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Single Supply Differential Capacitive Sensor with Parasitic Capacitance and Resistance Consideration (Conference Paper)

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Abstract

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A single supply differential capacitive sensing technique is presented in this paper with the focus of parasitic integration. In real application, any capacitive sensor should consider parasitic in its measurement. The aim of this paper is to analyze the effect of capacitive and resistive parasitic to the network circuit. The derivation theory of the differential capacitive sensor circuit is elaborated first. Then, comparison is made using simulation. Test was carried out using frequency from 40 k Hz up to 400 kHz. Result is presented and have shown good linearity of 0.99984 at 300 k Hz, R-squared value. Future application is expected to be used for capacitive sensor that is making use of energy harvesting application. © 2018 IEEE.

SciVal Topic Prominence

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