

## عنوان مقاله:

Investigation Of DC-DC Resonant Converter Constructed Nanostructure Magnetic Core transformer For Power Distribution System

## محل انتشار:

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## خلاصه مقاله:

A high frequency power converter system suitable to replace a typical power distribution transformer is discussed. The new power converter systems contain a number of highpower DC-DC converters as main components. Magnetic circuits are widely used in the switching converters. Increasing the switching frequency in switching converters is considered an advantage. Because with increasing frequency, can reduce size of the magnetic components. But with increasing frequency, conventional magnetic core and winding losses increase. In fact this is most important limitation in increasing the switching frequency in switching converters. Other limitations of increased frequency, is increasing magnetic parasites. Increased frequency of transformer is the causing of increased leakage inductance and equivalent capacitance between the windings. These parasites cause unwanted voltages and leakage currents in the transformer, which increases losses and reduce the efficiency will be that result. This paper presents the DC-DC converter with resonant commutation. The described converter employs a low profile high frequency transformer, a LCL resonant tank and two full bridge converters. In this paper, after evaluation the features of the nanostructure magnetic core, Design issues of highpower density transformers for DC/DC converter systems are discussed. Under the specified operating condition, the transformer is designed to achieve the minimum volume. Fine metal nanocrystalline magnetic material is suitable for the high frequency applications, due to its superior low loss density and high operating temperature characteristics. Based on a product area approach, transformer design and equivalent circuit is developed, with leakage inductances calculated. The analysis has been verified by the simulations results.

## کلمات کلیدی:

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