The field of ‘Power Electronics’ involves the study of conversion and regulation of electrical power by employing electronic converters. The pace of innovation in power electronics relied on the evolution of Power Solid State Devices leading to the development of microelectronic controllers, which turned out to be a game changer for power electronics based devices. A battery is the power source for portable low-power consumption electronics equipment and some high power applications like motor drives, hybrid and battery operated vehicles, satellites, robotic applications and portable communication devices. A DC/DC converter, converts battery voltage into single or multiple output voltages.

All power processing circuits are rated primarily on its efficiency and power loss, which are one of the most important factors in a switching converter. Linear electronics based power electronic devices do not meet this expectation which is why switched mode semiconductor devices are used in switching converters. Latest switching technology and new circuit topologies can improve the efficiency of the converters. This thesis is one such attempt to implement a high efficiency, low switching loss, low voltage and current stress in switches for low power applications.