Driver IC Implementation of Buck Converter

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ABSTRACT

In recent years, the CMOS integrated circuits technology has been successfully applied to many systems. In order to provide enough power for portable devices, the low voltage and low power circuits would be the trend for current CMOS IC design. Pulse-Width Modulation (PWM) techniques have been widely used in power electronic products. The design and implementation of a DC-DC buck converter for low supply voltage electronic system is presented in this paper. With high power conversion efficiency, this design can be applied to portable electronic products such as mobile phone, digital camera, PDA, etc. This chip is fabricated with TSMC 0.35 μ m 2P4M 3.3V Mixed Signal CMOS technology through CIC. The size of this chip is 343.7 μ m x 325 μ m. The design contents of this paper include: introduction, development and motivation in recent research, principle and structure, circuit, simulation and result, conclusion and references. This paper will provide a survey of related literature and discuss the distinct phenomena in different modulation regions. Simulation results and experimental results will be provided to verify the performance of the proposed strategies.

Keywords : pulse-width modulation (PWM) ; buck converter ; mixed signal CMOS technology

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