



MAX16833 HB LED DRIVER

Complete solution for single-chain LED headlamps boosts flexibility and EMI performance

The MAX16833 family of HB LED drivers employs an innovative architecture to substantially reduce the cost and complexity of exterior lighting designs. These devices integrate a high-side current-sense amplifier alongside a high-side PMOS dimming MOSFET driver to provide comprehensive short-circuit protection, single-wire connection to LEDs, and optional internal frequency dithering for improved EMI control.

A peak current-mode control scheme makes the MAX16833 ideal for boost, buck-boost, SEPIC, flyback, and high-side buck topologies. The devices employ a dimming driver to control an external p-channel in series with the LED string, enabling dimming over a very wide range. This feature provides extremely fast PWM current switching to the LEDs with no transient overvoltage or undervoltage conditions. In addition to PWM dimming, the ICs provide analog dimming using a DC input at ICTRL.

The family operates over a wide 5V to 65V input/output range, reducing the cost of load-dump filter components. Additional features include a fault-indicator output for short or overtemperature conditions and an overvoltage-protection sense input for overvoltage protection.

Key Advantages

Reduces Size and Cost

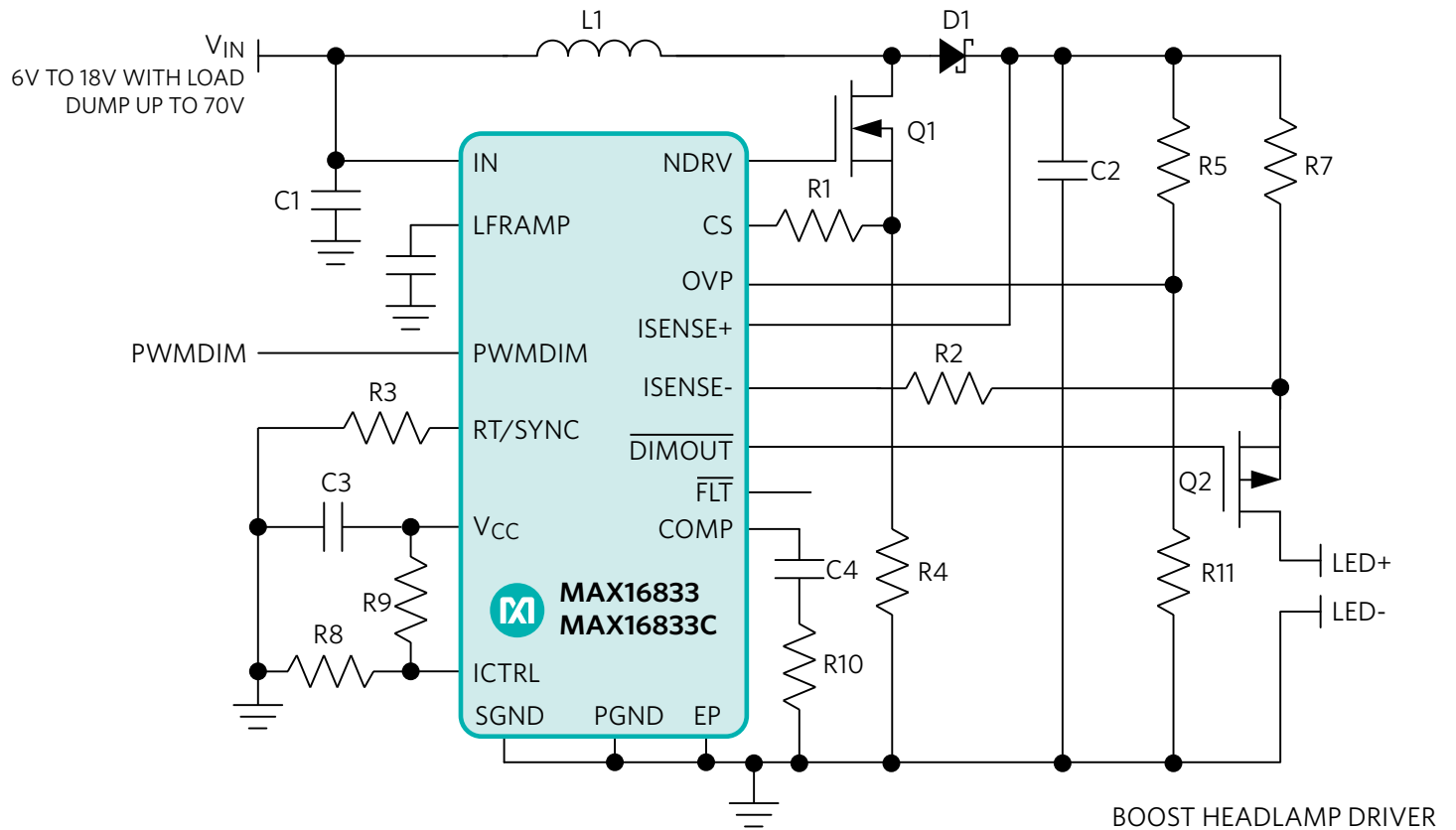
- Integrated high-side pMOS dimming MOSFET driver allows single-wire connection to LEDs
- Built-in high-side current sense for short-circuit protection
- Wide 5V to 65V input range

Simplifies Design-In

- Supports boost, buck-boost, SEPIC, and high-side buck topologies
- Analog or PWM dimming
- Programmable operating frequency with synchronization capability

Improved EMI Performance

- Frequency dithering for spread-spectrum applications (MAX16833/MAX16833C)



HB LED Driver Options

Part	V _{IN} (V, max)	Maximum f _{sw} (MHz)	Spread Spectrum
MAX16833	65	1	✓
MAX16833B	65	1	
MAX16833C	65	1	✓
MAX16833D	65	1	

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