

## Product Overview

### NCP1031: Integrated DC-DC Converter for PoE and Telecom

For complete documentation, see the data sheet.

The NCP1030 and NCP1031 are a family of miniature high-voltage monolithic dc-dc converters with on-chip power switch and start-up circuits. The NCP103x family incorporates in a single IC all the active power, control logic and protection circuitry required to implement, with minimal external components, several switching regulator applications, such as a secondary side bias supply or a low power dc-dc converter.

This controller family is ideally suited for 48 V telecom, 42 V automotive, 12 V input and Power Over Ethernet (PoE) applications. The NCP103x can be configured in any single-ended topology such as forward or flyback. The NCP1030 is targeted for applications requiring up to 3 W, and the NCP1031 is targeted for applications requiring up to 6 W.

The internal error amplifier allows the NCP103x family to be easily configured for secondary or primary side regulation operation in isolated and non-isolated configurations. The fixed frequency oscillator is optimized for operation up to 1 MHz and is capable of external frequency synchronization, providing additional design flexibility. In addition, the NCP103x incorporates individual line undervoltage and overvoltage detectors, cycle by cycle current limit and thermal shutdown to protect the controller under fault conditions. The preset current limit thresholds eliminate the need for external sensing components.

#### Features

- On Chip High 200 V Power Switch Circuit and Startup Circuit
  - External Frequency Synchronization up to 1 MHz
  - Internal Startup Regulator with Auxiliary Winding Override
  - Trimmed 2% Internal Reference
  - Line Under/Over Voltage Lockout
  - Cycle by Cycle Current Limit
  - Over Temperature Protection
  - Internal Error Amplifier
  - Primary or Secondary Regulation
  - Excel Based Design Tool Available
- For more features, see the data sheet

#### Benefits

- No external circuitry needed for high voltage start up
- Optimization of switching frequency for size and efficiency
- Smaller PCB footprint
- Accurate output voltage
- System level protection
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- Smaller PCB footprint
- Flexibility in implementation

#### Applications

- Stand Alone Low Power dc-dc Converter
- Low Power Bias Supply
- Low Power Boost Converter

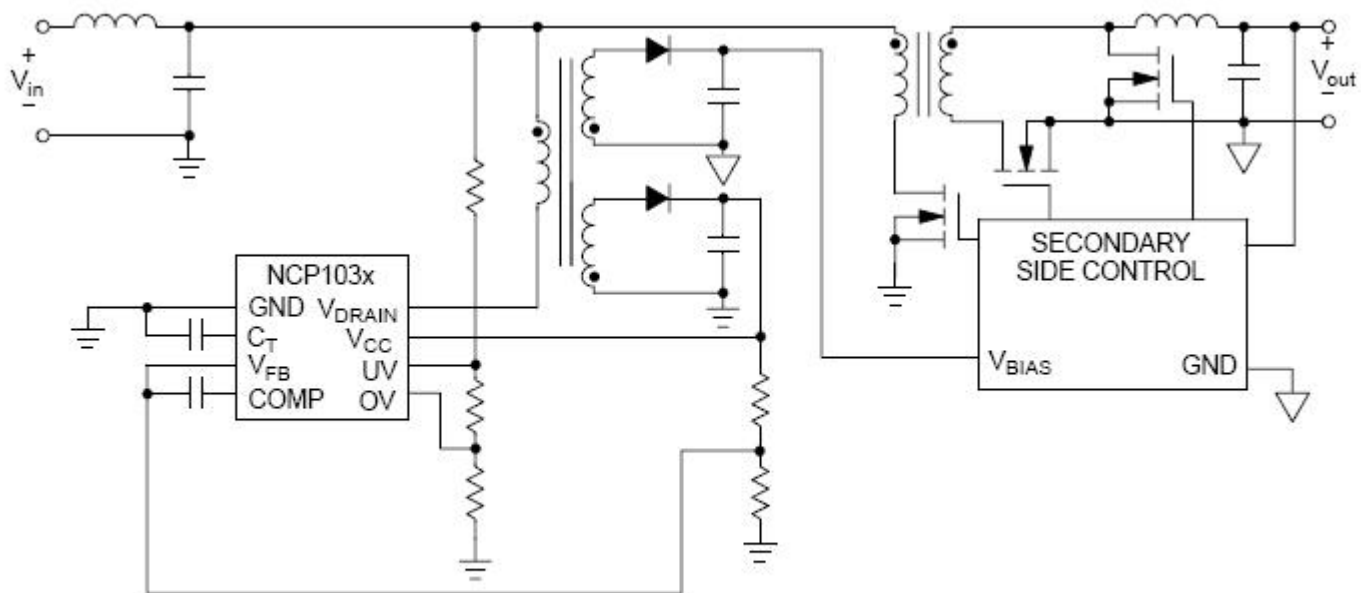
#### End Products

- POE (Power Over Ethernet)/PD. Refer to Application Note AND8247.
- Secondary Side Bias Supply for Isolated dc-dc Converters

#### Part Electrical Specifications

Product	Compliance	Status	Topology	Control Mode	V <sub>CC</sub> Min (V)	V <sub>CC</sub> Max (V)	V <sub>o</sub> Typ (V)	I <sub>o</sub> Typ (A)	Efficiency (%)	f <sub>sw</sub> Typ (kHz)	Package Type
NCP1031DR2G	Pb-free	Active	Flyback	Voltage Mode	8	200	12	1	85	Up to 1000	SOIC-8
	Halide free		Step-Down								
			Step-Up								
NCP1031MNTXG	Pb-free	Active	Step-Up	Voltage Mode	8	200	12	1	85	Up to 1000	DFN-8
	Halide free		Step-Down								
			Flyback								

## Application Diagram



**Figure 31. Secondary Side Bias Supply Configuration**

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

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