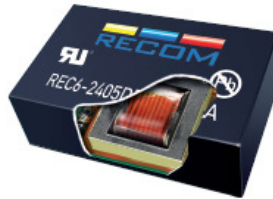


RECOM Reinforced DC/DC converters to isolate IGBT driver circuits

The new Reinforced Isolated DC/DC converters from RECOM are ideal to isolate driver circuits for IGBT stacks. The RECOM Reinforced modules (REC6 and REC3.5 series) offer up to 10kVDC isolation with a reinforced transformer; and as we'll see in the following paragraph, for IGBT applications, the higher the isolation the better.



IGBT controllers are used to efficiently convert high voltage DC supplies to single or three phase AC outputs and find applications in many fields from **motor and pump controllers, wind and sea turbines, photovoltaic panels** to almost all high power converters. The IGBT high side drivers run at the high voltage DC input which is typically a few hundred volts. The power supply for these drivers is commonly generated by a DC/DC converter. A 2kVDC rated DC/DC converter would seem adequate as it can withstand up to 550VAC continuous. However, IGBT drivers do not work at the mains frequency of 50Hz. At this low frequency they would be too inefficient. Instead, frequencies of 10kHz or more are common. This high AC frequency and in particular the very fast slew rate or rate of change of voltage over time, dv/dt , puts enormous strain on the DC/DC transformer isolation, which can lead in time to isolation failure.

The higher the isolation voltage rating for a DC/DC converter is, the lower the coupling (isolation) capacitance and a low coupling capacitance is essential in AC or highly dynamic switched DC usage. This will ensure a safe usage and avoid a shortened lifetime in such a highly demanding situation.

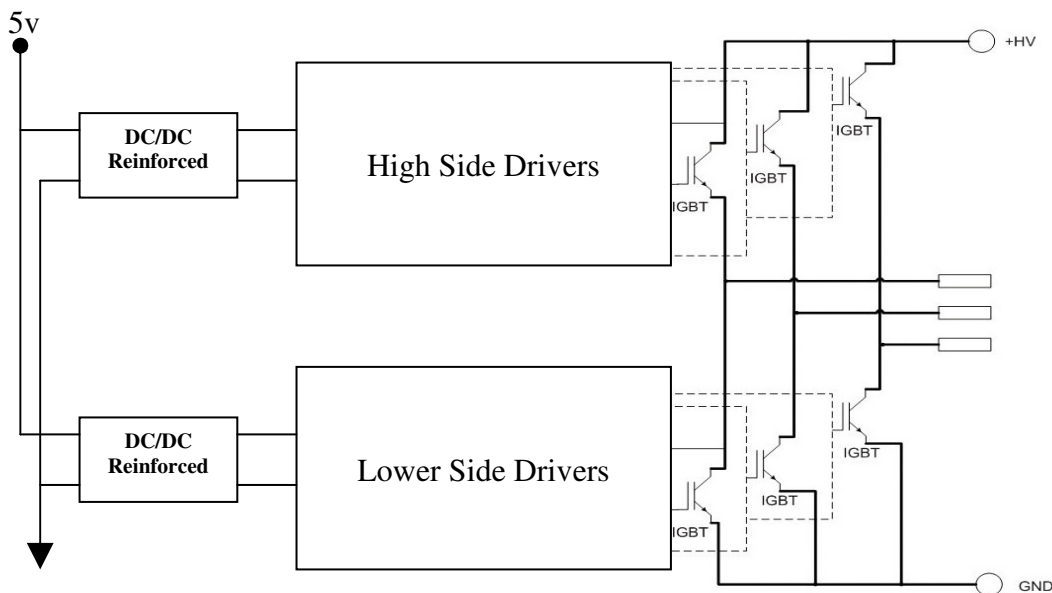


Figure 1. Diagram block of an IGBT Inverter