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International Journal of Computer Applications
© 2011 by IJCA Journal

Volume 36 - Number 5

Year of Publication: 2011

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10.5120/4484-6310

{bibtex}pxc3976310.bib{/bibtex}

Abstract

This paper presents a capacitive sensor of current-mode where differential capacitors are used .For its design ,we use analog blocks such as current source and differential amplifier .By

changing the value of differential capacitors, the output of the sensor becomes more linear which leads to enhancing the precision of the sensor. This circuit is designed and simulated by HSPICE software in 0.18 μm CMOS process.

References

- L. K. Baxter, *Capacitive Sensors—Design and Applications*. New York:IEEE Press, 1997.
- H. Baltes, O. Brand, G. K. Fedder, C. Hierold, J. G. Korvink, and O. Tabata, Eds., *Enabling Technology for MEMS and Nanodevices*. Weinheim, Germany: Wiley-VCH, 2004, ch.3.
- B. George and V. J. Kumar, "Switched capacitor signal conditioning for differential capacitive sensors," *IEEE Trans. Instrum. Meas.*, vol. 56, no. 3, pp. 913–917, Jun. 2007.
- J. E. Gaitán-Pitre, M. Gasulla, and R. Pallàs-Areny, "Direct interface for capacitive sensors based on the charge transfer method," in *Proc IMTC, Warsaw, Poland, 2007*, pp. 1–5.
- W. Bracke, P. Merken, R. Puers, and C. V. Hoof, "Ultra-low-power interface chip for autonomous capacitive sensor systems," *IEEE Trans. Circuits Syst. I, Reg. Papers*, vol. 54, no. 1, pp. 130–140, Jan. 2007
- S. Ogawa, Y. Oisugi, and K. Watanabe, "A Switched-Capacitor Interface for Differential Capacitance Transducers," *IEEE Trans. Instrum. Meas.*, vol. IM-50, pp. 1296-1301, Oct. 2001.
- T. Singh, T. Seather, T. Yetterdal "Current-mode capacitive sensor interface circuit with single-ended to differential output capability" *IEEE Trans. Instrum. Meas.*, vol. 58, no. 1, pp. 3914-3920, November. 2009.

Index Terms

Computer Science

Integrated Circuits

Keywords

Current-mode
Differential capacitive

Capacitive sensor

