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Parasitic consideration for differential capacitive sensor (Article)

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Abstract

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Parasitic integration for a single supply differential capacitive sensing technique is presented in this paper. In real capacitive sensor measurement, parasitic impedance exists in its measurement. This paper objective is to study the effect of capacitive and resistive parasitic to the capacitive sensor circuit. The differential capacitive sensor circuit derivation theory is elaborated first. Then, comparison is made using simulation. Test was carried out using frequency from 40 kHz up to 400 kHz. Result is presented and have shown good linearity of 0.99984 at 300 kHz, R-squared value. This capacitive sensor is expected to be used for energy harvesting application. © 2019 Institute of Advanced Engineering and Science. All rights reserved.

SciVal Topic Prominence ⓘ

Topic: Capacitive sensors | Capacitance | Capacitance-to-digital converter

Prominence percentile: 84.948 ⓘ

Author keywords

CVC Differential capacitive sensing Parasitic impedance Results improvement Sensor sensitivity

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