

## **INTERLEAVED-INPUT SERIES-OUTPUT ULTRA HIGH GAIN DC-DC CONVERTERS USING SOLAR ENERGY**

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The ultra-high voltage gain DC-DC converters are extremely required because of the low voltage level of many non-polluting power resources. This paper proposes an ultra-high voltage gain converter based on the interleave technique and using three-winding coupled inductor and voltage multiplier cell. The interleave technique is useful for reducing the size of the filter components. In the proposed converter, high voltage gain is achieved without extreme duty cycle of solid-state switches. The voltage stress across the semiconductor devices can be reduced by increasing the turn ratio of the secondary of the coupled inductors. In addition because of the implementation of the interleave structure, peak to peak variation of main input current and switching losses are substantially reduced. The steady state principles of proposed converter in continuous conduction mode operation is given. Also, design equations are presented. Validity and performance of the proposed converter is surveyed by simulation and experimental results of a 120W prototype.