NCP1566

Highly Integrated Dual-Mode Active Clamp PWM Controller

Product Overview

For complete documentation, see the data sheet.

The NCP1566 is a highly integrated dual-mode active-clamp PWM controller targeting next-generation high-density, high-performance and small to medium power level isolated dc-dc converters for use in telecom and datacom industries. It can be configured in either voltage mode control with input voltage feed-forward or peak current mode control. Peak current mode control may be implemented with input voltage feedforward as well. Adjustable adaptive overlap time optimizes system efficiency based on input voltage and load conditions. This controller integrates all the necessary control and protection functions to implement an isolated active clamp forward or asymmetric half-bridge converter. It integrates a high-voltage startup bias regulator. The NCP1566 has a line undervoltage detector, cycle-by-cycle current limiting, line voltage dependent maximum duty ratio limit, over voltage protection, and programmable overtemperature protection using an external thermistor. It also includes a dual-function pin used for communicating the presence of a fault but also for shutting down the controller. A dedicated dual-function synchronization pin eases operations when associating bricks together.

Features

- Both Voltage Mode Control and Current Mode Control
- Line feedforward
- Adaptive Overlap time Control
- Integrated 120 V HV Startup
- Programmable Line Undervoltage Lockout (UVLO) with Adjustable Hysteresis
- Cycle by Cycle Peak Current Limiting
- Adjustable Over Power Protection & Overcurrent Protection Based on Average Current
- Programmable Duty Ratio Clamp
- Programmable Soft-Start
- Programmable Shutdown and Restart Delays

For more features, see the data sheet

Benefits

- Flexible topology solution
- Stable constant crossover across input voltage range
- Extended ZVS across input & output operating conditions
- Lossless startup and reduced Vcc capacitor via dynamic startup
- Safely limits operating input voltage range
- Increased converter robustness
- Precise output power limit
- Efficiently prevents transformer saturation
- Lowers components stress at startup
- Robustness and flexibility of design

Applications

- High Efficiency Isolated dc−dc Converters
- 24 V and 48 V Telecom systems
- Server Power Supplies
- 48 V Automotive Applications

End Products

- Telecom Converters
- High power Servers
- Audio PA converters

Part Electrical Specifications

Product	Pricing ($/Unit)	Compliance	Status	Topology	Phases	Control Mode	V_{CC} Min (V)	V_{CC} Max (V)	f_{SW} Typ (kHz)	Package Type
NCP1566MNTXG	1.265	Pb H	Active	Forward	1	Current/Voltage Mode	6.5	120	Programmable up to 1 MHz	QFN-24