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EXPERT SYSTEMS AND SOLUTIONS

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DPWM modulator using VLSI

The rapid progress in motor control and microelectronics has made the universal dc drives a major field of interest. Traditionally most of these applications today adopt either analog or microprocessor based PWM control schemes. The disadvantages possessed by these schemes are complex circuitry, limited functions and difficulty in circuit modifications.

Due to the advances in the digital technology, digital pulse width modulated convertors are becoming more popular in dc motor drive and also in dc power conditioning applications. The development in the digital signal processors has encouraged the digital PWM control. The advantages of the digital signal processors based control schemes are simple circuitry, software control and flexibility. However generating PWM signals require high sampling rate to achieve a wide band width performance. Another disadvantages is that longer time is required to develop the software in a new processor structure and moreover, processor controlled by software is not suitable for a switching circuit, which generating lot of noise, resulting in high risk of collapse.

Dynamic and ever progressing change in very large scale integration technology (VLSI) has radically affected the design process cheap, reliable and less time consuming. More over the fpga based design is also more reliable than the microprocessor based system because they do not need any control software.

Dpwm ac-dc converter serves wide range of applications and also plays an important role in the minimization of harmonics and switching losses in the converter circuits. In the past two decades various pwm strategies, control schemes and realization techniques have been developed. These pwm strategies were realized either by analog or microprocessor based software control techniques. This project proposes a novel realization scheme for dpwm ic using VLSI which may serve as the switching circuit for the ac-dc converters.

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