

عنوان مقاله:

Single-Inductor Dual-Input Dual-Output Switching Regulator with Digital Control

محل انتشار:

نخستین کنفرانس سراسری پژوهشهای کاربردی در مهندسی برق (سال: 1399)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

A single-inductor dual-input dual-output converter is proposed in this paper, which can be used in energy harvesting systems and low-power systems due to low output current and voltage. This converter works in DCM and uses pulse width modulation control. The first input of this converter can be connected to any source that can produce energy, such as photovoltaic (PV) cells, and the second input can be considered a battery. In this converter, the battery is used only when the energy level of the first input is low. This converter works using the time-multiplexing control (TMC) method, which makes the system have high efficiency, and the cross-regulation problem between the outputs of this converter is tiny. The control algorithm considered in this converter is digital, which determines the optimal charge and discharge duty cycles. Also, the switching frequency of this converter is constant and relatively low and is equal to 5kHz.

کلمات کلیدی:

(single inductor multiple-input multiple-output (SI-MIMO), energy harvesting (EH), pulse width modulation (PWM), time-multiplexing control (TMC)

لینک ثابت مقاله در پایگاه سیویلیکا:

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