

عنوان مقاله:

A New C-Dump Converter For Bifilar Winding Switched Reluctance Motor

محل انتشار:

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خلاصه مقاله:

Single phase switched reluctance machines (SRMs) have a special place in the emerging high-volume, low-cost and low-performance applications in appliances and also in high-speed low-power motor drives in various industrial applications. In designing SRM drive, one should focused on its application, appropriate control and engineering solutions needed to overcome the practical issues. In this paper, a new bifilar drive circuit which uses dump capacitor during discharge period is presented. The new topology utilizes the bifilar winding in conjunction with the dump capacitor to produce resonance in order to provide faster rate of current discharge. This technique permits the motor to operate at higher speeds. A detailed explanation and demonstration of the conventional bifilar converter, as well as the new converter circuit, using simulation by Pspice and laboratory experiment have also been presented. Since Pspice is a circuit oriented package then, the converter and control scheme can be modeled with ease and precision with their proper component ratings for simulation results. Finally, a comparison between the different waveforms of a conventional bifilar converter and the new converter is presented. Experimental results of the proposed SRM drive .system obtained from laboratory prototype are also included in order to validate the simulation results

کلمات کلیدی:

C-Dump, Converter, Bifilar, Switched Reluctance motor

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