

inductor. The battery voltage (36 V to 60 V) is boosted to about 65 V and then applied across the terminals of the isolation transformer, which has a turns ratio of 1-to-6. All current-fed convert ...

In this paper, we model and analyze the power losses of push-pull converters. The proposed model considers conduction and dynamic power losses, as well as transformer and inductor losses.

Four modes of operation are possible for the basic push-pull current-fed converter and various design options and selection guidelines are presented along with experimental results. Four modes of operation are possible for the basic push-pull current-fed converter. Each mode is analyzed, circuit waveforms are explained, and relationships that influence the converter ...

An ac-dc single-stage driver for high-brightness light-emitting diodes (HB-LEDs) with galvanic isolation is presented in this paper. The driver is based on a dual inductor current-fed push-pull converter with each inductor operating in boundary conduction mode (BCM). The interleaving between the two inductors enables the converter to reduce the high input current ...

In this paper, a bidirectional current-fed resonant push-pull converter is proposed for energy storage applications where high voltage conversion ratio, high power and low current ripple are needed.

Week 9 : Magnetics design, permeance, inductor value and energy storage, inductor design, transformer design area product approach, Week 10 : Push pull, half bridge and full bridge circuits, operation and waveforms, simulation example

Energy Storage in a Transformer Ideally, a transformer stores no energy-all energy is transferred instantaneously from input to output. In practice, all transformers do store some undesired energy: o Leakage inductance represents energy stored in the non-magnetic regions between windings, caused by imperfect flux coupling. In the

A push-pull converter helps to streamline an isolated power supply design in 12V EV applications. DC-DC converters are employed in many high voltage applications such as ultra-capacitor energy banks, motor drives, high voltage battery systems and solar inverters.

There is an inductor at the input of push-pull stage, and this inductor is large and provides almost a constant current source. The switches of the push-pull stage operate at a duty cycle greater than 0.5. Here, both the switches are closed and current is distributed equally amongst the windings [6,7,8].

A low voltage to high voltage push-pull DC/DC resonant converter was used as a design example. The design

procedure is based on the principle of the half bridge class-DE resonant rectifier, which ...

This paper proposes a push-pull dual active bridge (DAB) DC transformer (DCX) based on dual coupled inductors, which reduces the number of required magnetic components and achieves a symmetric structure. The zero-voltage-switching (ZVS) model considering switch junction capacitor charging and the inductor is established, and parameter design for ...

In this paper, we model and analyze the power losses of push-pull converters. The proposed model considers conduction and dynamic power losses, as well as transformer and inductor losses. Transformer and inductor models include skin and proximity effects, as well as power losses in the core. Moreover, the model includes the diode recovery time losses. We ...

operation, no energy is transferred through this transformer. If it can be ensured that the push-pull switches (Q1 and Q2) are operating in the overlapping mode, an inductor can be safely connected in

If an isolated design is required, a transformer is placed between the rectifier and output stage. This transformer can be much smaller, lighter and cheaper than the linear power supply transformer, due to the higher switching frequency. ... The SEPIC and Cuk topologies both use capacitors for energy storage in addition to two inductors. The ...

primary side of the push-pull converter to recycle the energy stored in the leakage inductors and clamp the voltage spike. Therefore, for the rectifier diodes in the converter, the reverse

Abstract: An improved high efficiency wide zero-voltage-switching (ZVS) range push-pull converter for low-voltage to high- voltage power conversion is proposed in this study. For this ...

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