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40V_{IN} /40V_{OUT} 5A Constant-Current, Constant-Voltage Converter with Internal PWM Generator

MILPITAS, CA – April 18, 2013 – The [LT3954](#), a DC/DC converter designed to operate as a constant-current source and constant-voltage regulator with an internal 5A switch, is now available from Linear Technology. The device's internal PWM dimming generator makes it ideal for driving high current LEDs, and it also has features suitable for charging batteries and supercapacitors. The LT3954's 4.5V to 40V input voltage range suits a wide variety of applications, including automotive, industrial and architectural lighting.

The LT3954 uses an internal 5A, 40V N-channel MOSFET and can drive up to eight 650mA white LEDs from a nominal 12V input, delivering in excess of 20 watts. It incorporates a high-side current sense, enabling use in boost mode, buck mode, buck-boost mode or SEPIC topologies. The LT3954 can deliver efficiencies of over 95% in the boost topology, eliminating the need for external heat sinking. A frequency adjust pin permits the user to program the frequency between 100kHz and 1MHz, optimizing efficiency while minimizing external component size and cost. Combined with a 5mm x 6mm QFN package, the LT3954 offers a highly compact high power LED driver solution.

The LT3954 has an internal PWM generator that delivers dimming ratios as high as 25:1 or it can utilize an external PWM signal, delivering dimming ratios of up to 3,000:1. For less demanding dimming requirements, the CTRL pin can be used to provide a 10:1 analog dimming range. Its fixed frequency, current-mode architecture offers stable operation over a wide range of supply and output voltages. Output short-circuit protection and open LED protection enhance

system reliability. The LT3954's ground-referenced voltage FB pin serves as the input for several LED protection features and makes it possible for the converter to operate as a constant-voltage source for charging applications.

The LT3954EUHE is available in a 36-lead 5mm x 6mm QFN package. Pricing starts at \$3.60 each. An extended temperature version, or I grade, the LT3954IUHE, is also available, priced starting at \$3.96 each. All pricing is based on 1,000-piece quantities and both versions are available from stock. For more information, visit www.linear.com/product/LT3954.


Photo Caption: 40V Constant-Current/Constant-Voltage Regulator

Summary of Features: LT3954

- 3000:1 True Color PWM™ Dimming for LEDs
- Wide V_{IN} Range: 4.5V to 40V
- Rail-to-Rail Current Sense Range: 0V to 40V
- Internal 40V/5A Switch
- Programmable PWM Dimming Signal Generator
- Constant Current (±3%) & Constant-Voltage (±2%) Regulation
- Accurate Analog Dimming
- Drives LEDs in Boost, SEPIC, CUK, Buck Mode, Buck-Boost Mode, or Flyback Configuration
- Output Short-Circuit Protected Boost
- Open LED Protection & Reporting
- Adjustable Switching Frequency: 100kHz to 1MHz
- Programmable V_{IN} UVLO with Hysteresis
- C/10 Indication for Battery Chargers
- Low Shutdown Current: <1μA
- Thermally Enhanced 5mm × 6mm QFN-36 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, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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