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## **Fast No $R_{SENSE}$ <sup>TM</sup> Step-Down DC/DC Controller with Differential Output Sensing, Tracking & PLL**

MILPITAS, CA – January 3, 2007 – Linear Technology Corporation introduces the LTC3823, a synchronous step-down DC/DC controller with differential output voltage sensing, fast transient response, integrated phase-lock loop synchronization and output voltage tracking. The differential amplifier provides true differential remote output voltage sensing of both the positive and negative terminals. This enables high accuracy regulation in high current applications where IR losses occur through via and trace run interconnect.

The LTC3823 can operate at very low duty cycles, ranging from 2% to 90% and is able to develop output voltages from 0.6V to 90%  $V_{IN}$  (0.6V to 3.3V with remote sense). The input voltage range is from 4.5V to 30V. The LTC3823's constant on-time architecture allows the control loop to respond instantly to load steps. This IC uses current mode control and can operate without a sense resistor by sensing the voltage drop across the synchronous power MOSFET. For systems where control of maximum output current is important, a sense resistor can be used in series with the source of the lower MOSFET. In either case the current limit is user-programmable, allowing optimum system efficiency and excellent control over the maximum output current.

The LTC3823 output voltage accuracy is  $\pm 0.5\%$  at room temp and  $\pm 0.67\%$  from 0°C to 85°C. Tracking and sequencing functions allow the user to optimize power-up and power-down of multiple power supplies. In addition, the LTC3823 can be configured for phase-lock loop frequency synchronization.

The LTC3823 is offered in a 28-lead narrow SSOP or a 32-lead 5mm x 5mm QFN package and has an operating temperature range from -40°C to 85°C. The 1,000-piece price starts at \$2.75 each.

## **Photo Caption:** Step Down Controller with Remote Voltage Sense

### **Summary of Features: LTC3823**

- True Differential Remote Sensing Amplifier
- $\pm 0.67\%$  0.6V Reference Voltage Accuracy
- Power up/down Tracking
- Wide  $V_{IN}$  Range: 4.5V to 30V
- Current Mode Control
- Optional Current Sense Resistor
- Phase-Lock Loop Frequency Synchronization

### **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](http://www.linear.com)

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