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Design of a new type of power supply similar to flat-top pulsed high magnetic fields

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This paper describes a simple, compact and cost-effective capacitor pulse power supply, which only uses a single magnet coil and two capacitors of different voltage and capacity levels to form a special circuit structure. It can realize the pulse magnetic field similar to the flat top wave, so as to meet some scientific experiments that require higher magnetic field strength and stability. Through the reasonable design, the rising edge of the magnetic field waveform is accelerated, the stability of the waveform top is maintained for a relatively long time, and the energy of the magnet is rapidly transferred and released by controlling in the falling stage of the magnetic field. This design reduces the heating of the magnet due to heat accumulation, thus shortening the cooling waiting time of the magnet and improving the service life of the magnet.

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