



2.5MHz, 36V Triple Step-Down DC/DC Converter with LDO Controller

MILPITAS, CA – April 24, 2008 – Linear Technology announces the LT3507, a triple channel current mode PWM step-down DC/DC converter with three internal 36V power switches and an LDO controller, all packaged in a 38-lead 5mm x 7mm QFN package. One channel is capable of delivering up to 2.4A of output current while the other two switching regulators can deliver 1.5A of continuous output current. Additionally, an integrated LDO controller combined with an external transistor can be connected to V_{OUT} of any of the switching regulators or can be run directly from the input voltage, offering a fourth low noise channel. Its wide input range of 4V to 36V makes it ideal for regulating power from a wide variety of sources from fixed input rails, 24V industrial supplies and automotive batteries. As each switching regulator has its own input pin, up to three different voltage rails can drive the LT3507, offering maximum efficiency for each channel.

For automotive applications, the LT3507's minimum input voltage of 4V enables it to meet the low input voltage requirements for automotive cold crank conditions. Similarly, its 36V input capability enables it to withstand transients commonly found in load-dump scenarios. The LT3507's 250kHz to 2.5MHz switching frequency is user programmable, enabling it to maximize efficiency while avoiding critical frequency bands such as AM radio bands in automotive applications. Its high frequency operation also enables the use of tiny, low cost inductors and ceramic capacitors, resulting in low, predictable output ripple.

The LT3507's low V_{CESAT} (400mV @2A and 350mV@1.5A) internal switches offer efficiencies of up to 88%, eliminating the need for external heat sinking. All three of the LT3507's converters are synchronized to either a common external clock input or its internal oscillator. The 2.4A channel maintains a 180° phase offset between the two 1.5A channels to reduce input ripple current. An internal 0.80V reference enables sub 1V output voltages required to power the latest generation of low voltage DSPs and microcontrollers. Independent Run, Tracking/Soft-start and PowerGood indicators ease supply sequencing. Other features include cascadability and

user programmable overvoltage and undervoltage lockouts. The low current ($<1\mu\text{A}$) shutdown provides extended run-time in battery-powered systems.

The LT3507EUHF is available from stock in a 5mm x 7mm QFN-38. Pricing starts at \$4.25 each in 1,000-piece quantities the LT3507IUHF industrial temperature I-grade (-40°C to 125°C), version and the LT3507HUHF automotive H-grade (-40°C to 150°C) version are available from stock. Pricing starts at \$5.10 and \$5.35 respectively, in 1,000-piece quantities.


Photo Caption: 36V, 2.5MHz, Triple 2.4A + 1.5A + 1.5A (I_{OUT}) Step-Down Switching Regulator + LDO Controller in 5mm x 7mm QFN

Summary of Features: LT3507

- Wide Input Range: 4V to 36V
- One 2.4A & Two 1.5A Output Switching Regulators with Internal Power Switches
- Low Dropout Linear Regulator with External Transistor
- Antiphase Switching Reduces Ripple
- Independent Run, Tracking/Soft-Start, & PowerGood Indicators Ease Supply Sequencing
- Uses Small Inductors and Ceramic Capacitors
- Adjustable 250kHz to 2.5MHz Switching Frequency, Synchronizable Over the Full Range
- User Programmable Overvoltage and Undervoltage Lockouts
- Thermally Enhanced, 38-Lead 5mm x 7mm QFN Package

About Linear Technology

Linear Technology Corporation, a manufacturer of high performance linear integrated circuits, was founded in 1981, became a public company in 1986 and joined the S&P 500 index of major public companies in 2000. Linear Technology products include high performance amplifiers, comparators, voltage references, monolithic filters, linear regulators, DC-DC converters, battery chargers, data converters, communications interface circuits, RF signal conditioning circuits, uModule™ products, and many other analog functions. Applications for Linear Technology's high performance circuits include telecommunications, cellular telephones, networking products such as optical switches, notebook and desktop computers, computer peripherals, video/multimedia, industrial instrumentation, security monitoring devices, high-end consumer products such as digital cameras and MP3 players, complex medical devices, automotive electronics, factory automation, process control, and military and space systems. For more information, visit www.linear.com.

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