



Contribution ID: 113

Type: **Poster Presentation**

Optimized High Voltage Analog Switch IC using Low Breakdown SOI technology

Tuesday 5 June 2018 13:30 (1h 30m)

Low ON-resistance high voltage analog switch ICs are mainly used for ultra sound imaging system or PCB bare board E-checker system. Especially, PCB E-checker test adjacent PADs open or short state under high voltage over 200V aging condition using Kelvin 4 terminal measurement. To operate switch over 200V, gate oxide thickness should be thicken to guarantee breakdown voltage between gate and source. In this work, Conventional 250V SOI process Lateral High voltage MOSFET (LDMOS) with 20V Gate-Oxide breakdown is used for low ON-resistance analog switch.

To implement bi-directional analog switch, Solid State Relay (SSR) structure was adopted and the level shifting includes the circuits to clamp the gate voltage using a diode and a capacitor. Using HVCMOS technology, this device combines high voltage bilateral DMOS switches and low power CMOS logic to provide efficient control of high voltage analog signals. We use high voltage BCD-SOI process to produce very efficient isolation characteristic and it can be high channel density for greater performance in less space. The proposed structure adopting current boosting short-pulse level shifter and it is suited for low power consumption and high speed switching. The chip size if the developed IC could be reduced 40% compared with the conventional one.

Author: Dr KIM, EUNG-JU (KOREA POLYTECHNICS)

Session Classification: Poster 2 - High Voltage Design and Power Modulator Components