

Using Simple Tools to Solve Complex Reliability Analysis Problems

High reliability of semiconductor equipment and devices is a hallmark of the semiconductor industry. The continual introduction of advanced materials, new processes, and novel devices presents demanding new challenges for modeling and assessing device reliability during development, production and field lifetime.

This presentation will show how a reliability engineer can master state-of-the-art reliability analysis techniques using either JMP statistical software or an Excel spreadsheet. The techniques will be illustrated by looking at several problem cases that range from a typical laboratory accelerated life-test experiment to a complex field analysis aimed at comparing the reliability performance of products made at different plants and by different processes. One example, based on actual semiconductor life-test data, will show how to detect and fit a defect model where some of the units on test are highly susceptible to failure for the mechanism under investigation and others are not susceptible.

Key Words: Reliability, Life Testing, Software Reliability Analysis Tools, Defect Models, Accelerated Testing

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