



36V, with 70V Transient Protection, 2.6A(I_{OUT}), 2.5MHz Step-Down DC/DC Converter with Dual Linear Controllers

MILPITAS, CA – November 18, 2010 – Linear Technology Corporation announces the [LT3694](#), a 2.6A, 36V step-down switching regulator with dual linear controllers, packaged in a 4mm x 5mm QFN or TSSOP-20E. The LT3694 operates from a V_{IN} range of 4V to 36V with transient protection to 70V, making it ideal for load dump and cold-crank conditions found in automotive applications. Its internal 3.5A switch can deliver up to 2.6A of continuous output current at voltages as low as 0.75V. Its switching frequency is user-programmable from 250kHz to 2.5MHz, enabling the designer to optimize efficiency while avoiding critical noise-sensitive frequency bands. Each integrated LDO controller has an accurate programmable current limit up to 1A to provide an additional level of reliability. Combined with NPN transistors, they can be used to offer dual low noise outputs in addition to the primary channel. Although the LDO controllers can be powered by independent inputs, powering them from the primary switching output ensures both high efficiency and low noise. The combination of its 4mm x 5mm QFN package (or thermally enhanced TSSOP-20E) and high switching frequency, which keeps external capacitors and inductors small, provides a compact, thermally efficient footprint.

The LT3694's main switcher utilizes a high efficiency 3.5A switch, with the necessary oscillator, control, logic circuitry and LDO controllers integrated into a single die. Special design techniques enable high efficiency over a wide input voltage range and its current mode topology enables fast transient response and excellent loop stability. A diode current limit pin offers an

additional level of overload protection. Other features include a power good flag, independent tracking/soft-start pins and programmable undervoltage lockout.

The LT3694 also provides synchronization capability. The LT3694-1 version is available if a clock output signal is required to synchronize other external devices. The LT3694EUFD and LT3694-1EUFD are offered in a 4mm x 5mm 28-lead QFN package, priced at \$3.85 each. The LT3694EFE and LT3694-1EFE are offered in a 20-lead, thermally enhanced TSSOP package, priced at \$4.00 each. The LT3694IUFD and LT3694-1IUFD are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature, priced at \$4.24 each. The LT3694IFE and LT3694-1IFE are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature. Both are offered in a 20-lead, thermally enhanced TSSOP package and are priced from \$4.00 each. All prices are for 1,000-piece quantities and all versions of the LT3694 are available from stock. For more information, visit www.linear.com/3694


Photo Caption: 36V, 2.6A(I_{OUT}), Step-Down DC/DC Converter with Dual Linear Controllers

Summary of Features: LT3694/-1

- Wide Input Range: 4V to 36V
- Overvoltage Shutdown Protects Circuit through 70V Transients
- 2.6A Output Switching Regulator with Internal Power Switch
- Dual, Low Dropout, Linear Regulator Controllers with Programmable Current Limit
- Tracking/Soft-Start Inputs & Power Good Output Simplify Soft-Start & Supply Sequencing
- Uses Small Inductors & Ceramic Capacitors
- V_{OUT(MIN)} = 0.75V (Buck & LDOs)
- Adjustable 250kHz to 2.5MHz Switching Frequency
- Accurate Enable Threshold Allows User Programmable Undervoltage Lockout
- Options for Clock Synchronization (LT3694) or Clock Output to Enable Synchronization to Other Switching Regulators (LT3694-1)
- Thermally Enhanced 28-Lead 4mm x 5mm QFN & 20-Lead TSSOP Packages

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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