



42V, 6A (I_{OUT}), Synchronous Step-Down Regulator with Integrated Current Sensing

MILPITAS, CA – February 26, 2015 – Linear Technology Corporation announces the [LT8613](#), a 6A, 42V input capable synchronous step-down switching regulator with integrated current sensing. Synchronous rectification delivers efficiency as high as 95% while Burst Mode[®] operation keeps quiescent current under 3 μ A in no-load standby conditions. Its 3.4V to 42V input voltage range makes it ideal for automotive and industrial applications. Its internal high efficiency switches deliver up to 6A of continuous output current to voltages as low as 0.97V. An internal current sense amplifier with monitor and control pins enable accurate input or output current regulation and limiting.

The LT8613's Burst Mode operation offers ultralow quiescent current, making it well suited for applications such as automotive “always-on” systems, which need to extend operating battery life. The LT8613's unique design maintains a minimum dropout voltage of only 250mV at 3A under all conditions, enabling it to excel in scenarios such as automotive cold-crank. Furthermore, a fast minimum on-time of only 40ns enables 2MHz constant frequency switching from a 16V input to a 1.5V output, enabling designers to optimize efficiency while avoiding critical noise-sensitive frequency bands. The LT8613's 28-lead 3mm x 6mm QFN package and high switching frequency keeps external inductors and capacitors small, providing a compact, thermally efficient footprint.

The LT8613 utilizes internal top and bottom high efficiency power switches with the necessary boost diode, oscillator, control and logic circuitry integrated into a single die. Low

ripple Burst Mode operation maintains high efficiency at low output currents while keeping output ripple below 10mV_{P-P} . Special design techniques and a new high speed process enable high efficiency over a wide input voltage range, and the LT8613's current-mode topology enables fast transient response and excellent loop stability. Other features include internal compensation, a power good flag, output soft start/tracking and thermal protection.

The LT8613EUDE is packaged in a 3mm x 6mm QFN package and is priced at \$5.20 each. An industrial temperature version, the LT8613IUDE, is tested and guaranteed to operate from a -40°C to 125°C operating junction temperature and is priced at \$5.72. All pricing is for 1,000-piece quantities and all versions are available from stock. For more information, visit www.linear.com/product/LT8613

Photo Caption: 42V, 6A (I_{OUT}), 2.2MHz Synchronous Step-Down with Internal Current Sensing


Summary of Features: LT8613

- Rail-to-Rail Current Sense Amplifier with Monitor
- Wide Input Voltage Range: 3.4V to 42V
- Ultralow Quiescent Current Burst Mode® Operation:
 - o $3\mu\text{A } I_Q$ Regulating 12V_{IN} to 3.3V_{OUT}
 - o Output Ripple $< 10\text{mV}_{P-P}$
- High Efficiency Synchronous Operation:
 - o 95% Efficiency at 3A, 5V_{OUT} from 12V_{IN}
 - o 94% Efficiency at 3A, 3.3V_{OUT} from 12V_{IN}
- Fast Minimum Switch-On Time: 40ns
- Low Dropout Under All Conditions: 250mV at 3A
- Allows Use of Small Inductors
- Low EMI
- Adjustable & Synchronizable: 200kHz to 2.2MHz
- Current Mode Operation
- Accurate 1V Enable Pin Threshold
- Internal Compensation
- Output Soft-Start & Tracking
- Small Thermally Enhanced 3mm x 6mm 28-Lead QFN Package

The USA list pricing shown is for budgetary use only. International prices may differ due to local duties, taxes, fees and exchange rates.

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, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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