

Product Overview

NCL30051: Offline Controller, PFC and Half Bridge Resonant Mode, for LED Lighting

For complete documentation, see the data sheet.



The NCL30051 is a combination of a power factor correction (PFC) and half-bridge resonant controller optimized for off-line LED lighting applications. The device integrates all the features needed to implement a highly efficient and small form factor LED driver. It contains a critical conduction mode (CrM) fixed on time boost controller and a half-bridge resonant controller with a built-in 600 V high side gate driver. The half-bridge stage operates at a fixed frequency - greatly simplifying the control implementation. The output (current or voltage) regulation can be achieved by adjusting the PFC stage output voltage based on a feedback signal generated external to the controller. This device includes an enable input on the PFC feedback pin, PFC open feedback protection, and PFC overvoltage and undervoltage detectors. Other features included in the NCL30051 are a 600 V startup circuit and an adjustable frequency oscillator with a divide by 2 circuit to assure a balanced duty ratio. Controller sequencing is built-in simplifying the system design.

Features

- Voltage-mode CrM fixed on time PFC boost controller
- PFC Open Feedback Loop Protection
- Fixed Frequency Resonant Half-bridge Controller
- 600 V High Side Gate Driver
- Up to 600 V Startup Circuit
- Half Bridge Disable input
- PFC Bulk Undervoltage and Overvoltage Detectors

Applications

- High Efficiency LED Drivers and Power Supplies
- Lighting Electronic Control Gear
- Light Ballasts

Benefits

- Simple control scheme achieving high PF and low total harmonic distortion
- Robust Fault Handling
- High conversion efficiency with Zero Voltage Switching
- Simplifies driving external MOSFETS
- Reduced parts count and simplified design
- Simplifies PWM dimming of the LEDs
- Robust Fault Handling

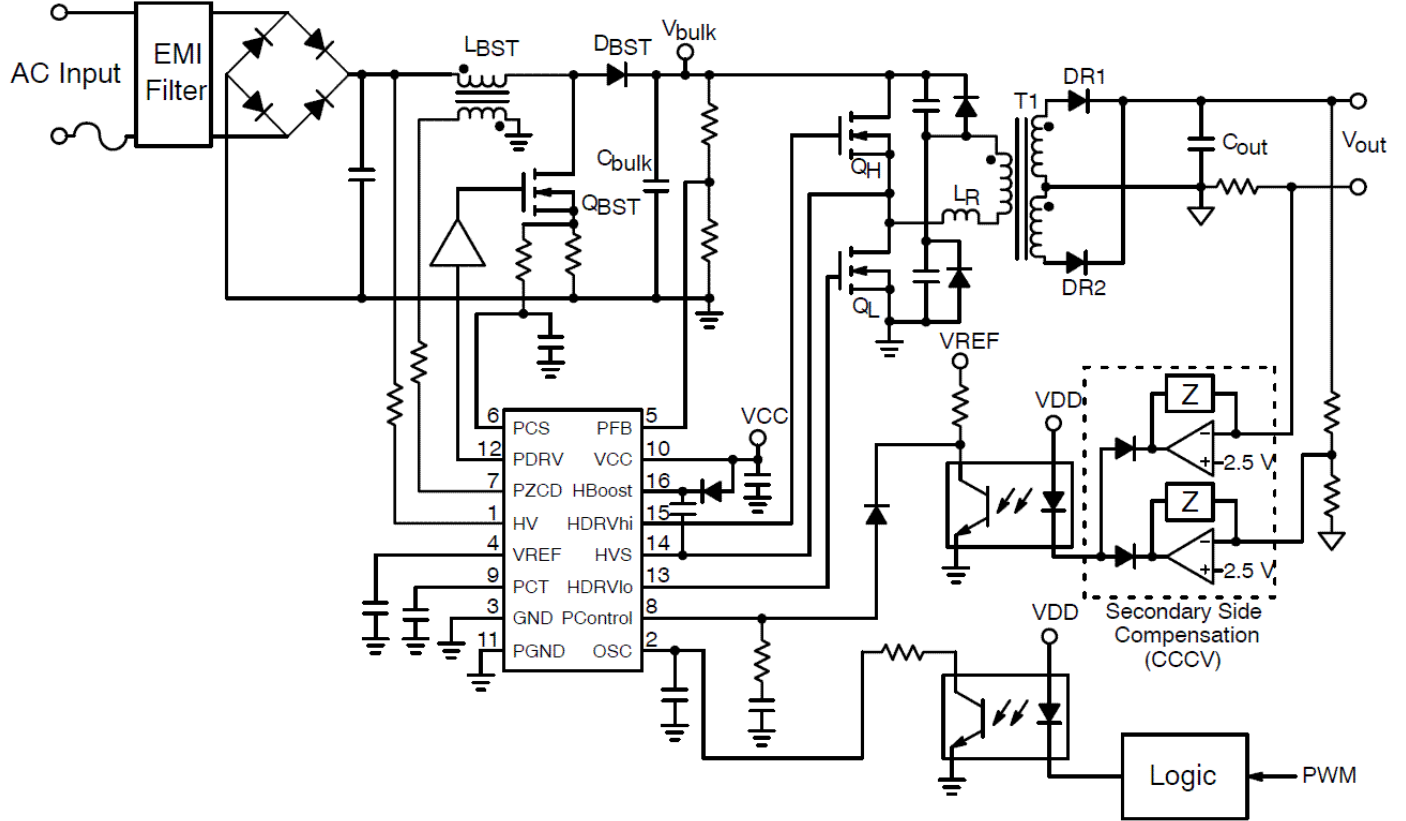
End Products

- LED Wall Packs and Wall Washers
- High Performance Outdoor LED Fixtures
- Low Bay LED Luminaires
- High Power LED Spot Lighting

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	V _I Min (V)	V _I Max (V)	V _O Max (V)	I _O Max (mA)	f _{sw} Typ (kHz)	Package Type
NCL30051DR2G	0.92	Pb-free Halide free	Active	Half-Bridge	16.3	600	150	3000	Variable	SOIC-16

Application Diagram



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

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