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Novel Approaches for Dynamic Soft-Landing in Capacitive Microelectromechanical Switches

A novel internal method for reducing electrode landing force in MEMS switches enhances device reliability and extends switch lifespan without requiring external electrical circuitry.

When a capacitive mechanical switch opens and closes, the electrodes contact the dielectric layer with a given force. A greater landing force increases the probability that the dielectric layer sustains damage and reduces the life of the switch. This is a reliability problem. Current technology utilizes external electrical circuitry to reduce the landing force of the electrode on the dielectric layer.

Researchers at Purdue University have developed a novel method for reducing the landing force for MEMS switches, which does not require circuitry that is external to the switch. Reducing the landing force improves the reliability and extends the life of the switch.

Advantages:

-Reduced land force

-Improved reliability

-Extends life of the switch

Potential Applications:

-Electronic component manufacturers

TRL: 4

Intellectual Property:

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