The invention relates to a gate driver with bipolar bootstrap capability. It presents a novel circuit with few passive components to drive up the top switch without using additional active elements or power supply.

Presently, GaN based HEMT and SiC based JFET for power applications, display excellent switching characteristic along with very low on state voltage drop. A chopper leg consisting of two series connected power semiconductor devices is widely used in point of load converters and AC-DC converters. Isolated power supplies are required to drive the top switch of the chopper leg with bipolar gate drive. Therefore, there is a need to develop a reliable and cost-effective circuit which does not require isolated power supplies.

The invention provides a circuit with passive components that can drive the top switch of chopper leg or synchronous buck converter without requiring any additional power supply. It is a highly cost-effective method compared to the existing technologies.

IISc has filed a PCT application and also an application for grant of patent in India. We are seeking for a commercial partner for licensing this technology.