# Lower dc/dc-converter ripple by using optimum capacitor hookup

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LOW-RIPPLE-VOLTAGE positive-to-negative dc/dc converters find use in many of today's high- frequency and noise-sensitive disk drives, battery-powered devices, portable computers, and automotive applications. Like a positive buck converter, a positive-to-negative converter can have low output-ripple voltage if you place the bulk input capacitor between V_{IN} and V_{OUT} rather than between V_{IN} and ground. A common misconception is that positive-to-negative converters in the first configuration have noisy outputs. This configuration actually solves noise problems rather than introducing them. In either configuration, the V_{IN} and ground pins of the IC connect to V_{IN} and V_{OUT}, respectively (**figures 1** and **2**). Therefore,

Figure 1
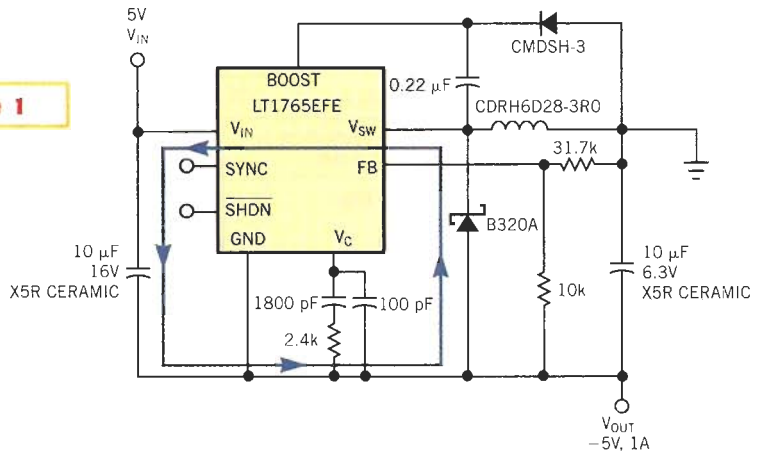
This +5-to--5V converter with the bulk input capacitor between V_{IN} and V_{OUT} has low output ripple. The high-di/dt path, indicated here with blue lines, does not include the output capacitor.