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A New Resonance Solution to Suppress the Voltage Stresses in the Forward Topology Used in a Switch Mode Power Supply

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Abstract : Forward topology used in switch mode power supply (SMPS) is one of the most famous configuration feeding DC systems such as telecommunication systems and other specific applications where the galvanic isolation is required. This configuration benefits of the high frequency feature of the transformer to provide a small size and light weight of the over all system. However, the stresses existing on the power switch during an ON/OFF commutation limit the transmitted power to the DC load. This paper investigates the main causes of the stresses in voltage existing during a commutation cycle and suggest a low cost solution that eliminates the overvoltage. As a result, this configuration will yield the possibility of the use of this configuration in higher power applications. Simulation results will show the efficiency of the presented method.

Keywords : switch mode power supply, forward topology, resonance topology, high frequency commutation
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