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38V_{IN} Dual Synchronous Step-Down DC/DC Controller with 1% Accurate Pin-Selectable Output Voltages

MILPITAS, CA – February 23, 2010 – Linear Technology Corporation announces the LTC3865/-1, a 95% efficient, dual output synchronous step-down DC/DC controller with 2-pin selectable V_{OUT} programming, a feature that saves 4 precision feedback resistors. The output voltages maintain a tight $\pm 1\%$ accuracy including initial set-point, a -40°C to 125°C operating temperature range and load/line regulation. Nine selectable output voltages ranging from 0.6V to 5V are possible. The 4.5V to 38V input voltage range encompasses a wide variety of applications including most intermediate bus voltages and battery chemistries. The strong on-board N-channel MOSFET driver enables the use of high power external MOSFETs to produce output currents as high as 20A. Applications include point-of-load regulators in medical, industrial, automotive, datacom, telecom and multifunction printers.

A constant-frequency current mode architecture allows a selectable fixed or phase-lockable (PLL) switching frequency from 250kHz to 770kHz. Power loss and supply noise are minimized by operating the stages 180° out-of-phase. OPTI-LOOP[®] compensation reduces the transient response and can be optimized over a wide range of output capacitance and ESR values, including all ceramic input and output capacitors. Output current sensing is accomplished by measuring the voltage drop across the output inductor (DCR) for maximum efficiency or by using an optional sense resistor. Current foldback limits MOSFET heat dissipation during short-circuit conditions. In addition, the LTC3865/-1 has adjustable soft-start or tracking to control the output voltage start-up characteristics. With capability up to 99% duty cycle, the LTC3865/-1 has a very low drop-out voltage, a useful feature for extending run times in battery powered applications.

The LTC3865/-1 is offered in thermally enhanced 5mm x 5mm QFN-32 and SSOP-38 packages. Pricing for 1,000-piece quantities starts at \$2.65 each. For more information, visit www.linear.com.


Photo Caption: Dual Synchronous Step-Down DC/DC Controller

Summary of Features: LTC3865/-1

- Two Pin-Selectable (9 Settings) Output Voltage Programming from 0.6V to 5.0V
- Save 4 precision Feedback Resistors
- Synchronous Rectification for up to 95% Efficiency
- Wide 4.5V to 38V Input Voltage Range
- $\pm 1\%$ Total DC Output Voltage Accuracy over -40°C to $+125^{\circ}\text{C}$
- Dual, 180° Out-of-Phase Controllers Reduce Noise & Input Capacitance
- DCR or R_{SENSE} Current Sense Options
- Strong OnBoard N-Channel MOSFET Driver
- Phase Lockable Fixed Operating Frequency from 250kHz to 770kHz
- Programmable Soft-Start or Tracking
- Adjustable Current Limit
- Current Mode Control
- Power Good Signals

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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