

## عنوان مقاله:

A  $\Delta$ Gbps, Inductor-less Transimpedance Amplifier for Optical Communications Using  $0.18\mu\text{m}$  CMOS Technology

## محل انتشار:

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## خلاصه مقاله:

In this paper, a two-stage  $\Delta$ Gbps transimpedance amplifier (TIA) for an optical communication receiver system is presented. The presented TIA uses a regulated cascode configuration (RGC) as the input stage, which benefits from low input resistance, and is followed by a gain stage with negative feed-back network and a buffer stage in order to provide extra gain to operate properly at  $\Delta$ Gbps. DC operating point stabilizing is also considered in this paper. The proposed TIA is discussed mathematically and related simulations are performed in HSPICE using  $0.18\mu\text{m}$  CMOS technology parameters. Results for the proposed TIA show the transimpedance gain of  $42.1\text{dB}\Omega$ , bandwidth of  $3.6\text{GHz}$ , and power consumption of  $12\text{mW}$  at  $1.5\text{V}$  supply voltage. Also, Monte-Carlo analysis, noise analysis and effect of temperature variation on frequency response of the TIA are analyzed, which indicate that the proposed TIA is suitable to work as a  $\Delta$ Gbps TIA building block in an optical communication receiver system.

## کلمات کلیدی:

Transimpedance amplifier, Inductor-less, CMOS technology

## لینک ثابت مقاله در پایگاه سیویلیکا:

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