

Control Pin Operations

Effect of Input EMI Filter

The input EMI filter is connected to the negative leg of the full featured hybrid DC-DC Converters as well as the positive leg. This is known as a split filter. While the equivalent filter components could theoretically be placed entirely in the positive leg, prevention of noise bypassing the filter requires that the filter be present in both input power circuits.

Therefore, the internal PWM circuit ground is isolated from the input power return by the lower leg of the input EMI filter. Care must be taken in the design of the externally connected circuitry such that a) the voltage drop across the negative leg of the input EMI filter does not get conductively coupled to the input circuitry, causing unwanted operation and b) that the negative EMI filter leg is not bypassed.

Normally, the static voltage drop across the input filter is very low, on the order of several hundred millivolts. However, under dynamic conditions, the voltage drop across the negative leg of the input filter can be much larger. Such dynamic conditions can include line voltage changes, (CS06) input spikes and (CS01) audio modulation.