

Does a new inductorless single capacitor step down DC-to-DC converter have a conflict of interest?

We declare that our submitted paper titled "A New Inductorless Single Capacitor Step Down DC-to-DC Converter Design" has no conflict of interest. R. Li, D. Azhigulov, A. Allehyani, and H. Fariborzi, "BEOL NEM relay-based Inductorless DC-DC converters", Proc. IEEE International Symposium on Circuits and Systems (ISCAS), October 2020, pp. 1-4.

Can a linear regulator be used in a step-down converter?

Although a linear regulator can only be used in the step-down case, rather than in both the step-up and the step-down cases, lower efficiency in the step-down case is still a deficit for SC converters. In fact, this issue can be solved by a slight modification. A modified versatile step-up/step-down converter circuit is /

Can a step-up/step-down DC-DC converter extend battery life?

**SUMMARY** For battery-powered electronic products, one way to extend battery life is to use a versatile step-up/step-down DC-DC converter. A new versatile step-up step-down switched-capacitor-based converter structure is proposed, and its efficiency is analyzed. In the step-down case, the

1. Introduction

Can a switched capacitor buck converter be designed with minimal component requirement?

The proposed circuit does not have these features. It has been possible to design a switched capacitor (SC) buck converter with minimal component requirement. The converter circuit uses a single capacitor and a power switch for its implementation, resulting in a simplified switched capacitor circuit.

How does a switched capacitor circuit work?

The converter circuit uses a single capacitor and a power switch for its implementation, resulting in a simplified switched capacitor circuit. The circuit was simulated with MULTISIM<sup>®</sup> software, and on testing, it was found out that it has an output ripple voltage that is largely independent of the output power level as expected.

What is a step-up step-down SC converter?

Improved versatile step-up step-down SC converters are proposed, which can extend battery life and be realized by integrated circuit (IC) technology. In the step-up configuration, the efficiency is determined by the ratio of its output and input voltages.

In this paper a capacitor step-down regulated power supply based on current conduction angle adjustable mode is proposed. The circuit of capacitor step-down regulated power supply has ...

High Power Resonant Switched-Capacitor Step-Down Converter Oliver Keiser\*, Peter K. Steimer\* and Johann W. Kolar\*\* \*ABB Switzerland Ltd., Turgi, Switzerland \*\*Swiss Federal Institute of ...

Because the inductor in a switch-mode regulator has limited ability to react to such changes, the output capacitor plays an important role in ...

LTC3250- 1.5 switched capacitor step-down DC/ DC converter squeezes into the tightest spaces while providing up to 250mA of output current at 1.5V from a single 3.1V to 5.5V supply. Home. ... An output current sense ...

[1] A. Ioinovici, "Switched-capacitor power electronics circuits", Circuits and Systems Magazine, pp. 37-42, Third Quarter 2001. [2] H. Chung, "Design and analysis of a switched-capacitor ...

Architecture and circuits. The complete regulator architecture is illustrated in Fig. 3, where the three-phase cyclic SC network is followed by two LDOs to produce  $V_{out1} = 1.5$  ...

Switched-Capacitor Step-Down Rectifier for Low-Voltage Power Conversion Wei Li, David J. Perreault MASSACHUSETTS INSTITUTE OF TECHNOLOGY ... When the input ac current. I. ...

Abstract. Step-down buck regulators are extremely popular in a variety of portable and non-portable equipment. These buck converters are terminated with an input ...

The recursive switched capacitor (RSC) network, for instance, has  $N$  cascaded stages that can be used to realize distinct voltage step-down ratios of  $2^{N-1}$  depending on how ...

Where " $I_c$ " is the capacitor current, " $C$ " is the capacitance value, " $dV$ " is the change in voltage across the capacitor, and " $dt$ " is the change in time. ... power supply designs, including AC-DC ...

Usually, the relationship between the capacity  $C$  of the step-down capacitor  $C_1$  and the load current  $I_o$  can be approximately considered as:  $C=14.5 I$ , where the capacity unit ...

Voltage step-down converters have gained attention, with the rapid development in industrial robotics, Internet of things, and embedded system applications. Therefore, a ...

We can also check the inductor current to see if this new capacitor value--which is significantly smaller than the 1 uF default value that we started with--has caused any ...

On-line fault detection of aluminium electrolytic capacitors, in step-down DC-DC converters, using input current and output voltage ripple A.M.R. Amaral and A.J.M. Cardoso If ...

Inductors-less switched capacitor step-down converters have been proposed that uses only switches and capacitors to obtain a high step down voltage conversion [25, 26]. ...

Abstract--This paper presents a switched-capacitor rectifier that provides step down voltage conversion from

an ac input voltage to a dc output. Coupled with current-drive source, low-loss ...

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