



## Reliability Data Report

### Product Family R598

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LTM8001 / LTM8008 / LTM8020 / LTM8021 /  
LTM8022 / LTM8023 / LTM8024 / LTM8025 /  
LTM8026 / LTM8027 / LTM8028 / LTM8029 /  
LTM8031 / LTM8032 / LTM8033 / LTM8040 /  
LTM8041 / LTM8042 / LTM8045 / LTM8046 /  
LTM8047 / LTM8048 / LTM8050 / LTM8052 /  
LTM8053 / LTM8054 / LTM8055 / LTM8056 /  
LTM8057 / LTM8058 / LTM8061 / LTM8062 /  
LTM8064 / LTM8067 / LTM8068

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## Report Number: R598

Report generated on: Tue Apr 12 17:02:01 PDT 2016

OPERATING LIFE TEST					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS (+125°C) <sup>1</sup>	No. of FAILURES <sub>2,3</sub>
BGA 06X11	154	1145	1145	154	0
BGA 09X11	154	1052	1052	154	0
BGA 15X15	231	1120	1324	939	0
LGA 06X06	77	0717	0717	77	0
LGA 06X11	145	0749	1121	145	0
LGA 09X11	77	0733	0733	77	0
LGA 15X09	308	0809	0949	308	0
LGA 11X15	231	0945	1022	231	0
LGA 15X15	381	0821	1046	560	0
Totals	1,758	-	-	2,645	0

HIGHLY ACCELERATED STRESS TEST AT +130 DEG C / 85% RH					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS (+85°C) <sup>4</sup>	No. of FAILURES
BGA 06X11	357	1225	1437	1125	0
BGA 09X11	423	1236	1518	1218	0
BGA 15X09	512	1302	1527	1574	0
BGA 11X15	231	1516	1516	887	0
BGA 15X15	531	1236	1505	1605	0
LGA 06X06	46	0717	0717	85	0
LGA 09X11	117	1245	1245	224	0
LGA 15X09	779	0739	1509	2235	0
LGA 11X15	508	1213	1521	1529	0
LGA 15X15	279	1025	1512	461	0
Totals	3,783	-	-	10,943	0

PRESSURE COOKER TEST AT 15 PSIG , +121 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS	No. of FAILURES
LGA 09X11	20	1245	1245	1	0
Totals	20	-	-	1	0

(1) Assumes Activation Energy = 1.0 Electron Volts  
 (2) Failure Rate Equivalent to +55 °C, 60% Confidence Level =0.69 FITS  
 (3) Mean Time Between Failure in Years = 164707.08  
 (4) Assumes 20X Acceleration from 85 °C to +130 °C  
 Note 1: 1 FIT = 1 Failure in One Billion Hours.  
 Note 2: HAST, Temp Cycle & Thermal Shock are subjected to J-STD-020 MSL Preconditioning

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TEMP CYCLE FROM -55 TO 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 06X06	100	1435	1435	10	0
BGA 06X11	1040	1145	1508	959	0
BGA 09X11	2353	1036	1518	1589	0
BGA 15X09	453	1420	1527	184	0
BGA 11X15	231	1516	1516	240	0
BGA 15X15	878	1236	1505	1020	0
LGA 06X06	607	0717	1452	672	0
LGA 06X11	508	0804	1306	707	0
LGA 09X11	1372	0723	1446	1467	0
LGA 15X09	3922	0809	1517	4675	0
LGA 11X15	1210	0945	1507	1198	0
LGA 15X15	6034	0903	1517	2911	0
Totals	18,708	-	-	15,632	0
TEMP CYCLE FROM -65 TO 150 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 06X11	528	1138	1443	549	0
BGA 09X11	1143	1145	1512	695	0
BGA 15X09	1529	1302	1527	564	0
BGA 11X15	281	1335	1516	236	0
BGA 15X15	1017	1232	1505	1089	0
LGA 06X06	1815	0646	1510	1154	0
LGA 06X11	1258	0804	1516	775	0
LGA 09X11	6304	0723	1514	2416	0
LGA 15X09	7645	0739	1513	3751	0
LGA 11X15	2882	0945	1521	2432	0
LGA 15X15	4633	0831	1513	2530	0
Totals	29,035	-	-	16,191	0
THERMAL SHOCK FROM -55 TO 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 06X11	614	1141	1437	806	0
BGA 09X11	1048	1052	1518	1048	0
BGA 15X09	154	1527	1527	154	0
BGA 11X15	231	1516	1516	231	0
BGA 15X15	532	1236	1505	756	0
LGA 06X06	459	0717	1129	651	0
LGA 06X11	461	0804	1306	692	0
LGA 09X11	956	0723	1411	1479	0
LGA 15X09	3145	0809	1509	4445	0
LGA 11X15	766	0945	1245	1109	0
LGA 15X15	1458	0903	1201	2379	0
Totals	9,824	-	-	13,750	0

**THERMAL SHOCK FROM -65 TO 150 DEG C**

PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 06X11	457	1138	1437	458	0
BGA 09X11	712	1145	1452	622	0
BGA 15X09	812	1302	1527	551	0
BGA 11X15	231	1516	1516	231	0
BGA 15X15	653	1232	1505	873	0
LGA 06X06	1510	0717	1434	953	0
LGA 06X11	653	0804	1411	708	0
LGA 09X11	5949	0723	1435	2659	0
LGA 15X09	5753	0827	1513	3940	0
LGA 11X15	2690	0945	1521	2182	0
LGA 15X15	4686	0932	1512	2300	0
Totals	24,106	-	-	15,477	0

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POWER CYCLE FROM 50 TO 100 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
LGA 09X11	36	0732	0732	1800	0
Totals	36	-	-	1,800	0

HIGH TEMPERATURE BAKE AT 150 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS	No. of FAILURES
BGA 06X11	331	1225	1437	331	0
BGA 09X11	1008	1036	1518	983	0
BGA 15X09	333	1302	1527	333	0
BGA 11X15	231	1516	1516	231	0
BGA 15X15	717	1147	1505	873	0
LGA 06X06	706	0717	1327	788	0
LGA 06X11	225	0804	1316	300	0
LGA 09X11	3148	0723	1411	2954	0
LGA 15X09	4688	0820	1513	5196	0
LGA 11X15	1837	0809	1315	2348	0
LGA 15X15	2085	0816	1512	2320	0
Totals	15,309	-	-	16,657	0

HIGH TEMPERATURE BAKE AT 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS	No. of FAILURES
BGA 06X11	97	1443	1443	97	0
BGA 09X11	544	1245	1508	544	0
BGA 15X09	199	1406	1441	199	0
LGA 06X06	199	1327	1451	174	0
LGA 06X11	150	1347	1448	125	0
LGA 09X11	1343	1313	1514	1268	0
LGA 15X09	1631	1333	1507	1506	0
LGA 11X15	398	1326	1449	373	0
LGA 15X15	4319	1326	1449	4069	0
Totals	8,880	-	-	8,355	0

HIGH TEMPERATURE BAKE AT 175 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS	No. of FAILURES
BGA 15X09	47	1036	1036	47	0
LGA 09X11	50	1245	1245	50	0
LGA 11X15	154	1041	1041	77	0
LGA 15X15	844	1006	1045	847	0
Totals	1,095	-	-	1,021	0

- (5) Board Mount Temp Cycle Meets IPC-9701 / JESD22-A104.  
 (6) Board Mount Temp Cycle Includes Full Electrical Characterization, XRAY & Cross-sections.  
 (7) Each Board Mounted Vehicle is Cycled up to 2000 Times or More.

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### BOARD MOUNTED TEMP CYCLE FROM -55 TO 125 DEG C

PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES <sup>5,6,7</sup>	No. of FAILURES
BGA 15X09	82	1036	1036	247	0
LGA 09X11	37	0806	0806	74	0
LGA 15X09	90	0821	0821	132	0
Totals	209	-	-	453	0

### BOARD MOUNTED TEMP CYCLE FROM -40 TO 125 DEG C

PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES <sup>5,6,7</sup>	No. of FAILURES
LGA 09X11	221	0723	0723	444	0
LGA 15X15	313	0749	1210	623	0
Totals	534	-	-	1,067	0

### MECHANICAL SHOCK (JESD22-B104 CONDITION B - PEAK = 1500G)

PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE		No. of FAILURES
LGA 06X11	45	0804	0804		0
LGA 09X11	43	0723	0723		0
LGA 15X09	60	0827	0834		0
LGA 15X15	87	0816	1210		0
Totals	235	-	-		0

### VIBRATION VARIABLE FREQUENCY (JESD22-B103 CONDITION A - PEAK = 20G)

PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE		No. of FAILURES
LGA 06X11	45	0804	0804		0
LGA 09X11	45	0723	0723		0
LGA 15X09	60	0827	0834		0
LGA 15X15	199	0816	1210		0
Totals	349	-	-		0