

High-Efficiency Dual-String with up to 10-WLED White LED Driver

Features

- Drives up to Two Strings of 10 Series LEDs
- 11-bit Programmable Dimming Resolution
- Exponential or Linear Brightness Control
- PWM Brightness Control for CABC Operation
- Independent Current Control per String
- Internal Soft-Start Limits Inrush Current
- Wide 2.7 V to 5.5 V Input Voltage Range
- Adaptive Headroom Control
- Selectable Boost Frequency of 500 kHz or 980 kHz with Optionally Additional Offset
- 12-Bump 1.65 mm x 1.43 mm WLCSP Package
- Protections
 - . Programmable 16 V / 24 V / 32 V / 40 V Overvoltage Protection
 - . LED Open / Short Circuit Protection
 - . Thermal Shutdown
 - . Current Limit

Applications

- Mobile and Smart Phones LCD Backlight
- Tablets LCD Backlight
- Portable Devices LCD Backlight

Description

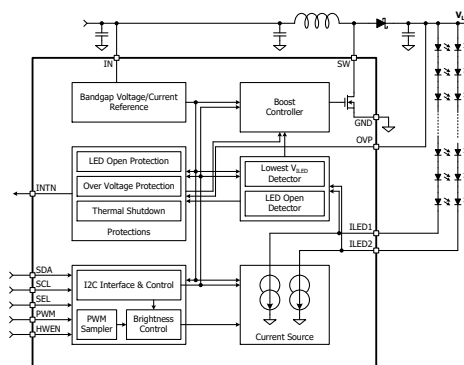
The SM5306 is a current mode boost converter which supplies power and controls current in up to two strings of 10 LEDs per string. Programming is done over an I²C-compatible interface. The maximum LED current is adjustable from 5 mA to 28.5 mA. At any given maximum LED current, the LED brightness is further adjusted with exponential or linear dimming steps. Additionally, pulsed width modulation (PWM) brightness control can be enabled, allowing for LED current adjustment by a logic level PWM signal.

The boost switching frequency is programmable at 500 kHz for low switching loss performance or 980 kHz to allow the use of tiny low-profile inductors. The setting for a 10% offset of these frequencies is available. Overvoltage protection is programmable at 16 V, 24 V, 32 V or 40 V to accommodate a wide variety of LED configurations and Schottky diode/output capacitor combinations. The SM5306 is available in a 12-bump, 1.65 mm x 1.43 mm WLCSP package.

Device Information

Part	Package	Size
SM5306	12 WLCSP	1.65 mm x 1.43 mm

Simplified Block Diagram



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