Abstract

The DC-DC converters are widely used in traction locomotive for auxiliary loads such as fans, tubes etc. The input to these converters is an unregulated dc voltage, which is obtained by rectifying the line voltage, and therefore it will fluctuate due to changes in the line voltage magnitude. This DC-DC converter is used to convert the unregulated dc input into a controlled dc output at desired voltage level. Looking ahead to the application of these converters, it is found that these converters are very often used with isolation transformer in the locomotive. According to Railways requirement, 4kW DC-DC converter with H-bridge topology having MOSFETs and isolation transformer is designed. All practical difficulties and their remedies are tackled in this project. Complete procedure for design of high frequency design transformer and turn off snubber circuit with MATLAB is presented. PSPICE simulated different stages of the converter are also shown. Selection of particular components with their selection criterion and datasheets are explained.