

## Product Overview

### NCP4303: Secondary Side Controller, Synchronous Rectification, for High Efficiency SMPS

For complete documentation, see the [data sheet](#)

#### Product Description

The NCP4303A/B is a full featured controller and driver tailored to control synchronous rectifier circuitry in switch mode power supplies. Because of 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  $V_{CC}$  range combined with two versions of driver voltage clamp eases implementation of the SR system in 24 V output applications.

NCP4304 is recommended for new designs. NCP4303 will continue to be supported in production. NCP4304 was introduced to enhance the performance of LLC designs which use the Trigger input. Other performance and applications are the same.

Features	Benefits
<ul style="list-style-type: none"><li>Automatic parasitic inductance compensation input</li><li>40 ns turn off delay from current sense input to driver output</li><li>Wide <math>V_{CC}</math> operating range up to 30 V</li><li>Externally adjustable minimum on and minimum off times</li><li>Trigger input for interfacing with primary side switching signal</li><li>Disable input for standby mode</li><li>5 A / 2.5 A peak sink / source drive capability</li><li>True secondary ZCD with adjustable threshold</li><li>Gate drive clamp of either 12 V (A version) or 6 V (B version)</li><li>Maximum frequency of operation up to 500 kHz</li></ul>	<ul style="list-style-type: none"><li>Maximizes the conduction time to get the full efficiency benefit of synchronous rectification</li><li>Fast switching response to current sense inputs</li><li>Allows direct connection of the <math>V_{CC}</math> to the output in 24 V output applications</li><li>Prevents false switching due to ringing and dropouts induced by the PCB</li><li>Allows the NCP4303 to be used in CCM topologies</li><li>Enters the device into a low consumption state</li><li>High sink capability allows for quick turn-off of the synchronous rectification MOSFET</li><li>Accurate detection of secondary side current</li><li>Gate drive voltages tailored to the synchronous rectification MOSFET of choice</li><li>Design flexibility</li></ul>
Applications	End Products
<ul style="list-style-type: none"><li>ATX power supplies</li><li>High Power AC/DC adapters</li><li>Flat TV power supplies</li></ul>	<ul style="list-style-type: none"><li>All-in-one PCs</li><li>Gaming Consoles</li><li>Notebook Adapters</li></ul>

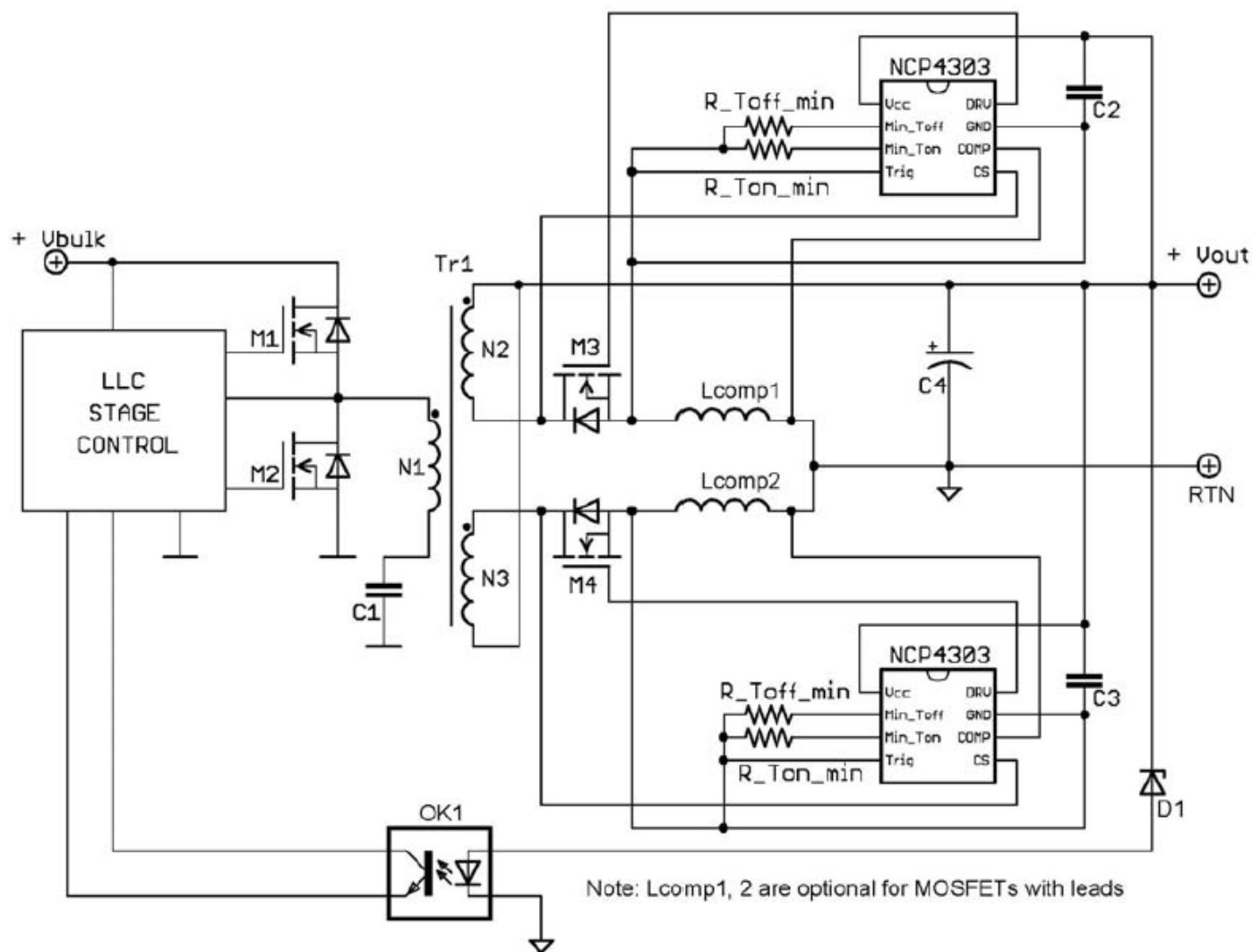


Figure 1. Typical Application Example – LLC Converter

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com)

Created on: 7/11/2015