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## The Development of all-solid pulse generator based on multi-turn LTD

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An all-solid-state pulse generator based on multi-turn LTD is designed for the application of pulse power techniques with high-voltage, large-current and wide pulse width. The magnetic core of the LTD pulse generator adopts the method of multi-turn winding, which can output pulse of wide pulse width. The isolation of drive power supply and energy charging with co-direction winding of LTD modules is designed, and the isolation voltage of magnetic cores at is the working voltage of LTD modules. The multi-turn LTD pulse generator is composed of 10 LTD modules. Each module is connected in parallel by 18 energy storage capacitors and MOSFET discharge switches, and its synchronous drive circuit is designed. Through the analysis and selection of the components model and circuit, a modular all-solid-state pulse generator based on multi-turn LTD is development, which can output pulse parameters for the voltage amplitude 0-5 kV, the output pulse current up to 500 a, pulse width 200 ns - 5  $\mu$ s, pulse rise time 30 ns, pulse falling time 16 ns, and its parameters can adjusted flexibly such as pulse width and amplitude. Moreover, higher voltage pulse can be achieved by increasing the number of LTD module.

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