

Product Overview

NCP3065: Buck / Boost / Inverting Regulator, Switching, Constant Current, 1.5 A, for HB-LEDs

For complete documentation, see the data sheet.

The NCP3065 is a monolithic Buck Boost Inverting Switching Regulator designed to deliver constant current for powering high brightness LEDs (HBLED). The device has a very low feedback voltage of 235 mV (nominal) which is used to regulate the average current of the LED string. In addition, the NCP3065 has a wide input voltage up to 40 V to allow it to operate from 12 Vac or 12 Vdc supplies commonly used for lighting applications as well as unregulated supplies such as Lead Acid batteries. The device can be configured in a controller topology with the addition of an external transistor to support higher LED currents beyond the 1.5 A rated switch current of the internal transistor. The NCP3065 switching regulator can be configured in Step-Down (Buck), Step-Up (boost) or SEPIC topologies with a minimum number of external components. Available with ENABLE feature under part number NCP3066.

Features

- Integrated 1.5 A Switch
- Input Voltage Range from 3 V to 40 V
- Low Feedback Voltage of 235 mV
- Cycle-by-Cycle Current Limit
- No Control Loop Compensation Required
- Frequency of Operation Adjustable up to 250 kHz
- Operation With All Ceramic Output Capacitors or No Output Capacitance
- Analog and Digital PWM Dimming Capability
- Internal Thermal Shutdown with Hysteresis

Applications

- Constant Current Source
- High Power LED Driver
- High Brightness LED (HB-LED)

Benefits

- Integrated switch provides for small footprint
- Flexibility to operate from 12Vac or 12Vdc supplies commonly used for lighting applications
- Allows the use of small / low cost sense resistor
- Enhanced protection features
- Easy design-in
- Optimization of efficiency and size
- Reduce size and cost by eliminating output capacitor
- Flexibility in application to select method of dimming
- Enhanced protection features

End Products

- Automotive and Marine Lighting (LED)
- Low Voltage LED Landscape Lighting
- MR-16 Replacement

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Topology	Control Mode	V _{CC} Min (V)	V _{CC} Max (V)	V _O Typ (V)	I _O Typ (A)	Efficiency (%)	f _{SW} Typ (kHz)	Package Type
NCP3065DR2G	0.6	Pb-free Halide free non AEC-Q and PPAP	Active	Step-Down Step-Up Step-Up/Step-Down	Hysteretic	3	40	1.25 to 40	1.5	85	250	SOIC-8
NCP3065MNTXG	0.6267	Pb-free Halide free non AEC-Q and PPAP	Active	Step-Down Step-Up Step-Up/Step-Down	Hysteretic	3	40	1.25 to 40	1.5	85	250	DFN-8
NCV3065DR2G	0.64	AEC Qualified PPAP Capable Pb-free Halide free	Active	Step-Down Step-Up Step-Up/Step-Down	Hysteretic	3	40	1.25 to 40	1.5	85	250	SOIC-8
NCV3065MNTXG	0.6667	AEC Qualified PPAP Capable Pb-free Halide free	Active	Step-Down Step-Up Step-Up/Step-Down	Hysteretic	3	40	1.25 to 40	1.5	85	250	DFN-8

Application Diagram

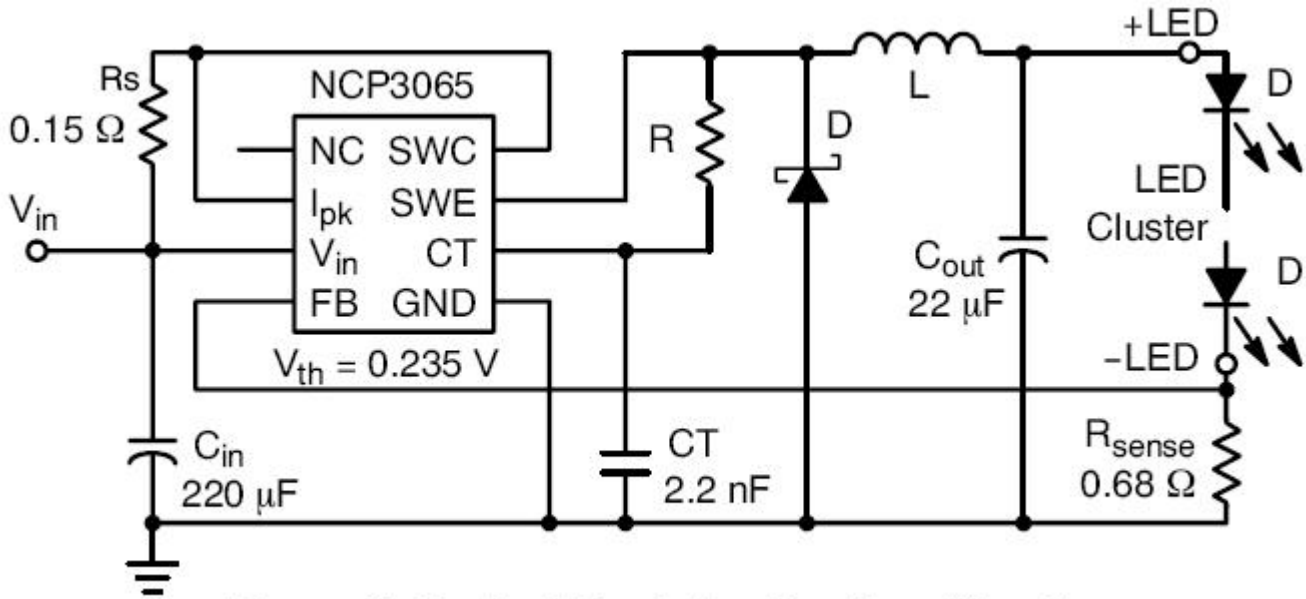


Figure 1. Typical Buck Application Circuit

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

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