

# Title: Development of Prototype Power Supply for Ohmic Transformer System of SSST

Authors : Urmil Thaker, Vaibhav Ranjan and Supriya Nair

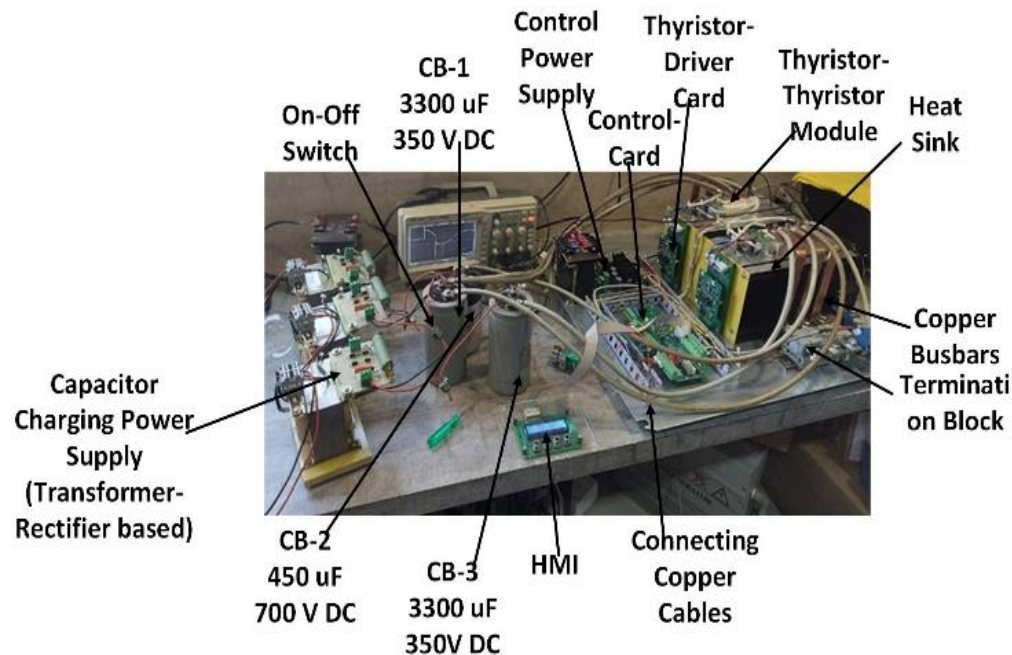


Fig-1. Prototype OT Power Supply Assembly

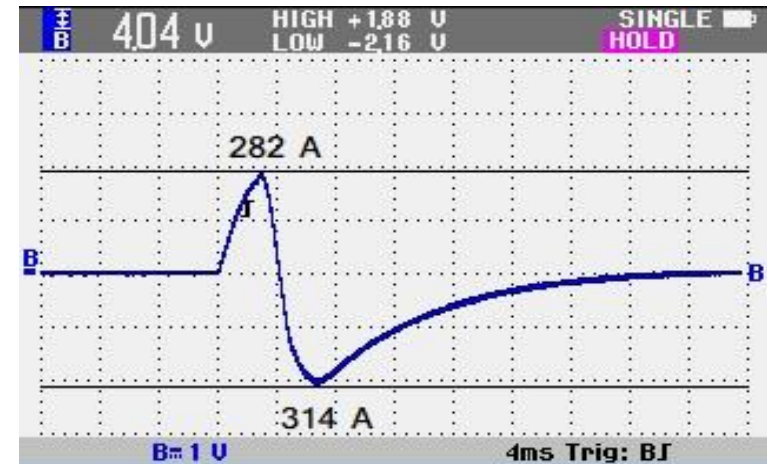


Fig-2. Coil Current

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# **Title <Development of Prototype Power Supply for Ohmic Transformer System of SSST >**

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Spherical Tokamak (ST) is a low aspect ratio (Ratio of major radius to minor radius), compact and high power density tokamak. It requires lesser magnetic pressure compared to standard tokamak for producing same plasma current. The conceptual design of Small Scale Spherical Tokamak (SSST) has been completed at Institute for Plasma Research (IPR). It consists of poloidal field (or Equilibrium) field coils, Toroidal field coils and Ohmic Transformer (OT) system. A prototype Ohmic Transformer (OT) power supply has been developed at IPR to identify critical challenges involved and necessary changes required during the design and development of the final OTPS power supply. A thyristor based double swing topology is used for the development of this prototype OT power supply. The maximum positive and negative current measured during experiments are 272 A and -314 A, respectively. There is an agreement found between simulation results and experimental results.

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