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60V Low I_Q Synchronous Step-Down Controller Operates at Up to 2.25MHz for High Power Density

MILPITAS, CA & NORWOOD, MA – May 31, 2017 – Analog Devices, Inc., which recently acquired Linear Technology Corporation, announces the [LTC7800](#), a synchronous step-down DC/DC controller that operates at up to 2.25MHz for reduced circuit size and increased power density. Its low 45ns minimum on-time enables $24V_{IN}$ to $3.3V_{OUT}$ conversions while switching at a fixed 2MHz, avoiding critical noise-sensitive frequency bands including AM radio.

Synchronous rectification delivers up to 95% efficiency while Burst Mode[®] operation keeps quiescent current under $50\mu A$ in no-load standby conditions, ideal for always-on systems.

The LTC7800 operates over a 4V to 60V input supply range designed to protect against high voltage transients, continuous operation during automotive cold crank and to cover a broad range of input sources and battery chemistries. The output voltage can be set from 0.8V to 24V at output currents up to 20A, well suited for 12V or 24V automotive, heavy equipment, industrial control, robotics and telecom applications.

The LTC7800 has powerful 1.1Ω on-chip MOSFET gate drivers. It operates with a selectable fixed frequency between 320kHz and 2.25MHz and is synchronizable to an external clock over the same range. The user can select from continuous operation, pulse-skipping and low ripple Burst Mode operation during light loads. Its current mode architecture provides easy loop compensation, fast transient response and excellent line regulation. Output current sensing is accomplished by measuring the voltage drop across the output inductor (DCR) for the highest efficiency or by using an optional sense resistor. Current foldback limits MOSFET heat dissipation during overload conditions. Additional features include up to 98% duty cycle (useful when powered from a battery during discharge), an internal LDO that powers the gate drive from the input voltage or $EXTV_{CC}$ and a power good output signal.

The LTC7800 is available in a 20-lead 3mm x 4mm QFN thermally enhanced package which is pin compatible to the LTC3891. Two operating junction temperature grades are available with extended and industrial versions from -40 to $125^{\circ}C$ and a high temp automotive

grade version from -40°C to 150°C. The 1,000-piece price starts at \$3.47 each. For more information, visit www.linear.com/product/ltc7800.

Photo Caption: 60V Synchronous Step-Down 2.25MHz DC/DC Controller

Summary of Features: LTC7800

- Wide Input Voltage Range: 4V to 60V
- Wide Output Voltage Range: 0.8V to 24V
- PLL Fixed Operating Frequency from 320kHz to 2.25MHz
- Low 45ns Minimum On-Time for High Step-Down Ratios
- 50µA Quiescent Current
- Synchronous Rectification for up to 95% Efficiency
- Powerful 1.1Ω On-Chip MOSFET Gate Drivers
- DCR or R_{SENSE} Current Sense
- Selectable Low Ripple Burst Mode[®] Operation, Pulse-Skipping or Continuous Operation
- Adjustable Soft-Start or Tracking
- Output Overvoltage & Overcurrent Foldback Protection

Pricing shown is for budgetary use only and may differ due to local duties, taxes, fees and exchange rates.

Analog Devices just got more Powerful. On March 10, Analog Devices acquired Linear Technology, creating the premier high-performance analog company. More info at <http://lt.linear.com/07c>

About Analog Devices

Analog Devices (NASDAQ: ADI) is the leading global high-performance analog technology company dedicated to solving the toughest engineering challenges. We enable our customers to interpret the world around us by intelligently bridging the physical and digital with unmatched technologies that sense, measure, power, connect and interpret. Visit <http://www.analog.com>

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