA

Date Code Range: to

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX30208	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE		MAX30208	125°C	1000 HRS	79	0	
HIGH TEMP OP LIFE		MAX30208	125°C	1000 HRS	79	0	
Total:						0	

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW		MAX30207	260C +/-5C	3 PASS	40	0	
CONVECTION REFLOW		PI58	85 C/85% R.H.	3 PASS		0	
CONVECTION REFLOW		PI58	85 C/85% R.H.	3 PASS		0	
CONVECTION REFLOW		PI58	85 C/85% R.H.	3 PASS		0	
CONVECTION REFLOW		MAX30208	85 C/85% R.H.	3 PASS	99	0	
Total:						0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE		MAX30208	150°C	1000 HRS	80	0	
STORAGE LIFE		MAX30208	150°C	1000 HRS	80	0	
STORAGE LIFE		MAX30208	150°C	1000 HRS	80	0	
Total:						0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX30208	-65C TO +150C (Condition C)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX30208	-65C TO +150C (Condition C)	1000 CYS	79	0	
TEMP CYCLE, 5' RAMP, 10' DWELL		MAX30208	-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		MAX30208	130C, 85% R.H.	96 HRS	27	0	
BIASED MOISTURE		MAX30208	130C, 85% R.H.	96 HRS	26	0	
BIASED MOISTURE		MAX30208	130C, 85% R.H.	96 HRS	26	0	
BIASED MOISTURE		MAX30208	130C, 85% R.H.	96 HRS	26	0	
BIASED MOISTURE		MAX30208	130C, 85% R.H.	96 HRS	26	0	
					Total:	0	

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK		MAX30208	130C, 85% R.H.	264 HRS	80	0	
					Total:	0	

Assembly Information:

Package Type: LGA (Pb-Free)
Date Code Range: 1826 to 1826

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1826	MAX33250EELC+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1826	MAX33250EELC+	125°C	500 HRS	80	0	
HIGH TEMP OP LIFE	1826	MAX33250EELC+	125°C	500 HRS	80	0	
					Total:	0	

STORAGE LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1826	MAX33250EELC+	150°C	1000 HRS	80	0	
					Total:	0	

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1826	MAX33250EELC+	-40C TO +125C (Condition G)	1000 CYS	80	0	
TEMP CYCLE, 5' RAMP, 10' DWELL	1826	MAX33250EELC+	-40C TO +125C (Condition G)	1000 CYS	80	0	

TEMP CYCLE, 5' RAMP, 10' DWELL	1826	MAX33250EELC+	-40C TO +125C (Condition G)	1000	CYS	80	0
Total:							0

Assembly Information:

Package Type: OLGA (Pb-Free)
 Date Code Range: 1850 to 1850

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE		MAX86161EFD+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1850	MAX86161EFD+	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1850	MAX86161EFD+	125°C	1000 HRS	80	0	
Total:							0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE		MAX86161EFD+	85 C/85% R.H.	1000 HRS	80	0	
BIASED MOISTURE	1850	MAX86161EFD+	85 C/85% R.H.	1000 HRS	80	0	
Total:							0

Assembly Information:

Package Type: OLGA Hybrid
 Date Code Range: 1810 to 1825

OPERATING LIFE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1810	MAX86917EFD+T	125°C	1000 HRS	80	0	
HIGH TEMP OP LIFE	1814	MAXM22511GLH+	125°C	1000 HRS	30	0	
HIGH TEMP OP LIFE	1814	MAXM22511GLH+	125°C	1000 HRS	20	0	
HIGH TEMP OP LIFE	1814	MAXM22511GLH+	125°C	1000 HRS	30	0	
Total:							0

PACKAGE TESTS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
CONVECTION REFLOW	1825	MAX86917EFD+T	260C +0/-5C	3 PASS	300	0	
CONVECTION REFLOW	1825	MAX86917EFD+T	260C +0/-5C	3 PASS	300	0	
CONVECTION REFLOW	1825	MAX86917EFD+T	260C +0/-5C	3 PASS	300	0	
CONVECTION REFLOW	1825	MAX86917EFD+T	260C +0/-5C	3 PASS	200	0	
Total:							0

TEMPERATURE CYCLE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
TEMP CYCLE, 5' RAMP, 10' DWELL	1825	MAX86917EFD+T	-40C TO +125C (Condition G)	1000	CYS	80	0

TEMP CYCLE, 5' RAMP, 10' DWELL	1825	MAX86917EFD+T	-40C TO +125C (Condition G)	1000	CYS	80	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1825	MAX86917EFD+T	-40C TO +125C (Condition G)	1000	CYS	80	0
						Total:	0

TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1825	MAX86917EFD+T	85 C/85% R.H.	96	HRS	50	0
						Total:	0

UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1825	MAX86917EFD+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1825	MAX86917EFD+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1825	MAX86917EFD+T	130C, 85% R.H.	96	HRS	80	0
MOISTURE SOAK	1825	MAX86917EFD+T	130C, 85% R.H.	96	HRS	50	0
						Total:	0

FAILURE RATE: MTTF (YRS): 154638 FITS: 0.7