

Summary of the Idea

Reduction of common-mode current in the input lines may be achieved by attaching copper foil between the core of the transformer and the switching node of a power switch. Further reduction can also be achieved by connecting a capacitor between an input-referenced bias winding and a copper foil attached to the core of the transformer.

Description

The common mode current in the input lines is generally a noise current that does not contribute to the power received by the power converter. Common mode current originates primarily from the fast switching of high voltage in the power converter.

Shield windings and cancellation windings may be utilized to reduce common mode current in the power converter.

Common mode current can also be reduced by attaching an electrically conductive foil between the core of the transformer and the drain of the power switch and/or by connecting a capacitor between the bias winding and a foil attached to the core of the transformer.

Figure 1 illustrates an example power converter with foil attached between the core of the transformer and a terminal (typically the drain) of the power switch. The foil could be a defined copper foil. Figure 1 also illustrates a capacitance attached to the core and a bias winding of the transformer. The capacitance can be a small ceramic capacitor. An adhesive-backed copper foil can make the attachments to the core.

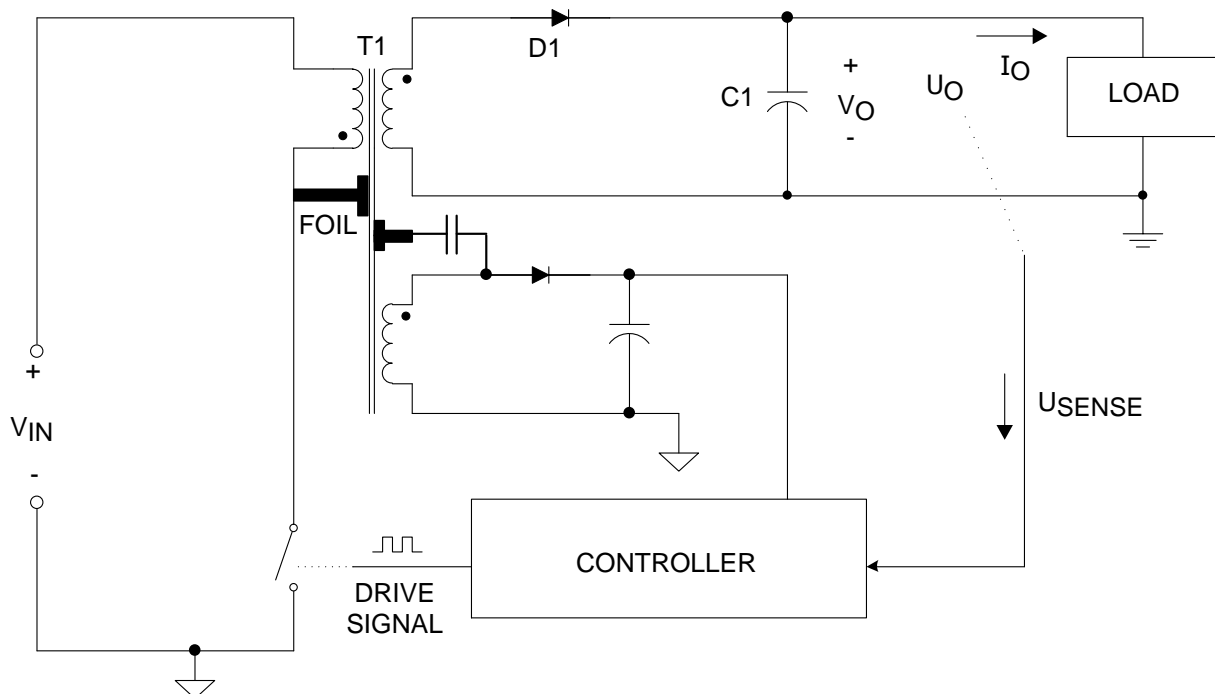


Figure 1. Example power converter with transformer core coupled to a switching node and to a bias winding through a capacitor.