
Linear-Assisted Converters with Low Ripples

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Abstract Series linear regulators have been structures widely used in power supply systems with low or moderate currents and cosine. This kind of voltage regulators has several advantages that lead their use. However, in spite of these advantages, linear regulators suffer some serious drawbacks. As a result, they are not recommendable in some supply systems, especially for high power. The alternative DC-DC switching converters has evident advantages opposite to linear regulators. However, the design and implementation of this sort of converters is a more complex process than in linear regulators, especially their control loop when both line and load regulations are desired. Furthermore, the intrinsic switched nature of these converters produces ripples in the output voltage and an increment of the EMIs neighboring electronic systems. The use of Linear-assisted DC-DC converter (or linear-switching hybrid DC-DC converter) takes advantages of previous alternatives. Apart this, some of the aforementioned drawbacks are minimized as, for instance, the low efficiency and the high power dissipation in linear regulators, or the complexity in the design of the control for switching converters. The proposed method is based on designing a linear-assisted DC-DC converter with proper characteristics especially for envelope tracking applications. **Keywords:** DC-DC Switching Converter, Linear Voltage Regulator, Linear-Assisted Voltage Regulator, Hybrid Power Supply

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