SPACE POWER SYMPOSIUM (C3)
Advanced Space Power Technologies and Concepts (3)

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ANALYSIS OF LIFE DEGRADATION AND RESEARCH ON EXPERIMENTAL VERIFICATION METHOD OF ACCELERATED LIFE BASED ON THE AEROSPACE SOLID-STATE POWER CONTROLLER DEVICES

Abstract

The Aerospace solid-state power controller(SSPC) devices is the key unit of the intelligent power distribution system with high reliability, long life and other characteristics. The Analysis of SSPC's Life degradation is able to disclose its lifetime variation. Aiming at the aerospace application requirements of SSPC, this paper focus on such following problems: failure mode, variation in the different loads and life degradation under the impact of various environmental pressures. At the same time, the accelerated life model and error distribution have been studied and the experimental verification methods of Accelerated Life have been put forward. In this paper, the application of research results is able to provide scientific reliability prediction methods and optimization design guidelines for the intelligent power distribution system.

Key Words: solid-state power controller device, Life degradation, the impact of environmental pressuresexperimental methods of Accelerated Life