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Breakthrough 20V Nanopower Switching Regulator Provides 50mA Output with Only 720nA of Quiescent Current

MILPITAS, CA – August 19, 2010 – Linear Technology announces the [LTC3388](#), an ultralow quiescent current synchronous buck converter that can deliver up to 50mA of continuous output current from a 2.7V to 20V input supply. The LTC3388's no-load operating current of only 720nA makes it ideal for a wide range of battery-powered and low quiescent power applications including “keep-alive,” energy harvesting and industrial control power. The LTC3388 utilizes hysteretic synchronous rectification to optimize efficiency over a wide range of load currents. It can offer over 90% efficiency for loads ranging from 15uA to 50mA and only requires 720nA of no load quiescent current in regulation, thereby extending battery life. The combination of a 3mm x 3mm DFN package (or MSOP-10) and only five external components offers a very simple and compact solution footprint for a wide array of low power applications.

The LTC3388 incorporates an accurate undervoltage lock-out feature to disable the converter when the input voltage drops below 2.3V, reducing quiescent current to only 400nA. Once in regulation (at no load), the LTC3388 enters a sleep mode to minimize quiescent current to only 720nA. The buck converter then turns on and off as needed to maintain output regulation. An additional standby mode disables buck switching while the output is in regulation for short duration loads, such as wireless modems, which require low ripple. This high efficiency, low quiescent current design is ideal for applications such as remote monitors, which require long standby times accompanied by short burst loads for powering sensors and wireless transceivers.

The LTC3388 is offered in two different versions, each with different pin-selectable output voltages. The LTC3388-1 offers 1.2V, 1.5V, 1.8V or 2.5V outputs whereas the LTC3388-3 offers 2.8V, 3.0V, 3.3V or 5V outputs.

Pricing for the LTC3388EDD-1, LTC3388EDD-3, LTC3388EMSE-1 and the LTC3388EMSE-3 starts at \$2.95, each, for 1,000-piece quantities. Industrial grade versions, namely the LTC3388IDD-1, LTC3388IDD-3, LTC3388IMSE-1 and LTC3388IMSE-3 are tested and guaranteed to operate from a -40°C to 125°C operating junction temperature. They are priced at \$3.39 each, respectively in 1,000-piece quantities. All versions are available from stock. For more information, visit www.linear.com/3388.


Photo Caption: 20V High Efficiency, Low Quiescent Current Synchronous Step-Down DC/DC Converter

Summary of Features: LTC3388

- 720nA Input I_Q in Regulation (No Load), $V_{IN} = 4V$
- 820nA Input I_Q in Regulation (No Load), $V_{IN} = 20V$
- 400nA Input I_Q in UVLO
- 2.7V to 20V Input Operating Range
- Up to 50mA of Output Current
- Pin Selectable Output Voltages:
 - 1.2V, 1.5V, 1.8V, 2.5V (LTC3388-1)
 - 2.8V, 3.0V, 3.3V, 5.0V (LTC3388-3)
- Open Drain Power Good Output
- High Efficiency Hysteretic Synchronous DC/DC Conversion
- Standby Mode Disables Buck Switching
- Available in 10-Lead MSOP-E and 3mm x 3mm DFN Packages

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[®] 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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