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Characteristics of variable capacitors using dual piezoelectric actuation bridges of in-plane polarized lead zirconatetitanate films

Feel-soon Kang

Hanbat National University, Republic of Korea

Variable capacitors using dual piezoelectric actuation bridges of in-plane polarized lead zirconatetitanate (PZT) films are demonstrated. The in-plane polarized PZT films make it possible to develop d33 mode bending devices which lead to about two times improvement in strain performance. And dual actuation mechanism is adopted to improve reliability of devices. The PZT thin film, deposited on Au structural layer using RF magnetron sputtering method, was poled and driven with inter digitated electrodes (IDE) to exploit d33 mode actuation. The fabricated capacitors show that the variable ranges are wide of more than 80% of its initial value under low driving voltages.

Biography

Feel-soon Kang received the MS and PhD degrees from Pusan National University, Busan, Korea, in 2000 and 2003, respectively. From 2003 to 2004, he was with the Department of Electrical Engineering, Osaka University, Osaka, Japan, as a Postdoctoral Fellow. Since September 2004, he has been with the Department of Electronics and Control Engineering, Hanbat National University, Daejeon, Korea, as Professor. His research activities include the area of power electronics, including the design and control of various power conversion systems for display, renewable energy, electric vehicles, and submarines.

feelsoon@hanbat.ac.kr

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