



## **Octal PMBus Power Supply Monitor Manages DC/DC Converters Digitally**

MILPITAS, CA – August 3, 2009 – Linear Technology Corporation introduces the LTC2978 Power Supply Monitor and Controller for digital management of up to eight 0V to 6V power supplies. Configuring multiple DC/DC converters in an already complex system can be a complicated design task when using passive components. Values defined by external trim resistors and capacitors such as startup time, setpoint value or switching frequency make a system inflexible. To help alleviate these issues, digital control over analog power supplies has allowed for quick adjustment of output voltages and precise protection, monitoring and diagnostic mechanisms. The LTC2978's PMBus compliant interface provides easy access to an on-board EEPROM, giving users supply configuration, fault response and logging capabilities. In addition, an array of supervising, margining and sequencing functions make the LTC2978 a convenient, all-in-one digital power management solution, drastically simplifying the design challenges and reducing the component count typical of traditional analog control.

The LTC2978 provides numerous functions with on-the-fly adjustments that make it an ideal device for digital power control in a wide variety of automotive, medical and telecommunication applications. An integrated 15-bit ADC and 9:1 ADC MUX allows the IC to accurately monitor and servo eight output channels and one input channel. The primary PMBus operations include sequencing the startup of supplies, adjusting point-of-load voltages using voltage-buffered 10-bit current output digital-to-analog converters (IDACs), margining voltages to programmed limits and supervising output voltages, as well as the LTC2978's die temperature, for overvalue or undervalue conditions. The configuration settings of these operations are all user-programmable and can be stored in EEPROM along with any faults, allowing for discontinuous system use. A programmable watchdog timer is also provided to supervise an external microcontroller, FPGA or ASIC. For applications that monitor more than eight supplies, the LTC2978 can be cascaded using only two connections.

This extremely high level of mixed-signal integration ensures that the LTC2978 can reliably manage even the most complicated power supply systems today with ease.

The LTC2978 is available in a 64-lead 9mm x 9mm QFN package that is RoHS compliant, and is specified over the commercial and industrial temperature ranges. Pricing starts at \$10.95 each in 1,000 piece quantities. The LTC2978 is a welcome addition to Linear's growing Digital Power Monitors product line, and complements many of Linear's complete standalone DC/DC regulators, such as the 12A LTM4601 or 8A LTM4608 uModule<sup>®</sup> buck regulator. For samples and a demo board kit, featuring the LTC2978 and eight LTM4603 power supplies, please visit [www.linear.com/LTC2978](http://www.linear.com/LTC2978).


**Photo Caption:** Octal PMBus Power Supply Monitor & Controller

#### Summary of Features: LTC2978

- PMBus Compliant Interface and Command Set
- Configuration EEPROM
- Fault Logging to Internal EEPROM
- Differential Input, 15-bit  $\Delta\Sigma$  ADC with Less Than  $\pm 0.25\%$  of Total Unadjusted Error
- Monitors Eight Output Channels & One Input Voltage
- 8-Channel Sequencer
- Programmable Watchdog Timer
- Eight UV/OV Voltage Supervisors
- Eight 10-Bit Voltage-Buffered IDACs with Soft Connect
- Linear, Voltage Servo Adjusts Supply Voltages by Ramping Voltage-Buffered IDAC Outputs Up/Down
- Supports Multichannel Fault Management
- On-Chip Digital Temperature Sensor
- Available in 64-Lead 9mm x 9mm QFN Package

## About Linear Technology

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, uModule<sup>®</sup> products, 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.

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