

RELIABILITY REPORT





Reliability Data Report

Product Family R427

LTC4210 / LTC4211 / LTC4212 / LTC4214 /
LTC4230 / LTC4240 / LTC4241 / LTC4244 /
LTC4251 / LTC4252 / LTC4253 / LTC4350

RELIABILITY DATA

R427

6/25/2021

| • OPERATING LIFE TEST | | | | | |
|---|-------------|------------------|------------------|--------------------------------------|--------------------|
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE HOURS AT +125°C | NUMBER OF FAILURES |
| SSOP/TSSOP | 2278 | 0040 | 1243 | 1669.9 | 0 |
| SOIC/MSOP | 8099 | 0040 | 2044 | 3826 | 0 |
| SOT | 638 | 0531 | 1444 | 156.1 | 0 |
| Total | 11015 | | | 5652 | 0 |
| • BIASED HIGHLY ACCELERATED STRESS TEST AT +130°C / 85%RH * | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | Equivalent K DEVICE HOURS AT +85°C** | NUMBER OF FAILURES |
| SSOP/TSSOP | 330 | 1634 | 1942 | 633.6 | 0 |
| SOIC/MSOP | 2309 | 1513 | 2053 | 5187.8 | 0 |
| SOT | 556 | 1610 | 1727 | 1221.1 | 0 |
| Total | 3195 | | | 7042.5 | 0 |
| • TEMPERATURE HUMIDITY BIAS TEST AT +85°C / 85%RH * | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE HOURS AT +85°C | NUMBER OF FAILURES |
| MSOP/SOIC | 70 | 1137 | 1941 | 70 | 0 |
| Total | 70 | | | 70 | 0 |
| • UNBIASED HIGHLY ACCELERATED STRESS TEST AT +130°C / 85%RH * | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | Equivalent K DEVICE HOURS AT +85°C** | NUMBER OF FAILURES |
| MSOP/SOIC | 60 | 1643 | 1645 | 115.2 | 0 |
| Total | 60 | | | 115.2 | 0 |
| • PRESSURE COOKER TEST AT 15PSIG, +121°C * | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE HOURS | NUMBER OF FAILURES |
| QFN/DFN | 150 | 0511 | 0741 | 34.8 | 0 |
| SSOP/TSSOP | 5917 | 0027 | 1605 | 506.1 | 0 |
| SOIC/MSOP | 6616 | 0104 | 2044 | 447.9 | 0 |
| SOT | 4032 | 0143 | 1628 | 313.2 | 0 |
| Total | 16715 | | | 1302 | 0 |

| • TEMPERATURE CYCLE TEST AT -65°C to +150°C * | | | | | |
|--|-------------|------------------|------------------|-----------------|--------------------|
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE CYCLES | NUMBER OF FAILURES |
| QFN/DFN | 150 | 0511 | 0741 | 55 | 0 |
| SSOP/TSSOP | 1639 | 0027 | 1605 | 558.3 | 0 |
| SOIC/MSOP | 7858 | 9952 | 2003 | 1486.6 | 0 |
| SOT | 3355 | 0143 | 1628 | 626.5 | 0 |
| Total | 13002 | | | 2726.4 | 0 |
| • THERMAL SHOCK TEST AT -65°C to +150°C * | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE CYCLES | NUMBER OF FAILURES |
| QFN/DFN | 150 | 0511 | 0741 | 55 | 0 |
| SSOP/TSSOP | 1138 | 0129 | 1605 | 393.6 | 0 |
| SOIC/MSOP | 3801 | 0105 | 1749 | 909.8 | 0 |
| SOT | 2702 | 0143 | 1628 | 580 | 0 |
| Total | 7791 | | | 1938.4 | 0 |
| • HIGH TEMPERATURE STORAGE LIFE TEST AT +175°C | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE HOURS | NUMBER OF FAILURES |
| SOIC/MSOP | 435 | 1436 | 1604 | 319.7 | 0 |
| Total | 435 | | | 319.7 | 0 |
| • HIGH TEMPERATURE STORAGE LIFE TEST AT +150°C | | | | | |
| PACKAGE TYPE | SAMPLE SIZE | OLDEST DATE CODE | NEWEST DATE CODE | K DEVICE HOURS | NUMBER OF FAILURES |
| SOIC/MSOP | 1231 | 1528 | 1952 | 1206 | 0 |
| Total | 1231 | | | 1206 | 0 |
| <p>(1) Failure Rate Equivalent to +55C, Assuming 60% Confidence Level & Activation Energy of 0.7eV = 2.1FIT</p> <p>(2) Mean Time Between Failures (MTBF) = 54,786 yr</p> <p>* Test is preceded by JEDEC Preconditioning: 168h 85°C/85% R.H. plus 3x IR at 260°C.</p> <p>** Assumes 20X acceleration from +85°C to +130°C</p> | | | | | |
| Note: 1 FIT = 1 Failure in One Billion Hours. | | | | | |