

**10/27/2017**



**RELIABILITY MONITOR REPORT  
FOR**

**CSP 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 Kaoshiung	30	uCSP (Pb-Free)	ASE Penang	30 uCSP (Pb-Free)
Dallas	6	uCSP (Pb-Free)	Dallas-Maxfilm	6 uCSP (Pb-Free)
JCAP	30	uCSP (Pb-Free)		

The calculated failure rate for this assembly is:

**FAILURE RATE: MTTF (YRS): 24247 FITS: 4.7**

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 7/1/2017 and 9/30/2017.

**Assembly Information:**

Package Type: uCSP (Pb-Free)

Date Code Range: 1614 to 9237

**OPERATING LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
HIGH TEMP OP LIFE	1650	MAX9879ERV+T	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1650	MAX9879ERV+T	135°C	1000 HRS	77	0	
HIGH TEMP OP LIFE	1650	MAX9879ERV+T	135°C	1000 HRS	77	0	
<b>Total:</b>						<b>0</b>	

**STORAGE LIFE**

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
STORAGE LIFE	1650	MAX9879ERV+T	150°C	1000 HRS	76	0	
STORAGE LIFE	1650	MAX9879ERV+T	150°C	1000 HRS	77	0	
STORAGE LIFE	1650	MAX9879ERV+T	150°C	1000 HRS	77	0	
STORAGE LIFE	1650	MAX9879ERV+T	150°C	1000 HRS	77	0	
STORAGE LIFE	1650	MAX9879ERV+T	150°C	1000 HRS	77	0	
STORAGE LIFE	9220	MAX9879ERV+T	150°C	1000 HRS	79	0	
STORAGE LIFE	9237	MAX9879ERV+T	150°C	500 HRS	80	0	
STORAGE LIFE	9237	MAX9879ERV+T	150°C	1000 HRS	80	0	
STORAGE LIFE	9237	MAX9879ERV+T	150°C	500 HRS	80	0	
STORAGE LIFE	9237	MAX9879ERV+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
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TEMP CYCLE, 15' RAMP, 15' DWELL	1614	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1615	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1619	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1621	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1622	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1627	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1629	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1630	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1630	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1631	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1631	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1634	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1637	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1637	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1641	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1643	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1644	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1644	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1647	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1649	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1650	MAX9028EBT+TCHE -40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1650	MAX9879ERV+T -40C TO +125C (Condtion G)	850	CYS	77	0
TEMP CYCLE, 5' RAMP, 10' DWELL	1650	MAX9879ERV+T -65C TO +150C (Condition C)	1000	CYS	77	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1650	MAX9879ERV+T -40C TO +125C (Condtion G)	850	CYS	77	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1650	MAX9879ERV+T -40C TO +125C (Condtion G)	850	CYS	77	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1650	MAX9879ERV+T -40C TO +125C (Condtion G)	1000	CYS	76	0

TEMP CYCLE, 15' RAMP, 15' DWELL	1650	MAX9879ERV+T	-40C TO +125C (Condtion G)	1000	CYS	77	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1651	MAX9028EBT+TCHE	-40C TO +125C (Condtion G)	100	CYS	80	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1713	MAX9879ERV+T	-40C TO +125C (Condtion G)	850	CYS	24	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1713	MAX9879ERV+T	-40C TO +125C (Condtion G)	500	CYS	24	0
TEMP CYCLE, 15' RAMP, 15' DWELL	1713	MAX9879ERV+T	-40C TO +125C (Condtion G)	1000	CYS	24	0
<b>Total:</b>						<b>0</b>	<b>0</b>

#### TEMPERATURE HUMIDITY BIAS

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
BIASED MOISTURE	1614	MAX9879EWV+	130C, 85% R.H.	264	HRS	77	0
BIASED MOISTURE	1614	MAX9879EWV+	130C, 85% R.H.	264	HRS	77	0
BIASED MOISTURE	1614	MAX9879EWV+	130C, 85% R.H.	264	HRS	77	0
BIASED MOISTURE	1650	MAX9879ERV+T	130C, 85% R.H.	264	HRS	77	0
BIASED MOISTURE	1650	MAX9879ERV+T	130C, 85% R.H.	264	HRS	22	0
BIASED MOISTURE	1650	MAX9879ERV+T	130C, 85% R.H.	264	HRS	77	0
BIASED MOISTURE	1650	MAX9879ERV+T	130C, 85% R.H.	264	HRS	80	0
BIASED MOISTURE	9220	MAX9879ERV+T	130C, 85% R.H.	264	HRS	80	0
<b>Total:</b>						<b>0</b>	<b>0</b>

#### UNBIASED MOISTURE RESISTANCE

DESCRIPTION	DATE CODE	TEST VEHICLE	CONDITION	READPOINT	QUANTITY	FAILS	FA NO
MOISTURE SOAK	1650	MAX9879ERV+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1650	MAX9879ERV+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1650	MAX9879ERV+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1650	MAX9879ERV+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1650	MAX9879ERV+T	130C, 85% R.H.	96	HRS	77	0
MOISTURE SOAK	1650	MAX9879ERV+T	130C, 85% R.H.	96	HRS	77	0
<b>Total:</b>						<b>0</b>	<b>0</b>

**FAILURE RATE: MTTF (YRS): 24247 FITS: 4.7**