

High Efficiency Integrated Boost Driver for 3-Strings of 30mA LEDs

POWER MANAGEMENT

Features

- Wide input voltage range from 4.5V to 27V
- 42V maximum operating output voltage
- Programmable LED current for up to 30mA per string
- **+/- 1% typical string-to-string current matching**
- **Greater than 90% efficiency**
- Wide 0.4% to 100% PWM dimming range
- **Integrated 1A power switch**
- Programmable switching frequency for small size
- Low current sense voltage for high efficiency
- Adjustable OVP for cost-effective output cap selection
- LED open circuit protection
- Thermal protection with auto-recovery
- 3mm × 3mm × 0.6mm MLP-UT-16 lead-free package (WEEE and RoHS compliant)

Applications

- Small to Medium Size LCD Panel
- Notebook Display
- White LED Power Supplies
- Sub-Notebook and Tablet Computer Displays
- Portable Media Players
- LCD Monitors
- Digital Video Cameras

Description

The SC443 is a high-efficiency multiple string WLED driver with an integrated boost converter. It operates over a wide input range from 4.5V to 27V with a maximum output voltage of 42V and a 1A internal power switch.

It can drive 3 strings with current up to 30mA per string. The string-to-string current matching is within, typically, 1% and the overall efficiency is greater than 90% due to the low current sense voltage and a low-impedance internal power switch. The wide PWM dimming range boasts a ratio of 250: 1.

The programmable switching frequency enables the user to optimize the external component sizes for high efficiency. When there are fewer LEDs in each string, users can use a lower output voltage protection level which yields an allowable reduction in associated costs, size and voltage ratings of the output capacitor.

The SC443 also features an open circuit LED protection function. It disables the corresponding strings with LED open while keeping other strings under normal operation. This feature allows LCD panels to remain viewable even under LED failure and wire disconnects. The internal thermal shutdown protects the IC from overheating at abnormal conditions. The SC443 is available in a 3mm × 3mm × 0.6mm MLP-UT 16 Lead-free package.

Typical Application Circuit

