Second Generation High Voltage Battery Stack Monitor Advances Hybrid/Electric Vehicle Battery Management Systems

MILPITAS, CA – February 22, 2011 – Linear Technology announces the LTC®6803, a second generation high voltage battery monitor for hybrid/electric vehicle (HEVs), electric vehicles (EVs) and other high voltage, high performance battery systems. The LTC6803 is a complete battery measuring IC that includes a 12-bit ADC, a precision voltage reference, a high voltage input multiplexer and a serial interface. Each LTC6803 can measure up to 12 individual battery cells in series. The device's proprietary design enables multiple LTC6803s to be stacked in series without optocouplers or isolators, permitting precision voltage monitoring of every cell in long strings of series-connected batteries. The LTC6803 follows the road-proven LTC6802, introduced in September 2008 with the same functionality and pinout, plus a number of significant performance enhancements.

The maximum total measurement error of the LTC6803 is guaranteed to be less than 0.25% from -40°C to 125°C. The LTC6803 offers an extended cell measurement range from -300mV to 5V, enabling the LTC6803 to monitor a wide range of battery chemistries, as well as supercapacitors. Each cell is monitored for undervoltage and overvoltage conditions, and an associated MOSFET is available to discharge overcharged cells. Added functionality is provided by an onboard 5V regulator, temperature sensor, GPIO lines and thermistor inputs.

Erik Soule, Vice President, Signal Conditioning Products, stated, "Now over two years in the field with our proven battery stack monitor family, we are pleased to offer our customers this enhanced product, the LTC6803. Automakers and other customers worldwide have embraced Linear's robust battery stack monitors, and we are confident that this new addition to the family will provide excellent performance for the next generation of HEVs and EVs.

"The LTC6803 addresses the latest demands of precision high performance battery stacks," says Mike Kultgen, design manager for Linear Technology. "It ensures accurate, safe, reliable and error-free operation in harsh automotive environments."

For long-term battery pack storage, the current consumed by the integrated BMS can potentially unbalance the cells. The LTC6803 addresses this concern with a standby mode that draws less than 12uA. Furthermore, the power input of the LTC6803 is isolated from the stack, allowing the LTC6803 to draw current from an independent source. When powering from this input, the current draw on the pack is reduced to less than 1µA.

The LTC6803 is designed to surpass the environmental, reliability and safety demands of automotive and industrial applications. The device is fully specified for operation from -40°C to 125°C. It has been engineered for ISO 26262 (ASIL) compliant systems and a full set of self-tests ensure that there are no latent fault conditions. To meet this standard, the LTC6803 includes a redundant voltage reference, extensive logic test circuitry, open wire detection capability and a watchdog timer for fail-safe designs. The LTC6803 is designed to withstand up to 75V, providing more than 20% of overvoltage margin for a full string of 12 cells. The 1MHz serial interface includes packet error checking and is designed to operate in the presence of large amounts of noise and transients.

The LTC6803 is offered in a small 8mm x 12mm surface mount device. Priced at $9.95 each in 1,000-piece quantities, samples, demonstration boards and the data sheet are now available at www.linear.com/product/LTC6803. The LTC6803 is now available in production quantities.

Photo Caption: Precision, 2nd Generation, High Voltage Multicell Battery Stack Monitor

Summary of Features: LTC6803

- Measures up to 12 Battery Cells in Series
- Stackable Architecture Enables High Voltage Battery Monitoring
- Cell Measurement Range of -0.3V to 5V Supports Multiple Battery Chemistries & Supercapacitors
- 0.25% Maximum Total Measurement Error
- Delta-Sigma Converter With Built-In Noise Filter
- Passive Cell Balancing:
  - Integrated Cell Balancing MOSFETs
  - Drives External Balancing MOSFETs
- Onboard Temperature Sensor & Thermistor Inputs
- 1MHz Serial Interface with Packet Error Checking
- 12µA Standby Mode Supply Current
- Independent Power Supply Allows 1µA Battery Stack Current Draw
- Engineered for ISO 26262 Compliant Systems

- Safe with Random Connection of Cells
- Built-In Self Tests
- Open-Wire Connection Fault Detection
- High EMI Immunity
- AEC-Q100
- Fully Specified for Operation from -40°C to 125°C
- 44-Lead SSOP Package

About Linear Technology

Linear Technology Corporation, a member of the S&P 500, has been designing, manufacturing and marketing a broad line of high performance analog integrated circuits for major companies worldwide for three decades. The Company's products provide an essential bridge between our analog world and the digital electronics in communications, networking, industrial, automotive, computer, medical, instrumentation, consumer, and military and aerospace systems. Linear Technology produces power management, data conversion, signal conditioning, RF and interface ICs, and µModule® subsystems.

Press Contacts:

North America / Worldwide

John Hamburger, Director Marketing Communications
jhamburger@linear.com
Tel 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager
ddickinson@linear.com
408-432-1900 ext 2233

UK & Nordic

Alan Timmins
alan@ezwire.com
Tel: +44-1-252-629937