

## **6 Channel White LED Driver with Internal-switch Boost Regulator**

### **Features**

- 5 V to 27 V Input Supply Voltage Range
- Maximum Output Adjustable up to 55 V
- High-Efficiency Step-up Regulator
  - . Peak-Current Mode Control – Fast Transient
  - . 210 kHz to 1.4 MHz Adjustable Switching Frequency
  - . Built-in 60 V, 2.5 A, 0.18  $\Omega$  MOSFET
- Six LED Current Sources
  - . Full-Scale LED Current Adjustable up to 30 mA
  - .  $\pm 1.5\%$  Current Matching Between Channels
  - . Headroom Control to Maximize Efficiency
- Dimming Control
  - . Wide PDIM Input Frequency: 100 Hz to 20 kHz
  - . Adjustable Output Dimming Frequency: 100 Hz to 20 kHz
  - . Selectable Dimming Controls
- Phase Shift PWM or Direct PWM
- Protections
  - . Output Overvoltage Protection
  - . LED Open Circuit Protection
  - . Thermal Shutdown

### **Applications**

- LCD TV LED Backlighting

### **Description**

The SM4500 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  $\pm 1.5\%$  current regulation accuracy. Each current source for LED driving is adjustable up to 30 mA. The step-up DC-DC converter provides the regulated supply voltage for LED driving. To reduce the power loss, the SM4500 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 SM4500 features multiple protections to protect the controller from fault conditions.

### **Device Information**

Part	Package	Size
SM4500	20 QFN	4 mm x 4 mm

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