Reliability qualification information

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| **Stress** | **Conditions** | **Duration** | **Quantity** | **Rejects** |
| Stress  Pre and Post stress electrical test | Tamb = 25°C | N/A | All parts | See below |
| PC  Preconditioning | JESD22-A113  Bake Tamb = 125°C  Soak Tamb = 85°C, RH = 85%  reflow | 24 hours  168 hours  3 cycles | 924 | 0 |
| HTRB  High temperature reverse bias | MIL-STD-750-1  Tj = Tj max, VDS = 80% of rated  Voltage M1039 Method A | 1000 hours | 231 | 0 |
| HTGB  High temperature gate bias | JESD22-A108  Tj = Tj max, VGS = 20V(SL), 16V (LL) | 1000 hours | 231 | 0 |
| TC  Temperature Cycling | JESD22-A104  -55°C to 150°C | 500 cycles | 231 | 0 |
| UHAST  Unbiased highly accelerated stress test | JESD22-A118  Tamb = 130°C, RH = 85%  Pressure = +2.27atm | 96 hours | 231 | 0 |
| HAST\*  Highly accelerated stress test | JESD22-A110  Tamb = 130°C, RH = 85%  VDS = 80% of rated voltage | 96 hours | 231 | 0 |
| H3TRB\*  Temperature Humidity bias | JESD22-A101  Tamb = 85°C, RH = 85%  VDS = 80% of rated voltage | 1000 hours |
| IOL  Intermittent operating life | MIL-STD-750 method 1037  ΔTj = 80°C | 5000 cycles | 231 | 0 |
| RSH  Resistance to solder heat | JESD22-A111 (SMD)  260°C ± 5°C | 10s | 30 | 0 |
| SD  Solderability | IPC/ECA J-STD-002  Method A dip and look  No aging, solder Ta = 245°C | 3 sec dip | 66 | 0 |
| IPC/ECA J-STD-002  Method B dip and look  No aging  Solder Ta = 245°C  >95% lead coverage required  Steam Aging: condition C  Steam Ta = 93°C, 8 hours  Solder Ta = 245°C, 3 sec dip | 8 hours  3 sec dip | 66 | 0 |
| Dry Bake:  Ta = 150°C  Solder Ta = 245°C  >95% lead coverage required | 16 hours  3 sec dip | 66 | 0 |

\*Either HAST or HT3RB are tested for a set of devices.

Calculation of FIT and MTBF

Test considered for FIT calculation: High Temperature Reverse Bias (HTRB) and High temperature Gate Bias (HTGB). Confidence level 60%, derated to 55°C, activation energy 0.7Ev test time 168 to 1000 hours.

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| **Technology** | **Quantity** | **Failure rate** | **MTBF** |
|  | 462 | 2.6 | 3.83E+8 |