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Drive up to Eight Channels of Ten 100mA LEDs with 3000:1 True Color PWM Dimming

MILPITAS, CA – December 16, 2009 – Linear Technology announces the LT3760, an 8-channel LED driver, utilizing a step-up DC/DC controller capable of driving up to a 45V string of 100mA 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 80 white LEDs. From a 12V input, the LT3760 can drive 8 channels, each with up to ten 100mA 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 LT3760 offers $\pm 2.0\%$ ($\pm 0.7\%$ 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 TSSOP-28 package offers a highly compact solution footprint for most LED backlighting applications.

The LT3760 uses an external N-Channel MOSFET switch to provide a boost mode constant current source. However, even when V_{IN} exceeds V_{OUT} , the LT3760 will continue to accurately regulate the LED current. The internal boost controller uses an adaptive feedback loop to drive up to eight channels of ten 100mA LEDs to regulate the output voltage slightly higher

than the required LED voltage to ensure maximum efficiency. If any of the LED strings experience an open circuit, the LT3760 will continue to regulate the existing strings and signal the FAULT alert pin. If higher current LEDs are required, multiple strings can be combined, enabling the LT3760 to drive up to four channels of ten 200mA LEDs or two channels of ten 400mA LEDs. Additional features include programmable LED current derating based on junction temperature and LED temperature and programmable output voltage limiting when all LED strings are disconnected.

The LT3760EFE is available in a thermally enhanced 28-lead TSSOP package and is priced at \$4.25 each in 1,000 piece quantities. An industrial grade version, the LT3760IFE 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, 8 Channel, 100mA Boost Mode LED Driver

Summary of Features: LT3760

- Up to 45V of LEDs × 100mA, 8-Channel LED Driver
- Wide Input Range: 6V to 40V
- ±2.0% LED Current Matching at 20mA (Typ ± 0.7%)
- Up to 3000:1 True Color PWM™ Dimming Range
- Single Resistor Sets LED Current (20mA to 100mA)
- 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 28-Pin TSSOP 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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