



NOW PART OF



Reliability Data Report

Product Family R597

LTM9001 \ LTM9002 \ LTM9003 \ LTM9004 \
LTM9006 \ LTM9007 \ LTM9008 \ LTM9009 \
LTM9010 \ LTM9011 \ LTM9012 \ LTM9013 \
LTM9100

Reliability Data Report

Report Number: R597

Report generated on: Thu Aug 16 09:38:59 PDT 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 09X11	77	1052	1052	77	0
BGA 09x22	77	1529	1529	431	0
BGA 11X15	77	1145	1145	77	0
BGA 15X15	77	1206	1206	77	0
LGA 11X11	154	0738	0738	154	0
LGA 11X15	154	0722	0919	154	0
Totals	616	-	-	970	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 15X15	98	1231	1243	280	0
LGA 15X22	40	1306	1306	78	0
Totals	138	-	-	358	0

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 09X11	91	1125	1505	46	0
BGA 09x22	147	1428	1444	226	0
BGA 15X15	308	1206	1243	310	0
LGA 11X11	469	0736	0901	572	0
Totals	1,015	-	-	1,154	0

TEMP CYCLE FROM -40 TO 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 09X11	308	1016	1111	545	0
BGA 11X15	77	1044	1044	76	0
BGA 15X15	154	0491	1221	154	0
LGA 11X11	461	0848	1128	405	0
LGA 11X15	1577	0841	1148	1537	0
LGA 15X15	149	0852	1003	222	0
LGA 15X22	145	1152	1306	111	0
Totals	2,871	-	-	3,050	0

- (1) Assumes Activation Energy = 1.0 Electron Volts
 (2) Failure Rate Equivalent to +55 °C, 60% Confidence Level = 1.89 FITS
 (3) Mean Time Between Failure in Years = 60402.97
 (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 -65 TO 150 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 09X11	100	1518	1518	10	0
LGA 11X11	303	0736	1022	411	0
LGA 11X15	1476	0819	1104	1033	0
LGA 15X15	77	0745	0745	38	0
Totals	1,956	-	-	1,492	0

TEMP CYCLE FROM -40 TO 85 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 09X11	308	1016	1111	545	0
BGA 11X15	77	1044	1044	76	0
BGA 15X15	154	0491	1221	154	0
LGA 11X11	461	0848	1128	405	0
LGA 11X15	1577	0841	1148	1537	0
LGA 15X15	149	0852	1003	222	0
LGA 15X22	145	1152	1306	111	0
Totals	2,871	-	-	3,050	0

THERMAL SHOCK FROM -40 TO 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	No. of FAILURES
BGA 09X11	304	1016	1111	531	0
BGA 11X15	77	1044	1044	77	0
BGA 15X15	142	0491	1221	147	0
LGA 11X11	456	0824	1128	380	0
LGA 11X15	1188	0841	1127	1241	0
LGA 15X22	219	0852	1306	219	0
Totals	2,386	-	-	2,595	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 09x22	145	1428	1444	110	0
BGA 15X15	151	1206	1243	151	0
LGA 11X11	371	0736	0912	478	0
Totals	667	-	-	739	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
LGA 11X11	254	0736	1022	408	0
LGA 11X15	1300	0945	1104	870	0
Totals	1,554	-	-	1,278	0

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HIGH TEMPERATURE BAKE AT 125 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HRS	No. of FAILURES
BGA 09X11	99	1518	1518	99	0
Totals	99	-	-	99	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 09X11	154	1048	1052	308	0
BGA 15X15	100	1231	1243	100	0
LGA 11X11	303	0736	1022	328	0
LGA 11X15	1204	0819	1127	1173	0
LGA 15X22	77	1306	1306	77	0
Totals	1,838	-	-	1,986	0

BOARD MOUNTED TEMP CYCLE FROM 0 TO 100 DEG C					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES ^{5, 6, 7}	No. of FAILURES
LGA 15X22	40	0911	0911	240	0
Totals	40	-	-	240	0

MECHANICAL SHOCK (JESD22-B104 CONDITION B - PEAK = 1500G)					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE		No. of FAILURES
BGA 09X11	43	1016	1052		0
LGA 11X11	29	0736	0736		0
Totals	72	-	-		0

VIBRATION VARIABLE FREQUENCY (JESD22-B103 CONDITION A - PEAK = 20G)					
PACKAGE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE		No. of FAILURES
BGA 09X11	43	1016	1052		0
LGA 11X11	29	0736	0736		0
Totals	72	-	-		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.