



## **Multiphase 60V Synchronous Boost Controller Provides up to 97% Efficiency with Input & Output Protection**

MILPITAS, CA – January 10, 2017 – Linear Technology Corporation announces the [LTC3897](#), a multiphase synchronous boost DC/DC controller with input surge stopper and ideal diode controller. The boost controller drives two N-channel power MOSFET stages out-of-phase to reduce input and output capacitor requirements, enabling the use of smaller inductors versus the single-phase equivalent. Synchronous rectification increases efficiency, reduces power loss and eases thermal requirements. The input surge stopper, with adjustable clamp voltage, controls the gate of an N-channel MOSFET to protect against high input voltage transients of greater than 100V and provides inrush current control, overcurrent protection and output disconnect. The integrated ideal diode controller drives another N-channel MOSFET for reverse input voltage protection and voltage holdup or peak detection.

The LTC3897 is ideal for automotive, industrial and medical systems where a step-up DC/DC converter is needed to efficiently deliver high power in a small solution size. For example, the LTC3897 can be configured to regulate a 24V/10A output from a car battery (12V) at up to 97% efficiency. The LTC3897's low 55µA quiescent current in Burst Mode<sup>®</sup> operation further extends battery operating life and minimizes power loss at light loads. The LTC3897 itself operates from an input voltage ranging from 4.5V to 65V, with 75V peak. It can regulate an output voltage as high as 60V and the powerful onboard adjustable 5V to 10V gate drivers are capable of slewing large logic-level or standard threshold MOSFET gates quickly.

In keep-alive applications where the input voltage may exceed the regulated output voltage, the LTC3897 allows the synchronous MOSFET to be kept on continuously so that the output voltage follows the input voltage with minimal power loss. The LTC3897 current mode control architecture uses a phase-lockable frequency from 75kHz to 850kHz or fixed frequency adjustable from 50kHz to 900kHz. In addition, this device features adjustable cycle-by-cycle current limit and can use a sense resistor or monitor the voltage drop across the inductor (DCR) for current sensing. The LTC3897's boost controller, surge stopper and ideal diode can be shut

down independently. Furthermore, the LTC3897 has adjustable soft-start, a power good output and maintains  $\pm 1\%$  reference voltage accuracy over an operating junction temperature range of  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ .

The LTC3897 is available in TSSOP-38 and 5mm x 7mm QFN-38 packages. Three temperature grades are available, with operation from  $-40$  to  $125^{\circ}\text{C}$  for the extended and industrial grades and a high temp automotive range of  $-40^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ . The 1,000-piece price starts at \$5.50 each. For more information, visit [www.linear.com/product/LTC3897](http://www.linear.com/product/LTC3897).

**Photo Caption:** Multiphase Synchronous Boost Controller with Input & Output Protection


### Summary of Features: LTC3897

- The IC has Wide Operating Input Voltage Range: 4.5V to 65V, 75V<sub>PK</sub>
- With Surge Stopper Active, Transient of Greater Than 100V+ are Attainable
- Output Voltage Up to 60V
- Reverse Input Voltage Protection to  $-40\text{V}$
- Inrush Current Control, Overcurrent Protection and Output Disconnect for Boost Converter
- Input Surge Protection with Adjustable Clamp Voltage
- Onboard Ideal Diode Control
- 55 $\mu\text{A}$  Quiescent Current
- 2-Phase Operation Reduces Required Input and Output Capacitance and Noise
- Adjustable Gate Drive Level 5V to 10V for Logic-Level or Standard Threshold FETs
- No External Bootstrap Diodes Required
- 100% Duty Cycle Capability for Synchronous MOSFET

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### About Linear Technology

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**Press Contacts:**

**North America / Worldwide**

John Hamburger, Director Marketing  
Communications  
[jhamburger@linear.com](mailto:jhamburger@linear.com)  
Tel: 408-432-1900 ext 2419

Doug Dickinson, Media Relations Manager  
[ddickinson@linear.com](mailto:ddickinson@linear.com)  
Tel: 408-432-1900 ext 2233

**UK & Nordic**

Alan Timmins  
[a.timmins@ntlworld.com](mailto:a.timmins@ntlworld.com)  
Tel: +44-1-252-629937