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LED Driver Drives up to 6 Strings of 10 LEDs Each & Offers 3000:1 True Color PWM Dimming

MILPITAS, CA – November 10, 2008 – Linear Technology announces the LT3598, a 45V, 2.5MHz DC/DC boost mode converter designed to operate as a constant current LED driver for up to sixty white LEDs. The LT3598 can drive up to six strings of LEDs, each with up to ten 30mA white LEDs in series while delivering efficiencies up to 90%. Its multichannel capability makes it ideal for medium sized TFT-LCD backlighting applications. Its input voltage range of 3V to 30V makes it ideal for automotive and industrial applications. It offers 1.5% LED current matching to insure uniform brightness of the display. Dimming ratios as high as 3,000:1 can be attained by using True Color PWM™ dimming. A programmable 200kHz to 2.5MHz fixed frequency operation and current mode architecture offers stable operation over a wide range of supply and output voltages while minimizing the size of the external components. Additionally, the switching frequency is synchronizable to an external clock. Its thermally enhanced 4mm x 4mm QFN package offers a very compact solution footprint for LED backlighting applications.

The LT3598 uses a single 1.5A, 45V internal switch to provide a boost mode constant current source. However, even when V_{IN} exceeds V_{OUT} , the LT3598 will continue to regulate the LED current. The internal boost converter uses an adaptive feedback loop to regulate the output voltage slightly higher than the required LED voltage to insure maximum efficiency. If any of the LED strings experiences an open circuit, it will continue to regulate the existing strings and signals the OPENLED alert pin. If higher current LEDs are required, multiple strings can be combined enabling it to drive up to 2 strings of 10 90mA LEDs. Additional features include programmable over voltage protection, LED current derating based on junction temperature and/or LED temperature and output voltage limiting when all LED strings are disconnected.

The LT3598EUF is available from stock in a thermally enhanced 24-lead 4mm x 4mm QFN package, 1,000-piece pricing starts at \$2.95 each. An industrial grade version, the LT3598IUF is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced at \$3.39 in 1,000-piece quantities. All versions are available from stock.


Photo Caption: 45V, 6-Channel Boost Mode LED Driver

Summary of Features: LT3598

- True Color PWM™ Dimming Delivers Up to 3000:1 Dimming Ratio
- Drives Six Strings of LEDs at Up to 30mA
- 1.5% Accurate LED Current Matching
- Wide Input Voltage Range: 3.2V to 30V
- Output Voltage Up to 44V
- Regulates Current Even When $V_{IN} > V_{OUT}$
- Disconnects LEDs in Shutdown
- Programmable Open LED Protection (Regulated)
- OPENLED Alert Pin
- Programmable LED Current Derating
- Adjustable Frequency: 200kHz to 2.5MHz
- Synchronizable to an External Clock
- Parallel Channels for Higher Current per LED String
- Thermally Enhanced 4mm x 4mm QFN Package

About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, uModule™ products, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems. For more information, visit www.linear.com.

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Press Contacts:

John Hamburger, Director Marketing Communications

jhamburger@linear.com

Tel: 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager

ddickinson@linear.com

Tel: 408-432-1900 ext 2233