



36V with 60V Transient Protection, Dual Tracking 3.5A(I_{OUT}), 2.25MHz Step-Down DC/DC Converter

MILPITAS, CA – November 16, 2010 – Linear Technology Corporation announces the [LT3692](#), a monolithic, dual output step-down switching regulator that can deliver up to 3.5A of continuous output current from each channel. It operates from a V_{IN} range of 3V to 36V with transient protection to 60V, making it ideal for load dump and cold-crank conditions found in automotive applications. Independent input, shutdown, feedback, soft-start, current limit and comparator pins for each channel simplify complex power supply tracking/sequencing requirements. The LT3692's switching frequency is user programmable from 250kHz to 2.25MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands.

To optimize efficiency and component size, both internal converters have a programmable maximum current limit and are synchronized to each other via the device's internal oscillator or an external clock input. The converters are run 180° out of phase to further reduce voltage ripple and external component size. Multiple regulators can be synchronized via an external clock output to provide additional voltage rails. Conversely, the outputs can also be combined for high current applications, enabling the LT3692 to deliver up to 7A of continuous output current. The combination of the device's 5mm x 5mm QFN-32 package and high switching frequency, which keeps external capacitors and inductor small, provides a very compact, thermally efficient footprint. The LT3692's main switcher utilizes high efficiency

3.8A, 300mV_{CESAT} switches, with the necessary oscillator, control and logic circuitry integrated into a single die.

Special design techniques enable high efficiency over a wide input voltage range while its current-mode topology enables fast transient response and excellent loop stability. The LT3692 also offers a frequency divider on one channel which enables it run at frequencies 1/2, 1/4 or 1/8 of the other channel's frequency to enable high step-down ratios while minimizing external component size. Enhanced short circuit protection and die temperature monitor offer additional levels of protection. Other features include thermal shutdown and independent power good flags.

The LT3692EUH is offered in a 5mm x 5mm 32-lead QFN package and is priced at \$4.25 each. An industrial grade version, the LT3692IUH is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced at \$4.70 each. All prices are for 1,000-piece quantities and both versions of the LT3692 are available from stock. For more information, visit www.linear.com/3692.

Photo Caption: 36V, Dual 3.5A(I_{OUT}), Step-Down DC/DC Converter


Summary of Features: LT3692

- Wide Input Operating Range: 3V to 36V, OVLO, Protection Circuit to 60V
- Programmable Under/Overvoltage Lockout
- Dual 3.5A (I_{OUT}) Channels
- Independent Supply, Shutdown, Soft-Start,
- Programmable Current Limit & Programmable Power Good for Each 3.5A Regulator
- Adjustable/Synchronizable Fixed Frequency
- Operation from 250kHz to 2.25MHz with Synchronized Clock Output
- Independent Synchronized Switching Frequencies Optimize Component Size
- Anti-phase Switching
- Outputs Can Be Paralleled
- Flexible Output Voltage Tracking
- Enhanced Short-Circuit Protection

- Low Dropout: 95% Maximum Duty Cycle
- Low Shutdown Current: <10uA
- 5mm x 5mm 32-Pin Exposed Pad QFN 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 μ Module[®] subsystems.

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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