Drive up to 16 Channels of Ten 50mA LEDs with 3,000:1 True Color PWM Dimming

MILPITAS, CA – September 10, 2009 – Linear Technology announces the LT3754, a 16-channel LED driver, utilizing a step-up DC/DC controller capable of driving up to 45V of 50mA LEDs per channel. Its internal 60V, 1MHz DC/DC boost mode controller is designed to operate as a constant current LED driver for up to 160 white LEDs. From a 12V input, the LT3754 can drive 16 channels, each with up to ten 50mA white LEDs in series while delivering efficiencies exceeding 92%. Its multichannel capability makes it ideal for medium and large-sized TFT-LCD backlighting applications. Its input voltage range of 6V to 40V makes it ideal for automotive, avionic, HDTV and industrial display applications.

The LT3754 offers ±2.8% (±0.7% typical) LED current matching to ensure uniform brightness of the display. Dimming ratios as high as 3,000:1 can be attained by using True Color PWM™ dimming. A programmable 100kHz to 1MHz 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 5mm x 5mm QFN-32 package offers a very compact solution footprint for LED backlighting applications.

The LT3754 uses an external N-Channel MOSFET switch to provide a boost mode constant current source. However, even when V_{IN} exceeds V_{OUT}, the LT3754 will continue to accurately regulate the LED current. The internal boost controller uses an adaptive feedback loop

to regulate the output voltage slightly higher than the required LED voltage to ensure 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 the LT3754 to drive up to eight strings of ten 100mA LEDs or four channels of ten 200mA LEDs. Additional features include programmable overvoltage protection, LED current derating based on junction temperature and/or LED temperature and output voltage limiting when all LED strings are disconnected.

The LT3754EUH is available in a 32-lead 5mm x 5mm QFN package and is priced at $4.25 in 1,000 piece quantities. An industrial grade version, the LT3754IUH is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced at $5.00 each in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com.

Photo Caption: 45V, 16-Channel Boost Mode LED Driver

Summary of Features: LT3754

- Up to 45V of LEDs × 50mA, 16-Channel LED Driver
- Wide Input Range: 6V to 40V
- ±2.8% LED Current Matching at 20mA (Typ ± 0.7%)
- Up to 3000:1 True Color PWM™ Dimming Range
- Single Resistor Sets LED Current (10mA to 50mA)
- LED Current Regulated Even for $PV_{IN} > V_{OUT}$
- Output Adapts to LED VF for Optimum Efficiency
- Fault Flag + Protection for Open LED Strings
- Protection for LED Pin to V_{OUT} Short
- Parallel Channels for Higher LED Current
- Programmable LED Current Derating vs. Temperature
- Accurate Undervoltage Lockout Threshold with Programmable Hysteresis
- Programmable Frequency (100kHz to 1MHz)
- Synchronizable to an External Clock
- Thermally Enhanced 32-Pin (5mm × 5mm) 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.

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