

## High Efficiency Integrated Driver for 3-Strings of 100mA LEDs

### POWER MANAGEMENT

#### Features

- Wide input voltage range from 4.5V to 27V
- 36V maximum output voltage
- Drives up to 30 WLEDs in 3 strings
- **Programmable LED current for up to 100mA per string**
- **+/- 2% string-to-string current matching**
- **Up to 90% efficiency**
- Wide 0.2% to 100% PWM dimming range
- Possible analog dimming
- Integrated 2.5A power switch
- 700kHz switching frequency for small size
- Adjustable OVP for cost-effective output cap selection
- **Open/short LED protection**
- Thermal protection with auto-recovery
- Thermally enhanced TSSOP-16 EDP package
- Pb Free, Halogen Free, andWEEE/RoHS Compliant

#### Applications

- Medium-sized LCD panel
- Notebook Display
- Automotive Car Navigation Display
- Sub-Notebook and Tablet Computer Displays
- Portable Media Players

#### Description

The SC446 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 36V and a 2.5A internal power switch. It can drive up to thirty WLEDs in 3 strings with current up to 100mA per string. The string-to-string current matching is 2% typical, 3% maximum. 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 500: 1.

The 700kHz switching frequency enables the user to optimize the external component sizes for efficiency. When there are fewer than 10 LEDs in each string, users can adjust the output voltage protection yielding an allowable reduction in associated costs, size and voltage ratings of the output capacitor.

The SC446 also features comprehensive open and short-circuit LED protection functions. It disables the corresponding strings with LED open or LED short conditions while maintaining normal operation of other, unaffected LED strings. This feature allows LCD panels to remain viewable even under LED failure, wire disconnect, or short-circuit conditions. The internal thermal shutdown protects the IC from overheating at abnormal conditions.

The SC446 is available in a thermally-enhanced TSSOP-16 EDP package.

#### Typical Application Circuit

