

عنوان مقاله:

A High Voltage DC-DC Converter for Applications In Harsh Environments

محل انتشار:

هفتمین کنفرانس ملی مهندسی برق با محوریت انرژی های نو (سال: 1392)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Alireza Siadatan - Department of Electrical Engineering, West Tehran Branch, Islamic Azad University, Tehran, Iran

S. Mahdi Hosseini - Department of Electrical Engineering, West Tehran Branch, Islamic Azad University, Tehran, Iran

خلاصه مقاله:

The constant evolution of the use of power electronics today is bringing sensitive electrical devices into harsher environments than ever before. Today, the energy and automotive industries, among others, are seeking to utilize power electronics to increase the performance and efficiency of the systems in use. This often involves using converters in close proximity to sources of heat, such as internal combustion engines or photovoltaic panels for example in powerplants and also in renewable energy generation. These situations also usually require small size and low weight. The result is a need for a high efficiency converter capable of operating in high temperatures with minimal size and weight. This paper seeks to explore the options available to achieve this when considering a typical photovoltaic system. In order to meet the above conditions while operating as a micro-converter attached to the solar panels, an additional requirement for high voltage gain is added. This limits the number of existing topologies capable of being used, and has resulted in the development of a new design. In this paper, that seeks to meet all of the aforementioned constraints. To make the case of the new converter, other topologies are investigated in terms of their features and costs in order to determine their best and worst attributes. This involves discussion of their operation, calculation of their relative features, and simulations to confirm their behavior. This is followed by a look at the NX dc-dc converter, the new topology, which includes a basic investigation into its operation, followed by an analysis of its behavior and possibilities.

کلمات کلیدی:

dc-dc converter; photovoltaic system (PV); Harsh Environments; renewable energy

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/244165>

