NCP1601

Compact Fixed Frequency Discontinuous or Critical Conduction Voltage Mode Power Factor Correction Controller

Product Overview

For complete documentation, see the data sheet.

The NCP1601 is a controller designed for Power Factor Correction (PFC) boost circuits. The device operates in fixed-frequency Discontinuous Conduction Mode (DCM) and variable-frequency Critical Conduction Mode (CRM) and takes advantages from both operating modes. DCM limits the maximum switching frequency. It simplifies the front-ended EMI filter design. CRM limits the maximum currents of the boost stage diode, MOSFET and inductor. It reduces the costs and improves the reliability of the circuit. This device substantially exhibits unity power factor while operating in DCM and CRM. The NCP1601 minimizes the required number of external components. It incorporates high safety protection features that make the NCP1601 suitable for robust and compact PFC stages.

Features

- Near-Unity Power Factor in DCM in CRM
- Voltage-Mode Operation
- Low Startup and Shutdown Current Consumption
- Programmable Switching Frequency for DCM
- Synchronization Capability
- Overvoltage Protection (107% of Nominal Output Level)
- Undervoltage Protection or Shutdown (8% of Nominal Output Level)
- Programmable Overcurrent Protection
- Thermal Shutdown with Hysteresis (95/140 °C)
- Two VCC Undervoltage Lockout Hysteresis Options: 4.75V for NCP1601A and 1.5V for NCP1601B

For more features, see the data sheet

Applications

- Electronic Light Ballast
- AC Adapters
- Mid-Power Applications
- TV & Monitors
Application Diagram

NCP1601A, NCP1601B

[Diagram showing the typical application circuit for NCP1601A, NCP1601B]

AC Input

EMI Filter

Output

15V

FB

VDD

Vcontrol

Driver

Ramp GND

CS

CScc

NCP1001X

Typical Application Circuit