Study and Implementation of a High-Speed Pulse-Width Modulation IC

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ABSTRACT

Various electrical products have been applied to our life comprehensively. High efficiency and low power dissipation have become the goal of the development of electrical products. Hence, the research and development of power management IC have become on of the focus of industrial circles and the academia. PWM(pulse-width modulation) can offer different voltage levels to different circuits of the system. And it also has the features of high efficiency and anti-noise. It contributes enormously to the applications of power management IC. A novel PWM circuit will be introduced in this essay. The design of VCO (voltage control oscillator) presented equips with good performance of high stability and tuning range. Also, we will implement a variable voltage/frequency ramp generator. It will help the PWM to fit the requirements of industrial circle. This circuit is implemented by the 0.35 μm processing of TSMC (Taiwan Semiconductor Manufacture Company). It can operate from 250KHz to 5MHz, supply voltage is 3.3V, and the power consumption is about 1.27mW.

Keywords : power management chip, pulse-width modulation, voltage control oscillator, tuning range

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