

## Product Overview

### NCL30002: LED Driver, Offline Buck, Power Factor Corrected

For complete documentation, see the data sheet.

The NCL30002 is a switch mode power supply controller intended for low to medium power single stage power factor (PF) corrected LED Drivers. The device operates as a critical conduction mode (CrM) buck controller to regulate LED current at a high power factor for a specific line voltage range. The current limit threshold is tightly trimmed allowing open loop control techniques to reduce parts count while maintaining accurate current regulation and high power factor. CrM operation is particularly suited for LED applications as very high efficiency can be achieved even at low power levels. These are important in LED lighting to comply with regulatory requirements and meet overall system luminous efficacy requirements. In CrM, the switching frequency will vary with line and load. Switching losses are low as recovery losses in the output rectifier are negligible since the current goes to zero prior to reactivating the main MOSFET switch.

#### Features

- Low 485 mV Current Sense threshold
- Wide -40 to + 125 °C Temperature Range
- Low typical 24  $\mu$ A startup current
- Fixed On time/Peak Current Power Factor Correction Control Architecture
- Maximum Vcc of 20 Vdc
- 500 mA Source / 800 mA Sink MOSFET Gate Driver
- $\pm$  3.1% Current limit accuracy across complete temperature range

#### Applications

- LED Bulbs
- LED Downlights
- Power Factor Corrected LED Drivers
- LED Fluorescent Tube Replacements

#### Benefits

- Lower power dissipation
- Suitable for indoor and outdoor lighting applications
- Faster startup time with reduced power dissipation

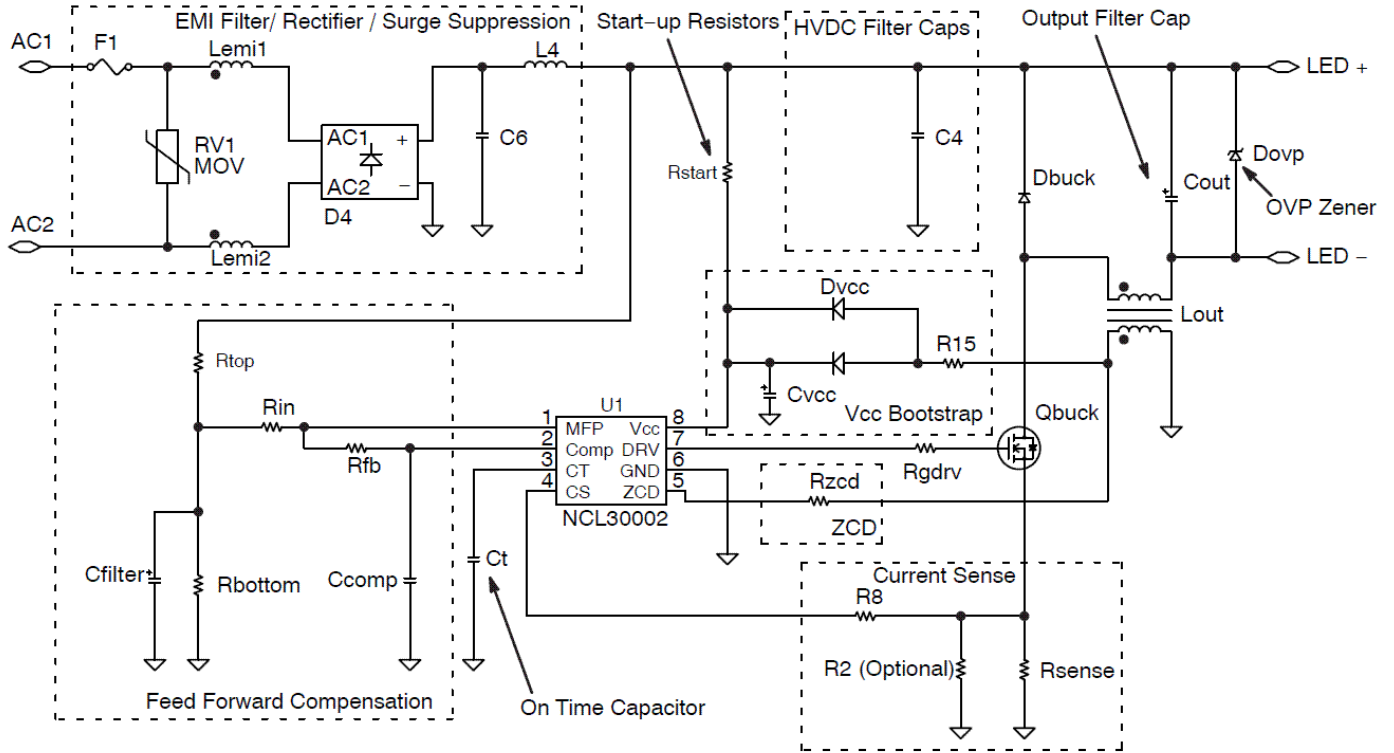
#### End Products

- High Efficiency LED Lighting

### Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	V <sub>I</sub> Min (V)	V <sub>I</sub> Max (V)	V <sub>O</sub> Max (V)	I <sub>O</sub> Max (mA)	f <sub>sw</sub> Typ (kHz)	Package Type
NCL30002DR2G	0.7333	Pb-free Halide free	Active	Step-Down	12.5	308 V <sub>AC</sub>	20 V <sub>GATE</sub>	35/25 ns - Rise/Fall time	Variable	SOIC-8

# Application Diagram



**Simplified PFC Buck Application**

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

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