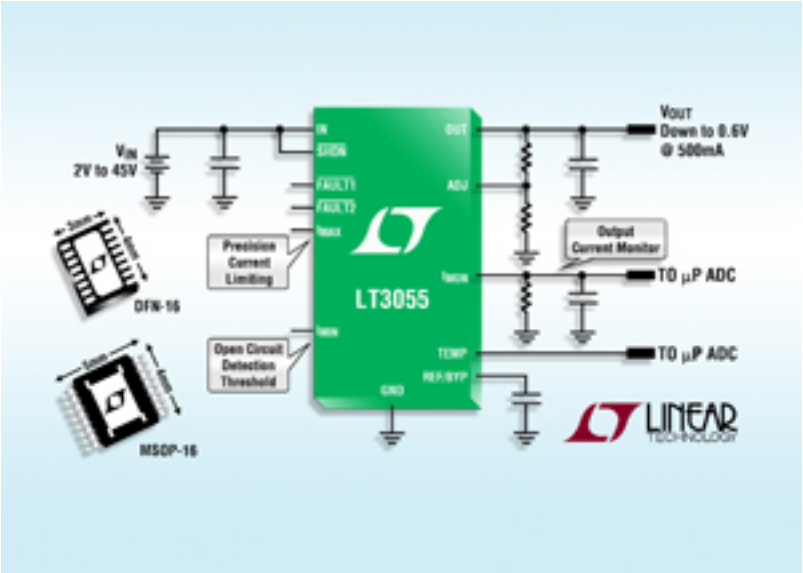
LDO offers 25 µVRMS noise, programmable Current limit and diagnostic information



Linear Technology Corporation announced 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 500 mA output current with a 350-mV dropout voltage at full load. It features a wide 2V to 45-V input voltage range, delivering adjustable output voltages from 0.6 V to 40 V. A single capacitor at the REF/BYP pin provides programmable low noise operation -- only 25 µVRMS across a wide bandwidth of 10 Hz to 100 kHz, and also reference soft start functionality, preventing output voltage overshoot at turn-on. Output voltage tolerance is highly accurate at ±2 percent over line, load and temperature. The LT3055 provides several diagnostic and safety functions. A resistor at the IMAX pin programs current limit, accurate to ±10 percent over the full temperature range. Also, a resistor at the IMIN pin programs a minimum output current detector, useful for identifying open-circuit conditions. 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, 3.3µF 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 65µA (operating) and <1µA (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.

Linear Technology Corp., www.linear.com [1]

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Links:
[1] http://www.linear.com