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Step down Converter with Sliding mode Current Control for Welding Applications

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Abstract : The present paper deals with a buck converter used to control the current during a welding process. The arc is modeled by a variable resistance in series and switcher to create a short circuit. The step-down dc-dc converter is connected to the output of a step down transformer witch present the powersource and it controls the energy flux to the welding process.A sliding mode current control was implemented to guarantee a constant average current during, the arc generation. The main power circuit is a buck converter that uses a high power IGBT module as the main switch. The freewheel path is made up of three parallel diodes .The buck converter was designed for a loadcurrent up to 100A

Keywords : Simulations results are presented to show the performance of the structure