

The Research of Reliability of MEMS Device under Thermal Shock Test in Space Mission

Authors : Liu Ziyu, Gao Yongfeng, Li Muhua, Zhao Jiahao, Meng Song

Abstract : The effect of thermal shock on the operation of micro electromechanical systems (MEMS) were examined. All MEMS device were tested before and after three different conditions of thermal shock (from -55°C to 85°C, from -65°C to 125°C, from -65°C to 200°C). The micro lens showed no changes after thermal shock, which shows that the design of the micro lens can be well adapted to the application environment in the space. The design of the micro mirror can be well adapted to the space application environment. The micro-magnetometer, RF MEMS switch and the micro accelerometer exhibited degradation and parameter drift after thermal shock, potential mechanical was proposed.

Keywords : MEMS, thermal shock test, reliability, space environment

Conference Title : ICMN 2015 : International Conference on Microelectronics and Nanoelectronics

Conference Location : Bangkok, Thailand

Conference Dates : December 17-18, 2015