

Abstract Submitted  
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**CQ-4: a 4 MA, 500ns Compact Pulsed Power Generator Dedicated to Magnetically Driven Quasi-isentropic Compression Experiments (ICE) and Hypervelocity Flyer Plates** GUIJI WANG, JIANHENG ZHAO, CHENGWEI SUN, BIN KUAI, JIANJUN MO, GANG WU — Compact pulsed power generators have been widely used to produce high magnetic pressure to study dynamic behaviors of materials and do some hypervelocity impact experiments. After the compact pulsed power generator CQ-1.5 developed by us, a larger current and shorter rise time compact pulsed power generator CQ-4 has been designed and being constructed. The generator CQ-4 is composed of 20 energy-storage modules in parallel, of which is constituted by a  $1.6\mu\text{F}$ , 100kV capacitor and a coaxial field-distortion spark gas switch with inductance of 25nH. The energy is transmitted by the aluminum strip transmission lines insulated by 16 layers of Mylar films, of which is 0.1 mm in thickness. Before the short-circuit load, 72 peaking capacitors in parallel with the energy-storage capacitors are used to shape the discharging current waveforms in load. Each peaking capacitor is with rated capacitance of  $0.1\mu\text{F}$  and rated voltage of 120 kV. When the capacitor is charged to 70- 80 kV, the peak current can reach 4-5MA, and the rise time is 400-500ns (0-100%). The expected magnetic pressure can be up to 100GPa on the metallic loads and a hypervelocity of 12-15km/s can be reached for the aluminum flyer plates with size of 10mm in diameter and 1.0mm in thickness.

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