Design of CMOS based Transimpedance Amplifier for Bandwidth Enhancement with Large Gain

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 138
Number 12

Year of Publication: 2016

Authors:
Vikas Kushwah, Amjad Quazi, Nitin Muchhal

10.5120/ijca2016909067

Abstract

This paper presents a differential architecture of CMOS transimpedance amplifier to obtain the input capacitive load insensitive and the very minimum noise structure. The suggested TIA is dependent on the differential structure and composed of a regulated cascode block and a differential amplifier along with active feedback. To increase the bandwidth of the amplifier series inductive peaking and a capacitive degeneration step employed. Simulation results show that the TIA achieves 100 GHz bandwidth, 80.4 dBΩ transimpedance gain, and 20 pA/

References

2010.
5. Dandan Chen, Kiat Seng Yeo, Senior Member, IEEE, Xiaomeng Shi, Manh Anh Do, Senior Member, IEEE Chirn Chye Boon Senior Member, IEEE, and Wei Meng Lim, “Cross-Coupled Current Conveyor Based CMOS Transimpedance Amplifier for Broadband Data Transmission” IEEE transactions on very large scale integration (vlsi) systems, vol. 21, no. 8, august 2013.
15. Omeed Momeni, Student Member, IEEE, Hossein Hashemi, Member, IEEE, and Ehsan Afshari, Member, IEEE A 10-Gb/s Inductorless Transimpedance Amplifier IEEE transactions on circuits and systems—II: express briefs, vol. 57, no. 12, december 2010


**Index Terms**

Computer Science  
Circuits and Systems

**Keywords**

CMOS, Inductive series peaking, Transimpedance amplifier (TIA), Bandwidth enhancement, RGC, Capacitive degeneration, Active feedback.