



45V 500mA LDO Offers 25 μ V_{RMS} Noise, Programmable Current Limit & Diagnostic Information

MILPITAS, CA – June 3, 2013 – Linear Technology Corporation announces the [LT3055](#), a high voltage, low noise, low dropout voltage linear regulator offering precision, programmable current limit and diagnostic capability. The device delivers up to 500mA output current with a 350mV dropout voltage at full load. The LT3055 features a wide 2V to 45V input voltage range, delivering adjustable output voltages from 0.6V to 40V. A single capacitor at the REF/BYP pin provides programmable low noise operation--only 25 μ V_{RMS} across a wide bandwidth of 10Hz to 100kHz, and also reference soft start functionality, preventing output voltage overshoot at turn-on. Output voltage tolerance is highly accurate at $\pm 2\%$ over line, load and temperature.

The LT3055 provides several diagnostic and safety functions. A resistor at the I_{MAX} pin programs current limit, accurate to $\pm 10\%$ over the full temperature range. Also, a resistor at the I_{MIN} pin programs a minimum output current detector, useful for identifying open-circuit conditions. Furthermore, a current monitor function sources current equal to 1/500th of output current, allowing the user to measure output current or calculate the device's power dissipation. Logic fault pins assert low if the LT3055 is in current limit (FAULT2), is operating below its minimum output current (FAULT1) or is in thermal limit (both FAULT1 and FAULT2). PWRGD indicates output regulation. The TEMP pin indicates die temperature. Moreover, the LT3055's internal protection circuitry includes reverse-battery protection, reverse-output protection, reverse-current protection, internal default current limiting and thermal limiting.

The LT3055 operates with a very small, low cost, 3.3 μ F ceramic output capacitor, optimizing stability and transient response. This tiny external capacitor can be used without the addition of series resistance (ESR) as is common with many other regulators. The LT3055's wide input and output voltage ranges, fast transient response, low quiescent current of 65 μ A (operating) and <1 μ A (in shutdown) make it an excellent choice for active antenna supplies, industrial power supplies, battery-powered systems requiring optimum run time, and high reliability power supplies requiring diagnostic information and protection functions.

The LT3055 is available in thermally enhanced 16-lead 3mm x 4mm DFN and 16-lead MSOP packages, both with a compact footprint. The E- and I-grade versions feature an operating junction temperature of -40°C to +125°C, MP-grade operates from -55 to +150°C (MSOP package only), and the H grade operates from -40°C to +150°C (MSOP package only). Devices are in stock, and 1,000 piece pricing starts at \$2.20 each for the E grade. For more information, visit www.linear.com/product/LT3055

Photo Caption: 45V_{IN}, 0.6V_{OUT} 500mA Ultralow Noise LDO with Diagnostics

Summary of Features: LT3055

- Output Current: 500mA
- Dropout Voltage: 350mV
- Input Voltage Range: 2V to 45V
- Programmable Precision Current Limit: \pm 10%
- Programmable Minimum I_{OUT} Detector
- Output Current Monitor: 1/500th of I_{OUT}
- Fault Indicator: Current Limit, Minimum I_{OUT} or Thermal Limit
- Low Noise: 25 μ V_{RMS} (10Hz to 100kHz)
- Adjustable Output: 0.6V to 40V
- Reference Soft Start Capability Prevents Output Voltage Turn-on Overshoot
- Output Tolerance: \pm 2% Over Line, Load & Temperature
- Stable with Low ESR, Ceramic Output Capacitors (3.3 μ F minimum)
- Shutdown Current: <1 μ A
- Reverse Battery & Reverse Current Protection
- Thermal Limit Protection
- 16-Lead 3mm x 4mm DFN & MSOP 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, μ Module[®] subsystems, and wireless sensor network products. For more information, visit www.linear.com

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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
Tel: 408-432-1900 ext 2233

UK & Nordic

Alan Timmins
alan@ezwire.com
Tel: +44-1-252-629937