

LTC News for Immediate Release

For more information, tel. 408-432-1900
Doug Dickinson, Media Relations Mgr., ext. 2233
John Hamburger, Dir., Mktg Comm., ext. 2419
www.linear.com

I²C Power Supply Controller Ensures Precise Trimming, Margining & Monitoring of DC-DC Converters

MILPITAS, CA – January 16, 2006 – Linear Technology introduces the LTC2970, a dual I²C power supply monitor and margining controller designed for digital management of power supplies in high-availability systems. The LTC2970 offers the best melding of digital and analog for digital power management. The I²C digital interface, 14-bit ADC, highly accurate reference and current output DACs give digital power supply designers what they want: digital control of an analog power supply. The LTC2970 works with most any power supply, allowing designers to choose the optimal DC-DC converter with an analog control loop that provides smooth control of the output voltage and fast transient response. An on-chip reference and 14-bit $\Delta\Sigma$ A/D converter ensure accurate measurements of supply voltages, load currents or temperature. Two voltage-buffered 8-bit DACs drive the supplies' feedback nodes for improved accuracy or can be programmed by a slow, linear voltage servo to trim and margin the output voltages. This makes the LTC2970 useful in determining the sensitivity of the power supply during the prototype phase or in production to test for manufacturing variations.

The superior accuracy of the IC allows it to precisely servo each supply's output voltage over a wide range of operating conditions, while integrating all the vital functions in a compact 4mm x 5mm QFN package. Extensive, user-configurable fault monitoring provides increased reliability by alerting a system's host to incipient failures before they occur. The LTC2970's $\Delta\Sigma$ architecture was specifically chosen to average out power supply noise and allow the LTC2970 to ignore fast transients. The point of load ground reference for the DAC outputs minimizes errors that would otherwise occur in a power system that experiences ground bounce. By selecting two resistor values, the user can choose the appropriate resolution, providing an important hardware range limit beyond which the supply may not be driven. The intelligent

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digital power management of the LTC2970 is ideal for controlling and monitoring DC-to-DC converters, as well as for supply telemetry and various board diagnostics.

All communication with the LTC2970 is performed over the industry standard I²C bus. It supports basic digital power commands such as setting the precise output voltage, readback of the output voltage, readback of the output current, margin up and margin down but also allows setting limits for over-/under-voltage and over-/under current. The LTC2970-1 incorporates a tracking feature that can turn on or off multiple power supplies in a controlled manner. Specified over the commercial and industrial operating temperature ranges, pricing for the LTC2970/LTC2970-1 starts at \$3.99 each in 1,000-piece quantities.

Summary of Features: LTC2970

- Highly Accurate Voltage Programming & Margining Using 8-Bit DACs
- Automatic Servo to Programmed Voltage
- On-Chip Reference Drift Less Than 10ppm/°C
- Differential Input, 14-Bit $\Delta\Sigma$ ADC with Less than $\pm 0.2\%$ of Total Unadjusted Error
- Extensive, User-Configurable Fault Reporting over I²C
- On-Chip Temperature Sensor
- 28-Lead SSOP & 24-Lead QFN Packages

About Linear Technology Corporation

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, 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

Contact:

Doug Dickinson, Media Relations Manager

Linear Technology Corporation

1630 McCarthy Boulevard


Milpitas, CA 95035-7417

ddickinson@linear.com

408-432-1900

READER SERVICE: Call toll-free 1-800-4-LINEAR (for literature only), or go to the company's web site:

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