A Novel DC-DC Power Converter for Ultra-capacitor Applications

Objective:
To develop a compact efficient, and extremely light-weight bi-directional dc/dc converter for ultra-capacitor/battery applications.

Features:
- High efficiency low voltage MOSFETs are used;
- Inductors required in all the traditional dc-dc converters are eliminated;
- Low cost, light weight and compact size are achieved.

Simulation Results

Voltage Tripler and its Power Flow

Operation Principle:
Voltage tripler circuits are used to boost the voltage and balance voltage of each ultra-capacitor.

Applications:
ASD with ride-through boost, UPS, Voltage dynamic restoration.

Schematic of Proposed DC-DC Converter