

电力系统

动态均压缓冲电路引起的晶闸管电流应力计算方法

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摘要:

为精确计算动态均压缓冲电路引起的晶闸管开通电流应力, 分析理想开关模型的缺陷, 通过正交实验研究晶闸管开通指数电压源模型的影响因素. 应用该指数电压源模型, 推导出开通电流应力的计算公式. 并在仿真平台 PSCAD/ EMTDC中应用指数电压源模型进行了仿真分析, 结果表明: 理想开关模型不能客观、准确地反映该电流应力, 应采用指数电压源模型进行计算; 影响该指数模型中的关键参数的多种因素中, 电压因素影响最大。

关键词:

An Approach to Calculate Current Stress Caused by Dynamic Voltage-Sharing Snubber Circuit During Thyristor Turning-on Process

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Abstract:

To calculate turning-on current stress of thyristors caused by dynamic voltage-sharing snubber circuit, the defects of ideal switch model is analyzed and by means of orthogonal experiments the factors impacting on exponential voltage-source model of thyristor are researched. Utilizing the exponential voltage-source model, the formula to calculate the turning-on current stress is derived, and the simulation of the exponential voltage-source model is performed by PSCAD/ EMTDC software. The research shows that ideal switch model of thyristor cannot reflect the current stress objectively and accurately, so the exponential voltage-source model of thyristor should be applied in the calculation; the key parameter in the exponential voltage-source model of thyristor is influenced by many factors, in which the voltage plays the biggest role.

Keywords:

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