

RRW11011

AC/DC Primary-Side Digital Half-Wave LLC and PFC Combo Controller

Description

The RRW11011 is a high-performance AC/DC primary-side digital controller that integrates an advanced controller for interleaved Boost power factor correction (PFC) and half-wave LLC (HWLLC) converter. The RRW11011 is optimized to work with Renesas' secondary-side controller, the RRW30120, for secondary side regulation (SSR).

With the integrated interleaved Boost PFC controller, RRW11011 optimizes PF/total harmonic distortion (THD), efficiency and EMI performance. Intelligent digital two-stage control optimizes efficiency, EMI, and audible noises.

Key Features

- Supports ultra-high power density AC/DC converter applications (3 W/cm³) up to 500 W
- Supports USB PD3.1/3.2 and other wide input/output voltage range applications
- Interleaved PFC + HWLLC control implemented in a single 16-lead DFN package
- Renesas' Patent technology to implement low standby power consumption
- Renesas' Patent pending two-phase current sharing control technology
- Adaptive V_{BULK} voltage regulation based on operating conditions for optimizing efficiency

- Renesas' Patent pending direct VHB voltage sensing technology eliminating the auxiliary winding of the main power transformer
- Adaptive HWLLC stage zero-voltage-switching (ZVS) control and adaptive multi-mode control (MMC) enables high efficiency and low EMI
- Renesas' Patent pending self-supplied VCC charging technology
- Support wide input and output voltage range applications without the need for an auxiliary winding of main power transformer for VCC supply.
- Support excellent light load efficiency and low standby power consumption for USB PD3.2 applications (5 V – 48 V V_{OUT}).
- Numbers of key built-in protections against AC line voltage brown-out, output short-circuit, output over-voltage, optocoupler failure, and so on.

Applications

- Rapid-charging AC/DC adapters for smart phones, tablets, notebooks and other portable devices
- TV power
- Power tools
- Electric bicycles

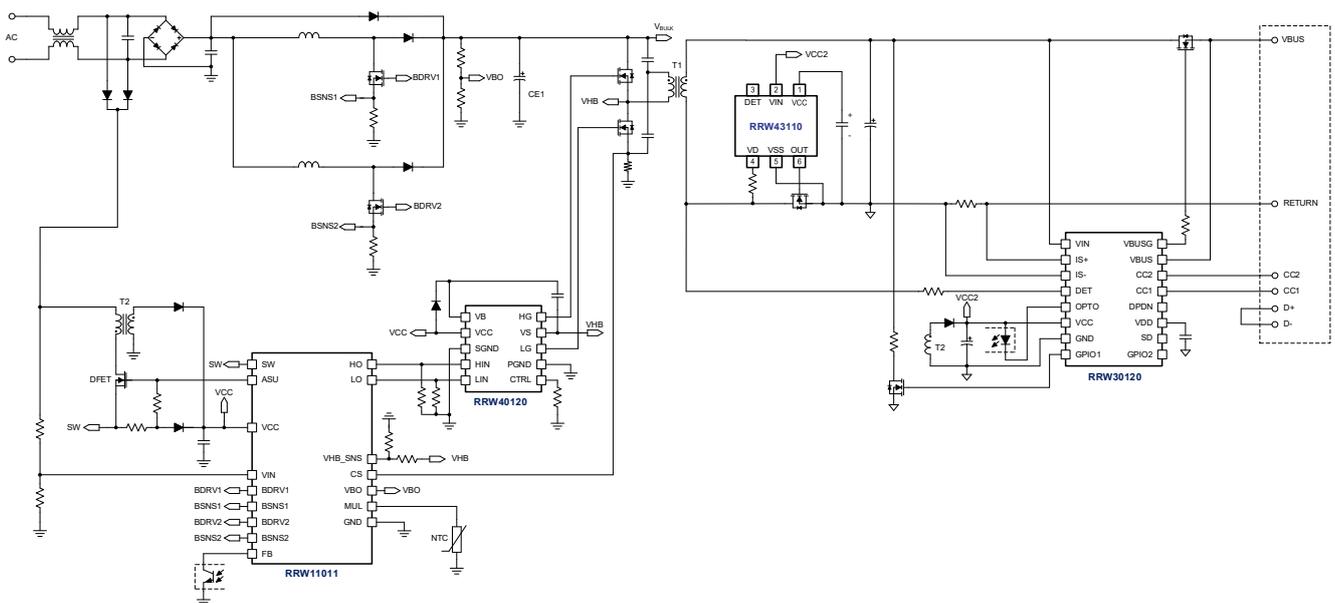


Figure 1. Typical Application Circuit

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