Reliability Calculation

Assumptions for the Prediction

1. Prediction is preliminary, part count, before schematics are available
2. Most failure rates are taken from MIL-HDBK-217, Rev. F, Notice 2
3. Detector MTBF is not included. Detectors are not considered parts.
4. MTBF for dc-dc converters provided by Lydia Lee at GSFC
5. Discrete semiconductors are MIL-PRF-19500, JTXV or better
6. Resistors are surface mount chip per MIL-PRF-55342, level R or better
7. Ceramic capacitors are surface mount chip per MIL-PRF-55681, level R or better
8. Tantalum capacitors are surface mount chip per MIL-PRF-55365, level R or better
9. Microcircuits are per Standard Microcircuit Drawings (SMDs)
10. Hybrids are per MIL-PRF-38535, preferably SMD.

Probability of Mission Success P_s

$P_s = e^{-\lambda t}$

$P_s = e^{-0.030576}$

$P_s = .96989$

Where:

λ = 3.569477 X 10 -6 hours

t = 8736 hours

λt = .0.030576

e = 2.71828

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