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105V, 2.3A Synchronous Step-Down Regulator Delivers 96% Efficiency with Ultralow EMI/EMC Emissions

MILPITAS, CA & NORWOOD, MA – July 17, 2017 – Analog Devices, Inc., which recently acquired Linear Technology Corporation, announces the [LTC7103](#), a 2.3A, 105V input capable synchronous step-down switching regulator. Its wide 4.4V to 105V input voltage range is designed for operation from a continuously high voltage input source or from an input that has high voltage surges, eliminating the need for external surge suppression devices. This makes the LTC7103 ideal for a variety of transportation, industrial and communications applications such as 48V automotive, 36V to 72V telecom, avionics and dual battery vehicle systems.

The LTC7103's high efficiency internal power switches can deliver up to 2.3A of continuous output current. The LTC7103 incorporates proprietary technology that reduces EMI/EMC emissions to an ultralow level, easily passing automotive CISPR#25, Class 5 limits without sacrificing efficiency. The LTC7103 delivers efficiencies over 96% while regulating a 12V output and over 90% while regulating a 3.3V output. To avoid noise-sensitive frequency bands, the switching frequency can be set between 200kHz and 2MHz, or synchronized anywhere in this range using the LTC7103's internal phase-locked loop.

The LTC7103 uses a unique constant frequency average current mode control architecture. This enables a fast transient response with excellent loop stability as well as fast and accurate output current programming and monitoring with no external sense resistor. This adjustable, brick-wall style current limit feature makes the LTC7103 well suited for current source applications such as battery or capacitor charging and LED lighting.

The LTC7103 draws only 2μA of input quiescent current while regulating the output voltage at no load, extending battery operating life in always-on applications. Low ripple Burst Mode[®] operation maintains high efficiency at light load currents while keeping output ripple small. To further minimize ripple, a pulse-skipping mode can also be selected. The LTC7103 features a low minimum on-time of 40ns and a maximum duty cycle of 100%, enabling the output voltage to be set anywhere from 1V up to the input voltage. The LTC7103 features eight pin-selectable fixed output voltage set points that include commonly used rails from 1.2V to

15V. These pre-programmed output voltages save board space and reduce the no-load quiescent current by eliminating an external resistor divider. Internal voltage loop compensation automatically adjusts based on the switching frequency to ensure both speed and stability.

Alternatively, the voltage loop can be optimized externally using OPTI-LOOP[®] compensation.

The LTC7103 is packaged in a thermally enhanced 5mm x 6mm QFN-36(26) package with high voltage pin spacing. An industrial temperature version, the LTC7103IUHE, is tested and guaranteed to operate from a –40°C to 125°C operating junction temperature. Similarly a high temperature version, the LTC7103HUHE, operates from a –40°C to 150°C operating junction temperature. Finally, a high reliability version, the LTC7103MPUHE, operates from a –55°C to 150°C operating junction temperature. Pricing starts at \$4.50 each in 1,000-piece quantities and all versions are available from stock. For more information, visit

www.linear.com/product/LTC7103.

Photo Caption: 105V, 2.3A (I_{OUT}), Synchronous Step-Down with Fast Current Programming

Summary of Features: LTC7103

- Wide V_{IN} Range: 4.4V to 105V (110V Abs Max)
- Ultralow EMI/EMC Emissions: CISPR#25 Class 5 Compliant
- 2 μ A I_Q When Regulating 48V_{IN} to 3.3V_{OUT}
- Fast and Accurate Output Current Programming & Monitoring with No External R_{SENSE}
- Brick Wall Current Limit
- Low Minimum On-Time: 40ns
- Wide V_{OUT} Range: 1V to V_{IN}
- 100% Maximum Duty Cycle Operation
- Programmable Fixed Frequency: 200kHz to 2MHz
- Eight, Pin-Selectable Fixed (1.2V to 15V) or Adjustable Output Voltages
- Selectable Pulse-Skipping or Low Ripple Burst Mode[®] Operation at Light Loads
- PLL Synchronization to External Clock
- EXT V_{CC} LDO Powers Chip from V_{OUT} = 3.3V to 40V
- OPTI-LOOP[®] or Fixed Internal Compensation
- Input & Output Overvoltage Protection
- Thermally Enhanced (5mm × 6mm) QFN Package

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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