

Product Overview

NCP1631: Power Factor Controller, 2-Phase, Interleaved

For complete documentation, see the data sheet.

The NCP1631 is a controller for use in 2-phase interleaved power factor correction pre-converters. Interleaving consists of paralleling two small stages in lieu of a single big stage. This approach has several merits like ease of implementation, ability to use smaller components, and better distribution of heating. These attributes make the interleaved PFC topology attractive to slim form factor applications such as flat panel TVs and ultra-slim notebook adapters. Interleaving can also extend the power range of Critical Conduction Mode, which is an efficient and cost-effective (no need for low trr diodes) operating mode. The NCP1631 operates in Frequency Clamped Critical Conduction mode (FcCrM). The circuit utilizes frequency foldback to linearly decay the clamping frequency as a function of power. As a result, the NCP1631 provides optimized efficiency across the load range. In addition, the NCP1631 drivers exhibit a 180 phase shift for a significantly reduced current ripple, which lowers EMI and reduces the rms current in the bulk capacitor. The NCP1631 incorporates all the features necessary for building robust and compact interleaved PFC stages, with a minimum of external components. Available in SOIC-16 package.

Features

- 180° out of phase operation
- Frequency foldback at low power
- Integrated overcurrent protection, overvoltage protection, UVLO, and brown-out protection
- Frequency clamped critical conduction mode (FcCrM) operation

Benefits

- Low EMI and reduces RMS current in the bulk capacitor
- Improved light load efficiency
- Increased robustness with few external components
- Optimized efficiency over the load range

Applications

- Flat panel TVs
- SMPS
- Offline appliances requiring power factor correction

End Products

- LCD TV
- Computer power supplies
- Servers

Part Electrical Specifications

Product	Compliance	Status	PFC Mode	Frequency Operation	Control Mode	Topology	f _{sw} Typ (kHz)	V _{cc} Max (V)	Drive Cap. (mA)	UVLO (V)	Latch	UVP	Inhibition	Package Type
NCP1631DR2G	Pb-free Halide free	Active	CRM	Variable	Voltage Mode	Step-Up	Up to 500	20	500 / 500	9.5 - 12	Yes	Yes	YES	SOIC-16

Application Diagram

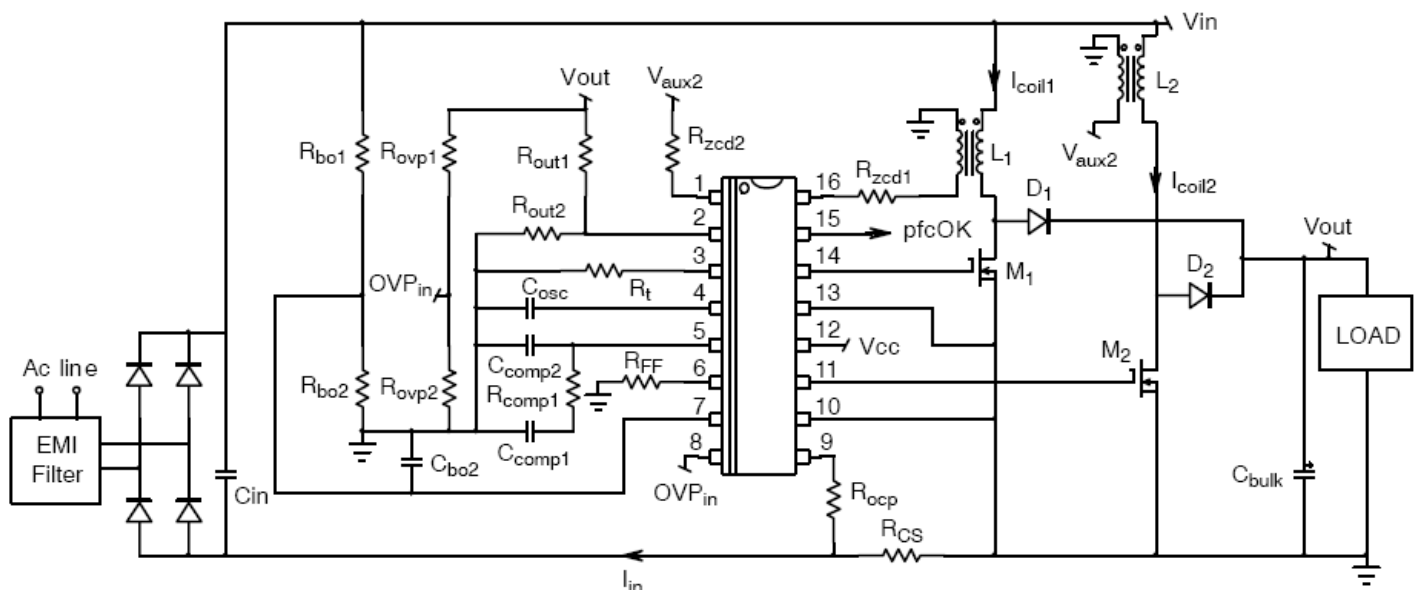


Figure 1. Typical Application Schematic

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