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A linear transformer driver based on capacitive coupling self-triggering mode

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In the future, the fast linear transformer driver (FLTD) will include a mass of gas switches. Normal triggering technology is hard to match the increase of switches through the expansion of external triggering system. Although some triggering sequences are conducive to generate better outputs, the control system is hard to realize. Actually in a certain range of the triggering sequences, the difference of the output is tiny, so simplification of the triggering system is very important to the performance of FLTD. Taking the Marx generators for example, a lot of gaps should be triggered synchronously too, the high voltage triggering pulses come from the capacitive coupling between the electrodes and the ground. In the FLTD, because the triggering electrodes of the gas switches are “virtual ground potential”, some capacitive coupling paths also exist between the central pole and the triggering electrodes of the system. In this paper, a linear transformer driver based on capacitive coupling self-triggering mode has been described, and the preliminary circuit analysis and simulation have been completed.

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