



## **Linear Technology Demonstrates Breakthrough Wireless Battery Management System in BMW i3 at Electronica China**

MILPITAS, CA – March 14, 2017 – Linear Technology, the leading provider of battery stack monitoring ICs for electric and hybrid/electric vehicles, is demonstrating the industry’s first wireless automotive battery management system (BMS) concept car at the Electronica China show this week in Shanghai (Booth 4401, Hall E4). This wireless BMS concept car, developed with Linear’s design partner LION Smart, combines Linear’s highly accurate battery stack monitors with its SmartMesh<sup>®</sup> wireless mesh networking products in a BMW i3, replacing the traditional wired connections between the battery packs and the battery management system. This significant breakthrough in BMS addresses the persistent reliability issues associated with automotive wiring harnesses and connections in electric and hybrid/electric vehicles, and simplifies the BMS design and manufacture.

Joy Weiss, President of Linear Technology’s Dust Networks<sup>®</sup> product group, stated, “Linear’s innovations in two critical industry leading technologies enable wireless battery management at automotive reliability levels. New designs of electric and hybrid/electric vehicles are increasing rapidly and all of the major automotive manufacturers are searching for ways to improve the performance and reliability of their battery management systems as they move into higher volume production. The wireless BMS concept car, realized through the expertise of LION Smart’s BMS design, showcases our product vision.”

Automakers are challenged to ensure the driving public that electric and hybrid/electric vehicles are both safe and reliable. Linear’s road-proven high voltage battery stack monitors deliver industry leading accuracy and reliability, enabling battery management systems that maximize battery pack performance and longevity. The LTC6811 battery stack monitor is a complete battery measuring device for hybrid/electric vehicles that can measure up to 12 series-connected battery cell voltages with better than 0.04% accuracy. Combining the LTC6811 with Linear’s SmartMesh wireless mesh networking system addresses the persistent reliability issues associated with automotive wiring harnesses and connectors.

Field-proven in industrial Internet of Things applications, SmartMesh embedded wireless networks deliver >99.999% reliable connectivity in harsh environments by employing path and frequency diversity. In addition to improving reliability by creating multiple points of redundant connectivity, the wireless mesh network enables additional BMS capability. The SmartMesh wireless network enables flexible placement of battery modules and improves battery state of charge and state of health calculations. Additional data can be gathered from sensors installed in locations previously unsuitable for a wiring harness. SmartMesh also provides time-correlated measurements from each node, allowing for more precise data collection.

The wireless BMS concept car, featuring the BMW i3, shows the promise of wireless technology to significantly improve reliability and simplify the design of automotive battery management systems, while providing performance advantages.

A reference design to enable customers to demonstrate wireless BMS capability, including the LTC6811 battery stack monitor and SmartMesh wireless sensor network, will be available in the first half of 2017.

## 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 over 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,  $\mu$ Module<sup>®</sup> subsystems and wireless sensor network products. For more information, visit [www.linear.com](http://www.linear.com)

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