

# High-Isolation Tunable MEMS Capacitive Switch

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## BACKGROUND

For a typical MEMS switch, the resonant frequency is around 20 to 30 GHz which can not be employed by commercial wireless systems operating at a frequency band of 2 to 8 GHz. This resonant frequency can be tuned by changing the inductance of the switch membrane. When inductance is increased, the resonant frequency is moved to a lower frequency band at which location, high isolation is achieved. There have been many published solutions to this problem but it has been found to be difficult to further lower the resonant frequency to C-band levels due to the unrealistically large inductance required.

## TECHNOLOGY DESCRIPTION

University researchers have developed a high isolation switch capable of obtaining C-band frequencies, without the need for changes in current process, and with minimum modifications is current switch designs.

## APPLICATIONS

The design is useful for smart antenna systems, variable capacitors, on-chip inductors, tunable filters, and tunable RF matching circuits.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,074,346	12/13/2011	2003-361
United States Of America	Issued Patent	7,541,898	06/02/2009	2003-361
United States Of America	Issued Patent	7,265,647	09/04/2007	2003-361

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## OTHER INFORMATION

### KEYWORDS

MEMS, Capacitive switch

### CATEGORIZED AS

- » **Communications**
  - » Wireless
- » **Engineering**
  - » Engineering
- » **Nanotechnology**
  - » Electronics

### RELATED CASES

2003-361-0

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