

Product Overview

NCP4306: Secondary Side Synchronous Rectification Driver for High Efficiency SMPS Topologies

For complete documentation, see the data sheet.

The NCP4306 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 or fixed 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 NCP4306 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
 - Typically 15 ns Turn off Delay from Current Sense Input to Driver
 - Zero Current Detection Pin Capability up to 200 V
 - Optional Ultrafast (10.5ns) Trigger Input
 - Disable Input
 - Adjustable Minimum ON Time and Minimum OFF Time
 - dV/dt detection
 - 7 A Sink, 2 A Source Drive capability
 - Automatic Light Load Disable Mode
 - 3.5V UVLO and Operation Voltage range up to 35V
- 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
- Enhanced Operation for USB-PD Applications
- 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 aux power stage
- ATX & All-in-one Power Supplies
- High Density USB Adapters

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 |
|----------------------|-------------|--------|-------------------------|--------------------------|-------------------------|-------------------------|-------------------------|--------------|
| NCP4306AADZZZAD R2G | Pb-free | Active | 37 | | 2.2mA | T _j -40°C | T _j 125°C | SOIC-8 |
| | Halide free | | | | | | | |
| NCP4306AAHZZZAD R2G | Pb-free | Active | 37 | | 2.2mA | T _j -40°C | T _j 125°C | SOIC-8 |
| | Halide free | | | | | | | |
| NCP4306DADZZDAS NT1G | Pb-free | Active | 37 | | 2.2mA | T _j -40°C | T _j 125°C | TSOP-6 |
| | Halide free | | | | | | | |
| NCP4306DAHZZAAS NT1G | Pb-free | Active | 37 | | 2.2mA | T _j -40°C | T _j 125°C | TSOP-6 |
| | Halide free | | | | | | | |

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

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