

SWITCHED CAPACITOR REGULATOR FOR DRIVING HIGH LOAD CURRENT AND METHOD THEREOF

Abstract

A switched capacitor regulator in accordance with the present invention comprises a DC voltage source, a plurality of switches, a pumping capacitor, and a load capacitor. The plurality of switches may comprise semiconductor switches implemented in an integrated circuit (IC). The plurality of switches are configured to operate the switched capacitor regulator to place the regulator into a first charging stage and, alternately, a second charging stage. The switching between the first stage and the second stage results in the pumping capacitor being charged in opposing directions, while the load capacitor is always being charged in the same direction. The load capacitor is thus being charged in both the first charging stage and the second charging stage. A higher load current can thus be advantageously drawn from the switched capacitor regulator of the present invention, as the current can directly be drawn from the DC voltage source and there is less reliance on the pumping capacitor. This advantageously allows the capacity of the pumping capacitor to be greatly reduced as it acts mainly as a buffer in the present switched capacitor regulator.

FIG. 2 accompanies the abstract.