

## VHF Series-Input Parallel-Output Interleaved Self-Oscillating Resonant SEPIC Converter - DTU Orbit (09/11/2017)

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If the switches of two resonant SEPIC converters are capacitively coupled, it is possible to obtain a self-oscillating converter in which the two power stages operate in interleaved mode. This paper describes a topology where the inputs of two SEPIC converters are connected in series, thereby sharing the input voltage. For the same output power and switching frequency, the voltage stress of the switches is reduced by a factor of two while the voltage transformation ratio is doubled. This modification is possible with addition of only two capacitors in the power stage and a biasing circuit. Design considerations and challenges are investigated. To verify the proposed design, a 70 V input, 37 MHz prototype was built using low-cost switching and passive components, and experimental results are presented. Peak observed efficiency was 82%.

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