

Adjustable Bulk Input Capacitance Controlled from High Voltage Bus

■ Description

- ▶ A high value, low voltage “adjust” capacitor is added to a low value, high voltage “base” capacitor when input voltage is low
- ▶ A control module powered from the high voltage bus switches the adjust capacitor in parallel with the base capacitor when the bus voltage is below a threshold
- ▶ Adjust capacitor is switched out when the bus voltage goes above the threshold

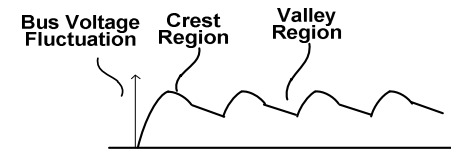


Figure 1. Rectified bus voltage crest-valley fluctuation

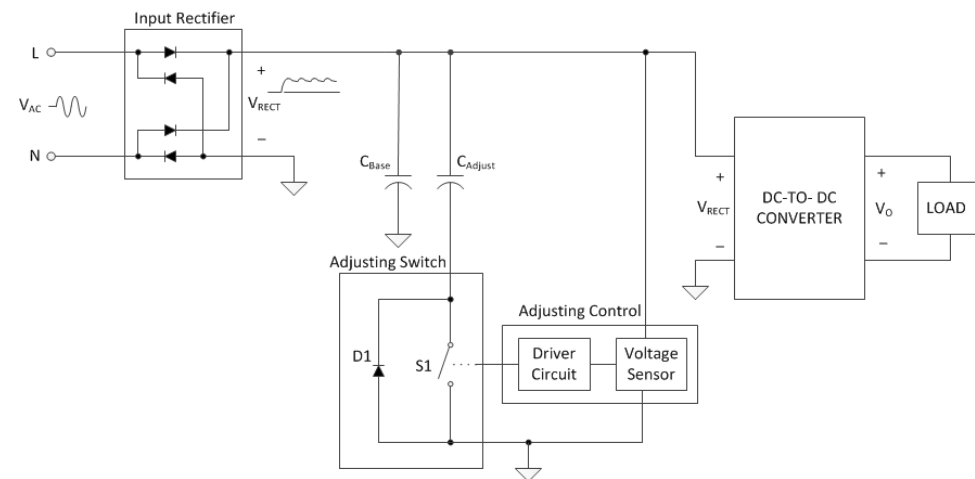


Figure 2. Simplified schematic

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■ Benefits

- ▶ Reduces cost and volume by using large capacitance only when needed
- ▶ Direct use of bus voltage to determine switching of adjust capacitor
- ▶ DC-to-DC converter control and adjust driver may be integrated into a single integrated circuit (IC)
- ▶ **Could be used with:** power converters operating over a wide range of input voltage

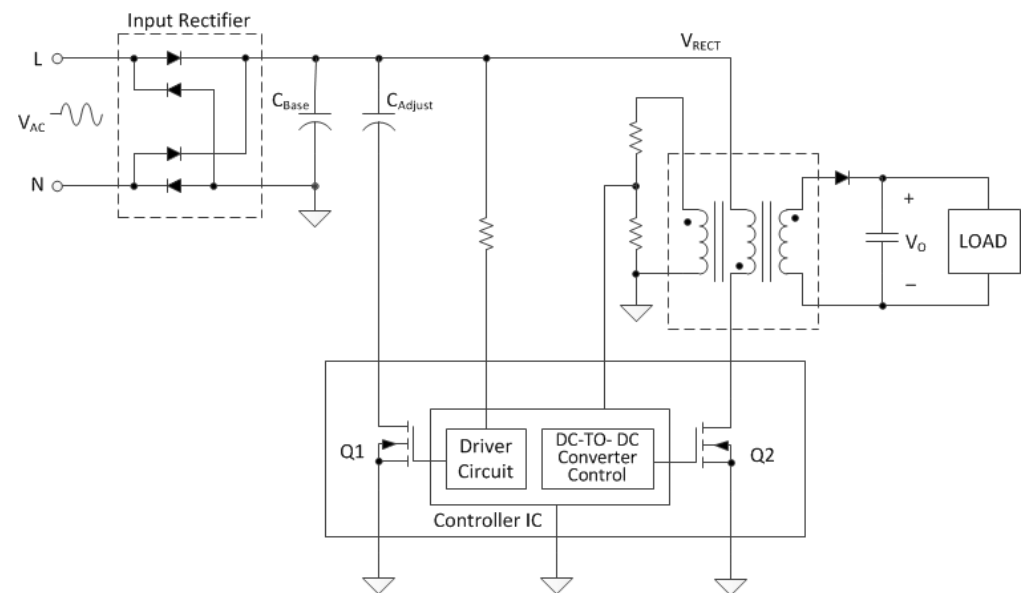


Figure 3. Full converter schematic