Inductive Charging Circuit for Operational Power

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Description

- Inductive charging circuit to provide average bias current to the BP terminal and operational power for a power converter controller
- Filters a switching voltage generated by the power converter
- Limits peak current provided to the controller
- Current into a capacitor on the BP terminal can be derived from a switching voltage on a winding, such as an output winding of an energy transfer element of the power converter

Benefits

- Reduction in losses from charging the bypass capacitor
- Limits peak of the charging current due to the inductor, RMS value of the charging current is also reduced, which also reduces losses
- Reduction in thermals
- Could be used with: controllers for power converters

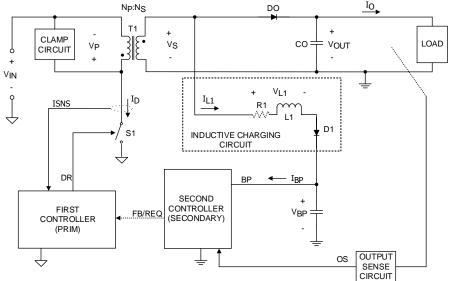


Figure 1. Inductive charging circuit (L1, D1) for providing operational power to a secondary controller from the switching voltage of an output winding.

US 11,258,369; US 11,563,382 Rev: 2 ; OCT 2023; Pl.0612

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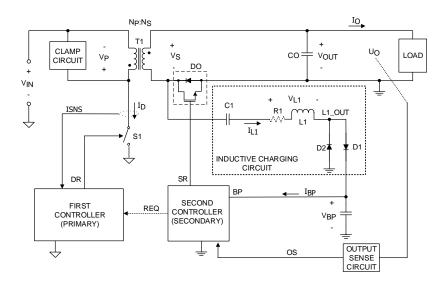


Figure 2. Inductive charging circuit (C1, L1, D1) for providing operational power to a secondary controller from the switching voltage of an output winding. C1 is a dc blocking capacitor. Diode D2 provides a reset path.

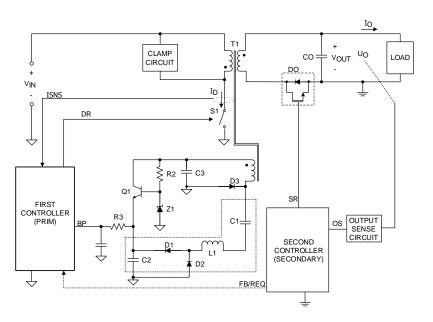


Figure 3. Inductive charging circuit (C1, L1, D1) for providing operational power to a primary controller from the switching voltage of a bias winding. C1 is a dc blocking capacitor. Diode D2 provides a reset path. Capacitor C2 turns transistor Q1 on or off.

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