

6 Channel White LED Driver with Internal-switch Boost Regulator for High Power LED

Features

- 2.7 V to 24 V Input Supply Voltage Range
- Maximum Output Adjustable up to 47 V
- High-Efficiency Step-up Regulator
 - . Peak-Current Mode Control – Fast Transient
 - . 115 kHz to 1.1 MHz Adjustable Switching Frequency
 - . Built-in 50 V, 2.5 A, 180 mΩ MOSFET
- Six LED Current Sources
 - . Full-Scale LED Current Adjustable up to 40 mA
 - . $\pm 1\%$ Current Matching Between Channels
 - . Headroom Control to Maximize Efficiency
- Dimming Control
 - . Wide PDIM Input Frequency: 100 Hz to 15 kHz
 - . Adjustable Output Dimming Frequency: 1 kHz to 22 kHz
 - . Selectable Dimming Control
- Protections
 - . Output Overvoltage Protection
 - . LED Open Circuit Protection
 - . Thermal Shutdown

Applications

- Notebook Backlighting
- LCD Monitor LED Backlighting

Description

The SM2006 is a high-efficiency white LED driver with an internal-switch current mode step-up regulator. It drives up to six channels of the series LED array with a $\pm 2\%$ current regulation accuracy. Each current source for LED driving is adjustable up to 40 mA. The step-up DC-DC converter provides the regulated supply voltage for LED driving. To reduce power loss, the SM2006 features the headroom control which detects the lowest channel voltage and uses to set the output voltage. The high switching frequency of the converter makes it possible to use ultra-small inductors and ceramic capacitors. The device provides two brightness control methods – phase shift PWM and direct PWM – and the dimming mode is selected by an external dimming mode selection pin. In case of phase shift PWM, output dimming frequency is adjusted by an external resistor. The SM2006 features multiple protections to protect the controller from fault conditions.

Device Information

Part	Package	Size
SM2006	20 QFN	4 mm x 4 mm

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