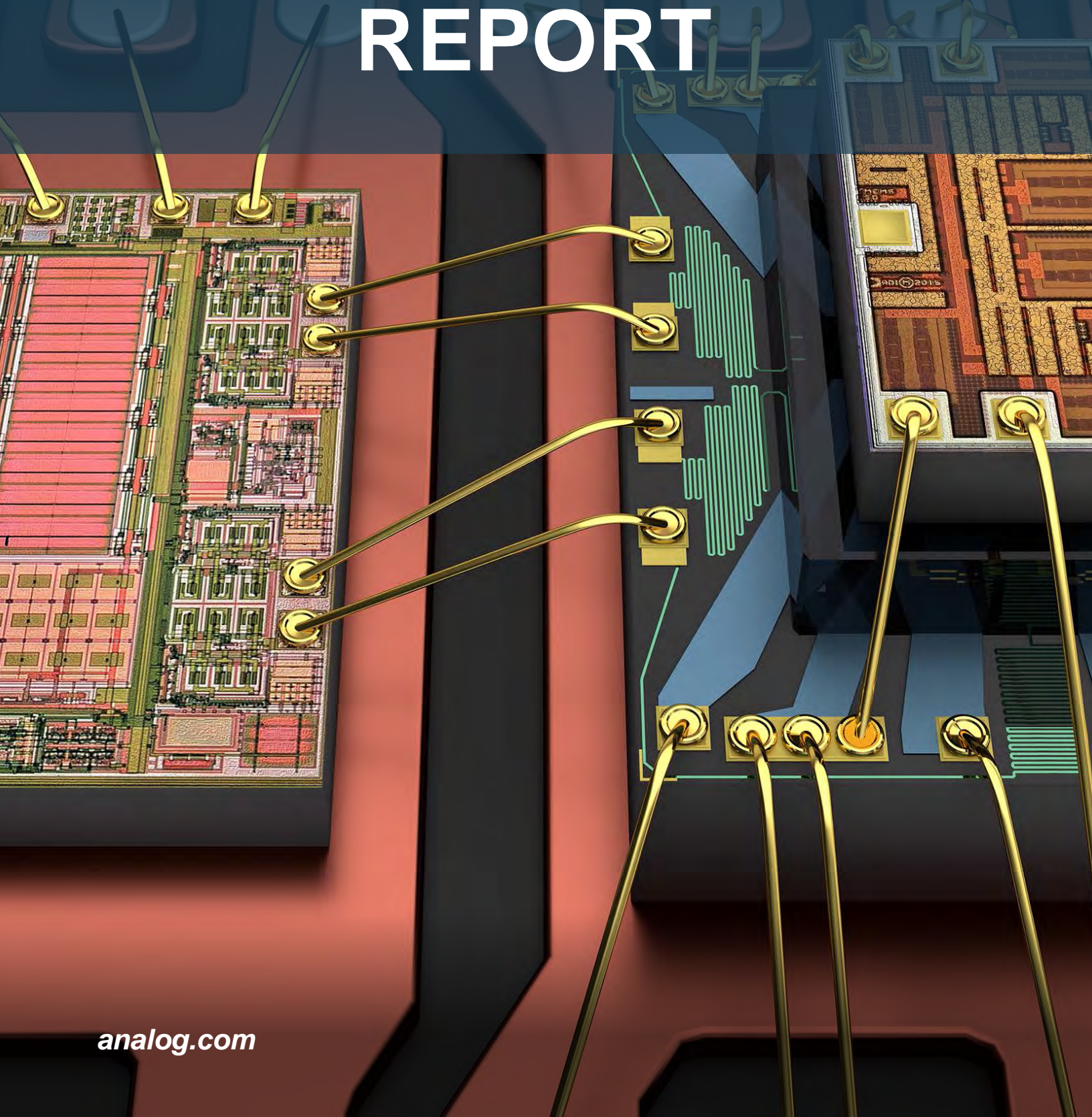


RELIABILITY REPORT





NOW PART OF



Reliability Data Report Product Family R598

LTM8001 / LTM8003 / LTM8008 / LTM8020 /
LTM8021 / LTM8022 / LTM8023 / LTM8024 /
LTM8025 / LTM8026 / LTM8027 / LTM8028 /
LTM8029 / LTM8031 / LTM8032 / LTM8033 /
LTM8040 / LTM8041 / LTM8042 / LTM8045 /
LTM8046 / LTM8047 / LTM8048 / LTM8049 /
LTM8050 / LTM8052 / LTM8053 / LTM8054 /
LTM8055 / LTM8056 / LTM8057 / LTM8058 /
LTM8061 / LTM8062 / LTM8064 / LTM8065 /
LTM8067 / LTM8068 / LTM8073

Reliability Data Report

Report Number: R598

Report generated on: Mon Mar 05 11:12:17 PST 2018

OPERATING LIFE TEST					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS (+125°C)¹	No. of FAILURES _{2,3}
BGA 06X11	154	1145	1145	154	0
BGA 09X11	154	1052	1052	154	0
BGA 15X09	77	1533	1533	77	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	1,835	-	-	2,722	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)⁴	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	250	0717	1527	868	0
LGA 06X11	80	1632	1632	153	0
LGA 09X11	197	1245	1631	378	0
LGA 15X09	779	0739	1509	2235	0
LGA 11X15	508	1213	1521	1529	0
LGA 15X15	279	1025	1512	461	0
Totals	4,147	-	-	12,033	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 06X06	457	1440	1547	570	0
BGA 06X11	1771	1138	1632	674	0
BGA 09X11	2640	1145	1632	845	0
BGA 15X09	2695	1302	1634	701	0
BGA 11X15	795	1335	1634	287	0
BGA 15X15	2319	1232	1623	1226	0
LGA 06X06	2093	0646	1618	1306	0
LGA 06X11	1608	0804	1625	810	0
LGA 09X11	7573	0723	1636	2715	0
LGA 15X09	9193	0739	1635	3906	0
LGA 11X15	4119	0945	1632	2911	0
LGA 15X15	7277	0831	1637	2816	0
Totals	42,540	-	-	18,767	0

- (1) Assumes Activation Energy = 1.0 Electron Volts
- (2) Failure Rate Equivalent to +55 °C, 60% Confidence Level = 0.67 FITS
- (3) Mean Time Between Failure in Years = 169501.92
- (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	474	1435	1547	562	0
BGA 06X09	50	1652	1652	5	0
BGA 06X11	1239	1145	1710	979	0
BGA 09X11	2852	1036	1651	1639	0
BGA 15X09	653	1420	1710	204	0
BGA 11X15	381	1516	1711	255	0
BGA 15X15	1827	1236	1710	1339	0
LGA 06X06	997	0717	1648	972	0
LGA 06X11	602	0804	1632	895	0
LGA 09X11	2418	0723	1712	1571	0
LGA 15X09	4772	0809	1714	4760	0
LGA 11X15	1310	0945	1701	1208	0
LGA 15X15	7584	0903	1702	3066	0
Totals	25,159	-	-	17,455	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 06X06	364	1440	1547	329	0
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	1723	0717	1527	1103	0
LGA 06X11	653	0804	1411	708	0
LGA 09X11	6039	0723	1631	2839	0
LGA 15X09	5753	0827	1513	3940	0
LGA 11X15	2887	0945	1632	2576	0
LGA 15X15	4686	0932	1512	2300	0
Totals	24,970	-	-	16,530	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 06X06	442	1440	1547	539	0
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	780	1236	1639	1004	0
LGA 06X06	680	0717	1527	872	0
LGA 06X11	560	0804	1632	890	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	10,834	-	-	14,956	0

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

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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

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	1058	1036	1518	1033	0
BGA 15X09	402	1302	1634	402	0
BGA 11X15	655	1424	1634	655	0
BGA 15X15	1224	1147	1606	1355	0
LGA 06X06	856	0717	1527	938	0
LGA 06X11	270	0804	1632	390	0
LGA 09X11	3193	0723	1631	3044	0
LGA 15X09	4738	0820	1531	5246	0
LGA 11X15	1927	0809	1632	2528	0
LGA 15X15	2085	0816	1512	2320	0
Totals	16,739	-	-	18,242	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 06X09	50	1652	1652	50	0
BGA 06X11	546	1443	1626	546	0
BGA 09X11	1234	1245	1642	1234	0
BGA 15X09	846	1406	1621	846	0
BGA 15X15	100	1533	1604	100	0
LGA 06X06	238	1327	1537	213	0
LGA 06X11	250	1347	1625	225	0
LGA 09X11	2780	1313	1704	2705	0
LGA 15X09	2355	1333	1645	2206	0
LGA 11X15	598	1326	1631	523	0
LGA 15X15	4469	1326	1649	4219	0
Totals	13,466	-	-	12,867	0

BOARD MOUNTED TEMP CYCLE FROM -55 TO 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES ^{5,6,7}	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

(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.

Reliability Data Report

Report Number: R598

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BOARD MOUNTED TEMP CYCLE FROM -40 TO 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES ^{5,6,7}	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