

Public Abstract

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Graduation Term:FS 2007

Department:Electrical Engineering

Degree:MS

Title: OPTICALLY TRIGGERED THYRISTOR FOR CAPACITOR DISCHARGE APPLICATIONS

An investigation of the use of light to trigger semiconductor thyristors for capacitor discharge applications has been conducted. The investigation consisted of a technical literature and background search, design and analysis of optically silicon thyristors, and simulations of a capacitor discharge circuit containing the designed switches. By changing the design parameters it was possible to design one opto-thyristor with 522 V blocking voltage, 4.06 kA peak current and di/dt of 266.22 kA/ μ s and another one with 274.5 V blocking voltage, 3.94 kA peak current and di/dt of 664 kA/ μ s. Both of these devices were in a realistic capacitor discharge circuit.