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Product Overview

NCP4305: Secondary Side Controller, Synchronous Rectification, for High Efficiency SMPS Topologies

For complete documentation, see the data sheet.

The NCP4305 is high performance driver tailored to control a synchronous rectification MOSFET in switch mode power supplies. Thanks to its high performance drivers and versatility, it can be used in various topologies such as DCM or CCM flyback, quasi resonant flyback, forward and half bridge resonant LLC.

The combination of externally adjustable minimum off-time and on-time blanking periods helps to fight the ringing induced by the PCB layout and other parasitic elements. A reliable and noise less operation of the SR system is insured due to the Self Synchronization feature. The NCP4305 also utilizes Kelvin connection of the driver to the MOSFET to achieve high efficiency operation at full load and utilizes a light load detection architecture to achieve high efficiency at light load.

The precise turn-off threshold, extremely low turn-off delay time and high sink current capability of the driver allow the maximum synchronous rectification MOSFET conduction time and enables maximum SMPS efficiency. The high accuracy driver and 5 V gate clamp enables the use of GaN MOSFETs.

Features

- Precise True Secondary Zero Current Detection with Adjustable Threshold
- Typically 20 ns Turn off Delay from Current Sense Input to Driver
- Zero Current Detection Pin Capability up to 200 V
- Optional Ultrafast (7ns) Trigger Input
- Disable Input
- Adjustable Minimum ON Time and Minimum OFF Time
- Self Synchronization
- 8 A Sink, 4 A Source Drive capability
- Light Load Detection with Modulated Gate Drive
- 4.5 V & 9 V UVLO Options and 36 V(Max)

  For more features, see the data sheet

Benefits

- Allows for proper timing of SR MOSFET turn on and turn off
- 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
- Ensures proper DRV pulses during operation
- Fast turn off of MOSFET for optimized conduction period
- Increased stability coming in and out of Light Load
- Wide output operating voltages

Applications

- High Power Density AC/DC Power Supplies

End Products

- Notebook Adapters
- Server Power Supplies
- ATX & All-in-one Power Supplies
- High Density USB Adapters

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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
NCP4305ADR2G	Pb-free Halide free	Active	37	N/A	0.0056	-40	125	SOIC-8
NCP4305AMTTWG	Pb-free Halide free	Active	37	N/A	0.0056	-40	125	WDFN-8
NCP4305DDR2G	Pb-free Halide free	Active	37	N/A	0.006	-40	125	SOIC-8
NCP4305DMNTWG	Pb-free Halide free	Active	37	N/A	0.006	-40	125	DFN-8
NCP4305DMTTWG	Pb-free Halide free	Active	37	N/A	0.006	-40	125	WDFN-8
NCP4305QDR2G	Pb-free Halide free	Active	37	N/A	0.006	-40	125	SOIC-8

For more information please contact your local sales support at www.onsemi.com.

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