

# Doubler Frequency Circuit Design Techniques for Voltage/Current Mode

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## Abstract

This paper proposes a doubler frequency circuit design techniques for voltage/current mode. Principles of the law squared, it consists of a mixed signal, basic squarer and current mirror circuit. This technique is designed to make the circuit can operate in both the input voltage and current, with a maximum doubler frequency response. To emulate and simulate with a PSPICE program operate at  $\pm 2$  V power supplies experimental results showed that the equation is designed.

**Keywords:** Doubler Frequency, Voltage Mode, Current Mode.

## 1. Introduction

Doublers frequency circuit is popular in telecommunication for example using instrument processing, or circuit analysis in analog processing [1-6]. The normally, doublers frequency has be the characteristic of tune LC circuit or analog multiplier circuit. A lot of researches presented has the narrow frequency operation period and non suitable for establish of integrated circuit, so the circuit development by multiplier circuit and doublers frequency used op-amp to function, then it able to charge the limited of tune LC circuit, and able to establish integrated circuit too. However, the circuits still have op-amp then the circuits still have big size, high loss of power supply, and used a lot of device. So in this paper proposes a doubler frequency circuit design techniques for voltage/current mode. Principles of the law squared, it consists of a mixed signal, basic squarer and current mirror circuit. This technique is designed to make the circuit can operate in both the input voltage and current, with a maximum doubler frequency response.

## 2. Principle of designing

Doubler frequency circuit design techniques for voltage/current mode. Principles of the law squared it consists of three parts: mixed signal and integrated squared circuit to receive the input signal in voltage/current mode are squared and take the square root of the value function quadratic and current mirrors that serve as

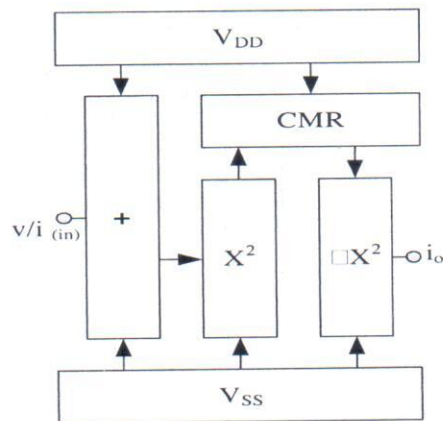


Fig.1 Block diagram of the propose circuit in voltage/current mode.