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Synchronous Step-Down DC/DC Converter Delivers Up to 500mA from a 2mm x 2mm DFN

MILPITAS, CA – November 27, 2006 – Linear Technology announces the LTC3542, a high efficiency, 2.25 MHz, synchronous buck regulator that delivers up to 500mA of continuous output current from either a 2mm x 2mm DFN or ThinSOT™ package. Using a constant frequency, current mode architecture, the LTC3542 operates from an input voltage range of 2.5V to 5.5V, making it ideal for single cell Li-Ion/Polymer, or multicell Alkaline/NiCad/NiMH applications. It can generate output voltages as low as 0.6V, enabling it to power the latest generation of low voltage DSPs and microcontrollers. Its 2.25MHz switching frequency enables the utilization of tiny, low cost ceramic capacitors and inductors less than a 1mm in height, providing a very compact solution footprint for handheld applications.

The LTC3542 uses internal switches with an $R_{DS(ON)}$ of only 0.35 Ohm (N-Channel) and 0.50 Ohm (P-Channel) to deliver efficiencies as high as 96%. It also utilizes low dropout 100% duty cycle operation to allow output voltages equal to V_{IN} , further extending battery run-time. The LTC3542 utilizes Low Ripple (<20mV_{PK-PK}) Burst Mode® operation to offer only 26uA of no load quiescent current. If the application is noise sensitive, Burst Mode operation can be replaced with an even lower noise pulse-skipping mode. The device maintains shutdown currents of less than 1uA, further maximizing battery life. The LTC3542's switching frequency is synchronizable to an external clock between 1MHz and 3MHz. Other features include $\pm 2\%$ output voltage accuracy, internal soft-start and over-temperature protection.

The LTC3542EDC is offered in a 2mm x 2mm DFN-6 package and the LTC3542ES6 is packaged in a 6-Lead ThinSOT package. Both are available from stock. Pricing starts at \$1.75 each for both parts in 1,000-piece quantities.


Photo Caption: 2.25MHz, 500mA (I_{OUT}) Synchronous Step-Down Switching Regulator
in 2mm x 2mm DFN

Summary of Features: LTC3542

- High Efficiency: Up to 96%
- Low Output Ripple (<20mV_{P-P} Typical) Burst Mode Operation: Only 26uA_{Iq}
- 2.5V to 5.5V Input Voltage Range
- 2.25MHz Constant Frequency Operation
- 1MHz to 3MHz External Frequency Synchronization
- Low Dropout Operation: 100% Duty Cycle
- No Schottky Diode Required
- Internal Soft-Start Limits Inrush Current
- 0.6V Reference Allows Low Output Voltages
- $\pm 2\%$ Output Voltage Accuracy
- Current Mode Operation for Excellent Line and Load Transient Response
- Available in 6-Lead 2mm x 2mm DFN and Small ThinSOT

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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