



Five-Output 25mA/LED Driver with Two LDOs Operates Down to 2.7V

MILPITAS, CA – September 12, 2007 – Linear Technology Corporation announces the LTC3230, an integrated white LED driver with dual LDO regulators for driving Main and Sub LED displays and supplying low-voltage system rails in portable electronic devices, all in a compact 3mm x 3mm QFN package. The LTC3230 drives up to five 25mA LED current sources, providing 125mA of total output current, and integrates two 200mA LDOs with separate enables and pin-selectable output voltages as low as 1.2V and 1.8V, respectively. The LTC3230's 2.7V to 5.5V input voltage range has been optimized for single cell Li-Ion/Polymer applications. Efficiencies when driven from a Li-Ion battery (3.6V nominal) reach 91% with quiescent current of only 400uA, maximizing battery run-time. The LTC3230 requires only six small capacitors and one resistor to create a tiny, low profile (<9mm² package area, 0.75mm high) solution footprint.

The LTC3230's 900kHz, high efficiency multimode 1x/1.5x/2x charge pump features low-noise constant-frequency operation and automatically optimizes efficiency based on V_{IN} and LED forward voltage conditions. The device powers up in 1x mode and automatically switches to boost mode (1.5x) when any enabled LED current source approaches dropout. A subsequent dropout switches the part into 2x mode. Maximum currents for the Main/Sub displays are set with a single resistor. LED currents are controlled with precision internal current sources and brightness, dimming and ON/OFF control for all displays are achieved via a simple single-wire interface. The LTC3230 provides 32 brightness levels for both the Main and Sub displays. Internal circuitry prevents inrush current and excessive input noise during start-up and mode switching. In addition, the device has thermal limit and open/short LED protection.

The LTC3230EUD#PBF is available from stock in a 20-lead QFN (3mm x 3mm) package. Pricing starts at \$1.55 each for 1,000-piece quantities.


Photo Caption: Five-LED Main/Sub Display Driver + Dual LDO

Summary of Features: LTC3230

- Up to 91% Efficiency without Inductors
- Multimode, Automatic Switching 1x/1.5x/2x Charge Pump
- Up to 125mA Total Output Current
- Five 25mA Current Sources Available as Main (4) and Sub (1) LED Drivers
- LED ON/OFF, Brightness Level Configurable Using 1-Wire Interface
- 32:1 Linear LED Brightness Control
- Dual 200mA Linear Regulators with Pin-Selectable Output Voltages
- Low Noise, Constant Frequency Operation
- Internal Soft-Start Limits Inrush Current During Start-Up & Mode Switching
- Thermal Limit/Open-Short LED Protection
- 2.7V to 5.5V Input Voltage Range
- 3mm x 3mm x 0.75mm QFN-20 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, 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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