

Product Overview

NCP4304: Secondary Side Controller, Synchronous Rectification, for High Efficiency SMPS Topologies

For complete documentation, see the data sheet.

The NCP4304A/B is a full featured controller and driver tailored to control synchronous rectification circuitry in switch mode power supplies. Due to its versatility, it can be used in various topologies such as flyback, forward and Half Bridge Resonant LLC. The combination of externally adjustable minimum on and off times helps to fight the ringing induced by the PCB layout and other parasitic elements. Therefore, a reliable and noise less operation of the SR system is insured. The extremely low turn off delay time, high sink current capability of the driver and automatic package parasitic inductance compensation system allow to maximize synchronous rectification MOSFET conduction time that enables further increase of SMPS efficiency. Finally, a wide operating VCC range combined with two versions of driver voltage clamp eases implementation of the SR system in 24 V output applications.

Features

- Precise True Secondary Zero Current Detection with Adjustable Threshold
- Automatic Parasitic Inductance Compensation
- Typically 40 ns Turn off Delay from Current Sense Input to Driver
- Zero Current Detection Pin Capability up to 200 V
- Optional Ultrafast Trigger Input
- Disable Input
- Adjustable Minimum ON Time and Minimum OFF Time
- 5 A/2.5 A Peak Current Sink/Source Drive Capability
- Operating Voltage Range up to 30V

Applications

- High Power Density AC/DC Power Supplies

Benefits

- Allows for proper timing of SR MOSFET turn on and turn off
- Compensates for the parasitic inductance effects of TO-220 MOSFETS to optimize conduction time
- Maximizes conduction time of the MOSFET to increase efficiency
- Allows direct connection of CS input to MOSFET drain in flyback applications
- Improves performance for applications working in deep CCM
- Enters the IC into a low consumption standby mode
- Prevents accidental MOSFET turn on or turn off due to ringing
- Fast turn off of MOSFET for optimized conduction period
- Allows for direct supply from the power supply output voltage in a wide range of applications

End Products

- Notebook Adapters
- Server Power Supplies
- ATX Power Supplies

Part Electrical Specifications

Product	Compliance	Status	V _{CC} Max (V)	V _{ref} Typ (V)	I _{CC} Max (A)	T _A Min (°C)	T _A Max (°C)	Package Type
NCP4304ADR2G	Pb-free	Active	30	N/A	0.0066	-40	125	SOIC-8
	Halide free							
NCP4304AMNTWG	Pb-free	Active	30	N/A	0.0066	-40	125	DFN-8
	Halide free							
NCP4304BDR2G	Pb-free	Active	30	N/A	0.0062	-40	125	SOIC-8
	Halide free							
NCP4304BMNTWG	Pb-free	Active	30	N/A	0.0062	-40	125	DFN-8
	Halide free							

