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Programmable 150mA Supercapacitor Charger with Auto Cell Balancing in Compact 6mm² Package

MILPITAS, CA – June 17, 2008 – Linear Technology Corporation introduces the LTC3225, an inductorless programmable supercapacitor charger for addressing high peak power and battery backup needs in portable applications. The device employs a low-noise charge-pump architecture to charge two supercapacitors in series to a fixed output voltage (4.8V/5.3V selectable) from a 2.8V to 5.5V input supply. Charge current is resistor programmable up to 150mA, and the device's automatic cell balancing feature maintains equal voltages on both cells (2.4V/2.65V selectable) without requiring balancing resistors. This protects each supercapacitor from overvoltage damage caused by mismatches in cell capacitance or leakage while minimizing current drain on the capacitors. The LTC3225 will not discharge the supercapacitors when the input supply is removed or shorted to ground.

The LTC3225 operates with a very low 20uA quiescent current when the output voltage is in regulation and draws only 2uA from V_{OUT}. Current is further reduced when the input supply is removed as the IC automatically enters a low current shutdown state, drawing less than 1uA from the supercapacitors. The basic charging circuit requires only 3 external components and takes up little space; the IC is offered in a tiny 6mm² footprint DFN package. It is ideal for current-limited applications with high peak power loads such as LED flash PCMCIA Tx bursts, HDD bursts, and GPRS/GSM transmissions; in addition it may be used as a backup supply. Also, bigger board-level systems such as servers and RAID/mass storage systems often have a need for brief high-power backup supplies for which supercapacitors are well-suited. Other key features include automatic recharge, built-in current and thermal limiting, and high 1MHz operating frequency to reduce the size of external components.

The LTC3225 is housed in a compact 10-lead, low-profile (0.75mm) 2mm x 3mm DFN package, and operation from -40°C to 85°C ambient temperature is guaranteed. Pricing starts at \$2.00 each in 1,000-piece quantities.

Photo Caption: 150mA Supercap Charger with Auto Cell Balancing

Summary of Features: LTC3225

- Low Noise, Constant Frequency Charging of Two Series Supercapacitors
- Automatic Cell Balancing Prevents Capacitor Overvoltage During Charging
- Programmable Charging Current (Up to 150mA)
- Selectable 2.4V or 2.65V Regulation per Cell
- Automatic Recharge
- $I_{VIN} = 20\mu\text{A}$ in Standby Mode
- No Inductors
- Current Limiting and Thermal Limiting
- Tiny Application Circuit, All Components <1mm High
- Compact, Low-Profile (0.75mm) 2mm × 3mm 10-Lead DFN 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. For more information, visit www.linear.com.

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